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42ND LAHORE OPHTHALMO

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PEARL CONTINENTAL HOTEL LAHORE

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DEDICATION

“This work is dedicated to the ophthalmologists of the past, present, and future, whose commitment to vision, compassion, and scientific advancement continues to illuminate the path of eye care for generations to come.”

TABLE OF CONTENTS

FOREWORD

It gives me immense pride and deep satisfaction to pen the preface to the proceedings of the 42nd Lahore Ophthalmo Conference 2025. As the patron and one of the pioneers of this esteemed conference, I look back with gratitude and a sense of fulfillment at the journey we embarked upon so many years ago. What started as a small gathering of dedicated professionals has blossomed into a landmark event that continues to shape and advance the field of ophthalmology in our region and beyond.

Over the years, this conference has served as a dynamic platform for sharing knowledge, fostering collaboration, and encouraging the exchange of innovative ideas among ophthalmologists. Each edition has built upon the successes of its predecessors, strengthening our collective commitment to improving eye care and patient outcomes.

I am heartened to see the vibrancy and enthusiasm of our colleagues, whose dedication and tireless efforts have ensured that Lahore Ophthalmo remains a beacon of excellence. The research, clinical insights, and educational contributions documented in these proceedings are a testament to the enduring spirit of learning and progress that defines our community.

As we gather once more to share our knowledge and experiences, let us remember the guiding vision that inspired us to begin this journey. May these proceedings continue to inspire, inform, and empower future generations of ophthalmologists to strive for excellence in their practice and to serve their patients with compassion and dedication.

Prof. Lateef Chaudhry

PREFACE

It is with immense pleasure and a sense of achievement that we present the Proceedings of Lahore Ophthalmo 2024, published for the second time in the history of this prestigious conference (**The first proceedings were prepared and published by Prof Muhammad Yaqin in 1986 at the 8th Afro-Asian conference**).

As we embarked on this journey, we had little idea where to even begin or how to proceed with such a monumental task. Yet, every challenge we faced had been a valuable learning experience. Last year, we made an initial attempt to compile these proceedings, but the effort could not be completed due to the sheer volume of data and the challenge of transcribing it all. However, during the Peshawar conference, the President of OSP Center **Prof. PS Mahar,** reinforced the importance of documenting the scientific sessions to preserve this knowledge for the future. With renewed determination, the work was started again and completed in just three months, no small feat given the scale of the project.

We encountered difficulties along the way, including occasional recording glitches that required additional effort to resolve. Planning took an entire year after the end of the last Lahore Ophthalmo, and we officially began work this year in March 2025. First, we transcribed the recordings, a formidable task. Then came the painstaking process of editing, which required tireless dedication from everyone involved. After three months of day-and-night effort, the proceedings are now in your hands. Everything new teaches us a lot, and the first step is always the hardest. But once taken, each step forward builds momentum, and what once seemed impossible becomes achievable.

I would like to express my deepest gratitude to **Prof. Javaid Chaudhary**, who provided us with easy access to all the session recordings, an invaluable resource that formed the foundation of this work. My heartfelt thanks also go to **Prof. Muhammad Moin**, whose unwavering support and thoughtful suggestions guided us throughout this process. A special mention is due to **Muhammad Shaheer** (Editor, Pakistan Journal of Ophthalmology), **Dr. Shabana Chaudhary**, and **Dr. Irum Raza**, who graciously helped in editing the transcribed content, ensuring the accuracy and quality of the proceedings.

We hope that this volume of proceedings not only serves as a valuable reference for the latest updates and discussions in ophthalmology but also marks the beginning of a tradition that will continue to grow stronger with each passing year.

Thank you to everyone who made this possible, and we look forward to building on this foundation for future conferences.

Professor Tayyab Gul Malik
Chief Editor
Pakistan Journal of Ophthalmology

REPORT OF THE LAHORE OPHTHALMO CONFERENCE 2024

It is an honour for me to perform the duties of Chair Scientific Committee for the Lahore Ophthalmo 2024. I am indebted to all the members of the scientific committee and the subspecialty committee to help me design this complex scientific program.

This year, we had a total of 96 sessions running in 8 different halls, which included 5 symposia and 3 instruction courses running simultaneously. These sessions catered to over 1500 delegates and 400 speakers who participated in the mega event, alongside the largest industrial exhibition of ophthalmic products in Pakistan. We were privileged to host 23 renowned international speakers from different countries, including the USA, UK, and Europe. A plenary session was held on Friday evening, live surgery was conducted on Saturday morning, and the most coveted quiz competition took place on Sunday.

The co-host of the meeting this year was the Association of Paediatric Ophthalmologists Pakistan (APOP). The scientific program was developed and analysed comprehensively using dedicated conference software developed especially for OSP Lahore.

The Scientific Committee put in considerable effort to bring the program to this enormous scale. This was only possible with the untiring support of the members of the scientific committee, including Prof. Qasim Lateef Ch., Prof. Huma Kayani, Prof. Imran Akram Sahaf, Prof. Asad Aslam Khan, Prof. Nadeem Hafeez Butt, Prof. Zahid Kamal Siddiqui, Prof. Khalid Waheed, Prof. M. Tariq Khan, Prof. Seema Qayyum, Dr. Khawaja Khalid Shoaib, Prof. M. Suhail Sarwar, Prof. Abdul Majeed Malik, Prof. Hamid Mahmood Butt, Dr. Kashif Iqbal, Prof. Khalid Mahmood, and Prof. Intezar Hussain Butt. I am incredibly grateful to all the chairpersons of the subspecialty societies who worked extremely hard to help design the subspecialty program of the conference.

Prof. Ch. Javed Iqbal, President OSP Lahore, played a pivotal role in improving the scientific content of the meeting by his meticulous methods of quality control. Prof. Ch. Nasir Ahmad, General Secretary OSP Lahore, provided tremendous support and logistics for the development and implementation of this program. I would also like to express my sincere appreciation to Mr. Adeel Malik, Office Manager OSP Lahore, for his tireless efforts in preparing and finalizing the scientific program. His dedication and expertise were invaluable.

We hope that all participants found the latest updates in Ophthalmology during this conference, and we look forward to welcoming everyone next year for the Lahore Ophthalmo 2025.

Prof. Muhammad Moin

Chairman Scientific committee Lahore Ophthalmo 2024

PLENARY SESSION

The plenary session featured esteemed speakers discussing advancements in ophthalmology and recognizing the contributions of various ophthalmologists. Four keynote lectures were presented in recognition of the presenters for their contributions to the field of ophthalmology. **Muhammad Moin** opened the plenary session by acknowledging the presence of national and international speakers. **Mohammed Saleem Akhtar** and **Tayyab Afghani** were introduced as the chair and co-chair, respectively.

RAMZAN ALI SYED MEMORIAL LECTURE: Changing Paradigms in Cataract Surgery to Optimize refractive Outcomes

Historical Perspective

The session began with a brief overview of the first talk, which was the prestigious Ramzan Ali Syed Named Lecture, delivered by **Mazhar Ishaq**. A detailed account of Ramzan Ali Syed's life and legacy was shared, celebrating his significant achievements and lasting contributions to the field of ophthalmology.

Ramzan Ali Syed was born into a modest family and went on to serve the field of ophthalmology with exceptional distinction. He completed his medical education with honors and earned his DOMS from London in 1937, followed by DLO in 1938. Upon returning to the subcontinent, he was appointed by the Public Service Commission as Clinical Assistant to the Professor of Ophthalmology at King Edward Medical College, Lahore, where he served until 1958. He then joined Fatima Jinnah Medical College as Professor of Ophthalmology, a position he held until 1966. Syed made significant contributions to ophthalmic surgery, introducing pioneering techniques. His remarkable work earned him numerous accolades, including the Honorary Fellowship of the International College of Surgeons (FICS) in 1951, the Jose Rizal Medal for Excellence in Ophthalmology awarded by the Asia Pacific Academy of Ophthalmology in 1979 (Karachi), and the Commemorative Medal of Honor from the American Biographical Institute. In recognition of his service, President General Zia-ul-Haq instituted a gold medal in ophthalmology in his name, and Syed himself announced a gold medal for the top position holder in the DOMS examination.

Mazhar Ishaq began his lecture by expressing his deep honor in delivering the Ramzan Ali Syed Lecture. He reflected on the evolution of cataract surgery in Pakistan, recounting the early days of intracapsular cataract extraction in 1985, followed by the transition to extracapsular techniques, the advent of femtosecond-assisted cataract surgery, and the introduction of intraocular lenses (IOLs). He traced how patient expectations have evolved, particularly the growing demand for spectacle-free vision, and the challenges of meeting these expectations with existing technologies.

SUMMARY OF THE LECTURE

In 1985, cataract surgery in Pakistan began with the use of intracapsular cataract extraction (ICCE), where 8-0 sutures were used to close the surgical wound. As technology progressed, surgeons transitioned to extracapsular cataract extraction (ECCE) with the introduction of intraocular lenses (IOLs), offering improved visual outcomes for patients. Around 1985–86, Pakistan started to adopt phacoemulsification techniques, marking a significant advancement in the field. This innovation gradually paved the way for the incorporation of femtosecond laser-assisted cataract surgery (FLACS) in more recent years, further enhancing precision and outcomes in cataract surgery.

IOL Evolution and Challenges

Initially, IOL implantations were performed without the use of biometers, even in the UK, where surgeons instead relied on the patient's spectacle prescription to estimate the appropriate lens power. Early biometry technology was later introduced by companies like Alcon, significantly improving the accuracy of IOL power calculations. Around 1999, the first foldable IOLs, such as the silicone C-IOL, emerged, ushering a new era of cataract surgery with less invasive techniques and quicker recovery times. This evolution was soon followed by the development of various generations of premium lenses, offering enhanced vision correction options. Over time, patient expectations also evolved, shifting from the desire for simply improved vision to a demand for complete spectacle independence, shaping the way cataract surgery is approached today.

Present-Day Realities

Today, there is a strong emphasis on conducting a comprehensive preoperative evaluation for patients undergoing cataract surgery. This includes a thorough assessment of the patient's medical history, ocular surface health, lifestyle, personality traits, and visual needs, ensuring that treatment plans are tailored to everyone's expectations. Modern preoperative diagnostic tools such as contrast sensitivity testing, dry eye evaluations, retinal OCT, corneal topography, and higher-order aberration (HOA) analysis are now standard practice, offering detailed insights into the eye's anatomy and function. Additionally, with the excessive cost and heightened expectations associated with premium IOLs, informed consent has become a critical component of patient counseling, ensuring that individuals are well-informed about potential benefits, risks, and limitations before proceeding with surgery.

Biometry and IOL Calculation

IOL Master 700 and Argos, currently represent the most precise technology available for measuring ocular dimensions and determining IOL power. Despite these advancements, prediction errors in refractive outcomes persist. This variability stems from several factors, including inaccuracies in keratometry readings, differences in axial length, anterior chamber depth, lens position, surgical technique, and individual postoperative healing responses. Meta-analyses consistently highlight that the effective lens position (ELP) is the largest source of refractive error, accounting for approximately 35% of the total error.

Refractive Surprises and Limitations of Current Technology

Despite the availability of advanced formulas and state-of-the-art equipment, no IOL calculation method is completely foolproof. This reality has led to a growing emphasis on optimizing and personalizing lens constants to improve refractive outcomes. Additionally, thorough preoperative screening is crucial before proceeding with premium IOL implantation. This includes ruling out ocular surface diseases, accurately accounting for posterior corneal astigmatism, and identifying any retinal pathologies such as epiretinal membranes (ERM) or maculopathy, as these factors can significantly affect visual outcomes and patient satisfaction.

The Premium IOL Era, Promise and Pitfalls

Multifocal and extended depth-of-focus (EDOF) IOL (such as PanOptix and Symfony) have revolutionized cataract surgery by offering patients the potential for spectacle independence. However, these lenses are not without drawbacks. Approximately 10–25% of patients experience visual disturbances like glare, halos, and reduced contrast sensitivity, particularly in low-light conditions. Furthermore, challenges with neuroadaptation can result in ongoing night vision complaints, complicating patients' ability to adjust to their new vision. Consequently, despite these technological advancements, patient dissatisfaction remains a significant issue, often necessitating additional refractive enhancements, such as Femto-LASIK touch-ups to fine-tune vision and meet patients' expectations for clear, comfortable sight.

The "U-Turn" to Enhanced Monofocal

Growing concerns about patient dissatisfaction with multifocal and EDOF IOLs have spurred renewed interest in enhanced monofocal lenses. These newer IOLs, such as the Rayner EMV and Everlast, are designed to provide an extended depth of focus while minimizing photic phenomena like glare and halos, making them an attractive option for many patients seeking reliable and comfortable vision. A popular approach called "mini-monovision" offers functional near and intermediate vision without significant compromise in distance clarity, effectively balancing the need for spectacle independence with better tolerance of potential visual disturbances.

Cost Considerations in Developing Settings

Premium IOLs, including even the newer enhanced monofocal variants, continue to be relatively expensive in Pakistan, which has limited their widespread adoption among patients. Despite this barrier, ongoing clinical trials are showing promising results, especially in terms of improving intermediate vision, a key factor in patients' daily visual needs. These studies suggest that with time and further evidence, these advanced lens technologies could play a more prominent role in the landscape of cataract surgery in Pakistan.

Femto-Cataract Surgery in Pakistan

Femto-laser assisted cataract surgery (FLACS) has been introduced in several centers across Pakistan, utilizing platforms like Alcon and Ziemer. FLACS

offers advantages such as more precise capsulotomies, reduced reliance on ophthalmic viscosurgical devices (OVDs), improved IOL centration, and the potential for better ELP. However, these benefits come at a high cost, which can limit accessibility for many patients. Although meta-analyses reveal that FLACS does not consistently outperform conventional phacoemulsification in terms of visual outcomes, its technical precision and predictability make it an appealing option in selected cases.

Astigmatism Management

Achieving precise astigmatic correction, typically aiming for less than 1 diopter of residual astigmatism, is critical for successful refractive outcomes after cataract surgery. Surgeons have several options at their disposal to manage astigmatism effectively. These include femto-laser-assisted arcuate keratotomies, which provide precise, customizable incisions; toric IOLs used alongside intraoperative marking systems to enhance alignment accuracy; and on-axis incisions or manual limbal relaxing incisions, which can be especially effective for correcting lower levels of astigmatism (less than 1 diopter).

Conclusion

Despite significant technological advancements in cataract surgery, many patients continue to require postoperative enhancements and report issues such as dysphotopsia. This highlights the critical importance of careful patient selection, thorough preoperative evaluation, realistic expectation setting, and individualized intraocular lens (IOL) choices to optimize outcomes. A recent patient interaction with a satisfied trifocal IOL recipient further illustrated this point, as the patient still expressed concerns despite good vision, underscoring the ongoing need for improvements not only in surgical technology but also in patient communication and counseling to ensure the highest levels of satisfaction.

SYED ALI HAIDER MEMORIAL LECTURE: OSCARS In Ophthalmology

Syed Ali Haider (1962–2013) was a distinguished Pakistani ophthalmologist, renowned for his expertise in vitreo-retinal surgery and his dedication to medical education. Serving as the Head of the Ophthalmology Department at Lahore General Hospital, he played a pivotal role in advancing retinal care in Pakistan. His academic journey included MBBS from King Edward Medical College and fellowship in ophthalmology from the United Kingdom, making him one of the few at that time in Pakistan with such credentials. He is remembered not only for his surgical skills but also for his compassionate patient care and commitment to teaching. Haider hailed from a family deeply rooted in the medical profession; his father, Syed Zafar Haider, was a respected general surgeon, and his mother, Tahira Bokhari, served as a professor of anatomy. His legacy continues to inspire the medical community in Pakistan, serving as a testament to his contributions to ophthalmology and his unwavering dedication to his patients and students.

Muhammad Moin invited Karl Golnik for Syed Ali Haider Memorial lecture. Moin introduced Golnik with his distinguished academic background, highlighting his leadership roles at the Barrow Neurological Institute and the University of Cincinnati. His talk titled "OSCARS in Ophthalmology," aimed to present a transformative approach to medical education, focusing on the assessment of surgical competence through structured evaluation tools.

SUMMARY OF THE LECTURE:

Karl Golnik delivered an insightful talk emphasizing the global shift in medical education towards competency-based education (CBE), with a particular focus on ophthalmic surgical training. He outlined how CBE prioritizes the demonstration of actual skills, what a trainee *can do*—rather than mere knowledge acquisition. He emphasized the limitations of traditional assessment methods, such as multiple-choice exams, in evaluating clinical and surgical performance. He introduced the Ophthalmology Surgical Competency Assessment Rubrics (OSCARS) as an evidence-based, objective tool designed to assess surgical skills in a structured and standardized manner. He described the development process of OSCARS, involving international experts and experienced cataract surgical trainers, and highlighted its utility in improving the reliability and validity of workplace-based assessments. By integrating OSCARS into residency programs, Golnik advocated for a more transparent and competence-focused evaluation system that ultimately enhances the quality of ophthalmic surgical training.

Miller's Pyramid of Clinical Competence

Golnik highlighted the need to assess learners at the top

of the pyramid, "does" through real-world, performance-based evaluations. Written tests suffice for lower levels, but direct observation is essential for assessing surgical skills. To address this, the International Council of Ophthalmology (ICO), with Golnik's leadership, developed a series of OSCARs. These structured rubrics evaluate surgical procedures step-by-step, with clearly defined performance levels (e.g., novice to competent) and behavior-based descriptors.

Conclusion

He concluded by praising Pakistan's adoption of workplace-based assessments, noting that the country is now at the forefront of implementing CBE in ophthalmology, surpassing even some high-income countries like the United States in systematizing such assessments.

WASIF M. QADRI MEMORIAL LECTURE: Paradigm Shifts In Our Understanding of Corneal Pathology: What We Have Missed So Far?

Wasif Mohyuudin Qadri was a distinguished Pakistani ophthalmologist who made significant contributions to eye care, education, and surgical innovation in Pakistan. Serving as the President of the Ophthalmological Society of Pakistan (OSP) Lahore Branch from 1986 to 1987. He played a pivotal role in advancing the field of ophthalmology in the country. Qadri was actively involved in academic research, co-authoring studies such as the one involving simplified technique for posterior chamber IOL implantation in cases lacking adequate posterior capsular support. His commitment to medical education was further evident through his role on the editorial board of the Pakistan Journal of Ophthalmology. His passing in 2014 was deeply mourned by the ophthalmic community, with tributes highlighting his mentorship, surgical expertise, and dedication to patient care. His legacy continues to inspire ophthalmologists in Pakistan and beyond.

Muhammad Moin introduced **Harminder Dua**, who delivered the Wasif M. Qadri Memorial Lecture on paradigm shifts in understanding corneal pathology. Dua, renowned for his work on corneal diseases and based at the University of Nottingham, focused his lecture on the clinical significance of the pre-Descemet's layer (Dua's layer, PDL). He discussed how this anatomical structure has transformed the understanding and management of several corneal pathologies, including Descemet's membrane detachment, intra-corneal hypopyon, and acute corneal hydrops. Dua elaborated on the role of this layer in early keratoconus, descemetocele classification, and its importance in maintaining intraocular pressure and corneal biomechanics. He also highlighted how knowledge of the PDL improves outcomes in procedures such as DMEK. The PDL's layer's biomechanical role was explored, particularly its influence on intraocular pressure (IOP) transmission and structural integrity of the cornea. The lecture emphasized the change in basic assumptions that this anatomical discovery has introduced in both diagnostic insight and surgical strategy in anterior segment disease.

SUMMARY OF THE LECTURE

Harminder Dua delivered a comprehensive lecture on how advances in our understanding of corneal microanatomy, especially the discovery of the Dua's layer has significantly reshaped concepts in corneal pathology and surgical approaches.

Anatomical Insights

Ultra-high-resolution OCT has revealed a double contour at the posterior cornea, corresponding to Descemet's membrane (DM) and the recently recognized PDL. It is important to note that not all Descemet's detachments involve only DM; many also involve the PDL. The types of detachment closely resemble the types of bubbles seen during DALK procedures. Type 1 detachments include the PDL, DM, and endothelium, presenting as linear separations on imaging. Type 2 detachments involve only the DM and endothelium and typically appear as scrolling or wavy structures. Mixed detachments involve a separation between the DM and the PDL, reflecting the complex anatomical relationships that can influence surgical outcomes and postoperative management.

Surgical Implications

Type 1 detachments can often resist pneumodescemetopexy because the stiffer layers (including PDL and DM) make it harder for air to reattach the tissue; this highlights the importance of early intervention to prevent persistent detachment and potential vision loss. In Descemet Membrane Endothelial Keratoplasty (DMEK), understanding

scroll behavior is crucial to minimizing endothelial cell loss. Scrolls tend to form horizontally along the 3 to 9 o'clock axis, which can make handling and un-scrolling more challenging. To address this, using vertically oval-shaped grafts helps reduce scrolling tendencies and improves surgical handling, thereby enhancing graft placement and patient outcomes.

Relevance to Pathologies

Fungal keratitis and intracorneal hypopyon frequently involve separation at the PDL-DM interface, creating a potential space that acts as a niche for infection. Similarly, acute corneal hydrops in keratoconus is now understood to result from tears involving both the PDL and DM, rather than DM alone. Elastin degradation within the PDL has also been linked to the early progression of keratoconus, highlighting the structural vulnerability of this layer. Furthermore, descemetocele can involve the PDL with or without associated stroma, not just the DM, complicating management and prognosis. In cases of peripheral ulcerative keratitis (PUK), the disease often follows the peripheral PDL-rich band of the cornea, likely due to its higher elastin content, which is susceptible to digestion by proteases during inflammatory processes.

Biomechanical and Glaucoma Relevance

The PDL extends into the trabecular meshwork, creating a continuous anatomical interface that may influence both IOP regulation and overall corneal biomechanics. This connection highlights the potential interplay between the posterior corneal layers and anterior chamber structures, with implications for diseases and surgical interventions. Moreover, early evidence suggests that the stiffness of the PDL varies along different corneal meridians, potentially contributing to pathologies like Haab's striae in congenital glaucoma and affecting surgical outcomes in keratoplasty and refractive procedures.

Conclusion

The discovery of the Dua's layer has revolutionized our understanding of corneal microanatomy. It has clarified longstanding misconceptions about corneal pathology, especially DM detachment, keratoconus, hydrops, and infections. This knowledge not only enhances diagnostic accuracy but also has direct implications for corneal surgery, graft design, and possibly glaucoma. Quoting from the lecture, "*The eye cannot see what the mind doesn't know.*" The advancement of corneal science demands both open-minded observation and anatomical curiosity.

ABDUL JALIL DAULA AWARD LECTURE: Osteo-odonto-keratoprosthesis

Abdul Jalil Daula is a highly respected Pakistani ophthalmologist with a distinguished career in both clinical practice and medical education. Born in 1938 in Daula Pukhta Dipalpur, Okara, he completed his MBBS from Multan University in 1960 and earned a Diploma in Ophthalmology from London in 1968. He further attained the Fellowship of the Royal College of Surgeons (FRCS), underscoring his commitment to excellence in ophthalmology. Daula's extensive career includes significant roles in various esteemed institutions. He served as a registrar in ophthalmology in London and later held academic positions at Nishtar Medical College, Allama Iqbal Medical College, and King Edward Medical College in Lahore. Notably, he was the head of the ophthalmology department at King Edward Medical College and Mayo Hospital from 1985 to 1998. He also contributed to the development of the retina unit at Darbar Hospital in Lahore between 1975 and 1977. In recognition of his contributions, Daula received a Certificate of Appreciation from the Punjab Health Department in 1973 and a Lifetime Achievement Award from the Ophthalmological Society of Pakistan in 1999, where he also served as president of the Lahore branch from 1994 to 1995.

Christopher Liu gave the Abdul Jalil Daula Lecture on osteo-odonto-keratoprosthesis (OOKP). His background included distinguished positions and significant contributions to corneal surgery. The lecture explained the OOKP procedure, its history, and its role in treating patients with end-stage corneal blindness. He provided an overview of the OOKP components and the evaluation process, including visual potential and the suitability of the patient's canine tooth. He described the creation of the OOKP lamina and the grafting of buccal mucosa, along with the surgical stages such as cornea and iris removal and placement of the OOKP lamina. He emphasized the buccal mucosa's role in forming a biological seal and supporting the prosthesis. He discussed potential complications, including glaucoma and vitreoretinal issues, and stressed the need for regular follow-up and psychological assessment. He addressed the use of imaging to monitor the OOKP

lamina and the administration of alendronate to enhance its stability.

SUMMARY OF THE LECTURE

Liu discussed the OOKP, a complex surgical technique for visual rehabilitation in patients with bilateral end-stage corneal blindness and severe ocular surface disease, particularly where traditional keratoplasty is contraindicated.

History and Development

OOKP, initially developed by Benedetto Strampelli and later refined by Giancarlo Falcinelli, is a complex surgical technique that uses a patient's own tooth and surrounding alveolar bone, preferably the canine, to anchor a polymethylmethacrylate (PMMA) optical cylinder. This unique approach offers an option for patients with end-stage corneal blindness, especially in cases where conventional keratoplasty is not viable. In the UK, Christopher Liu led the National OOKP Service in Brighton for over two decades, contributing significantly to the advancement and accessibility of this remarkable procedure.

Patient Selection

Patient selection for OOKP is crucial to ensure optimal outcomes. Ideal candidates typically present with bilateral blindness or severe impairment in one eye, while the fellow eye is similarly compromised. Good retinal function is a prerequisite and is evaluated using tests such as light perception (PL), projection, color vision, electroretinography (ERG), visual evoked potentials (VEP), and B-scan ultrasonography to rule out significant posterior segment pathology. Additionally, patients must demonstrate strong psychological resilience and motivation, as the surgery is complex and requires extensive follow-up care, making adherence to postoperative management critical to success.

Surgical Process

- Stage I: Extraction and preparation of a canine tooth-bone complex with optical cylinder insertion. Buccal mucosa is grafted to the ocular surface.
- Stage II (3–4 months later): The lamina is retrieved, ocular structures (cornea, iris, lens, vitreous) are removed, and the lamina is implanted into the eye. The optical cylinder is aligned with the fovea.
- Excellent tissue integration is facilitated by a biologically and mechanically favorable interface: PMMA → dentine → bone → mucosal graft.

Postoperative Considerations

Patients who undergo OOKP often achieve good visual acuity postoperatively, but their visual field typically remains restricted to about 70–80 degrees, accompanied by significant glare that can affect functional vision. Glaucoma is a challenging comorbidity to monitor and manage in these patients, given the unique anatomical considerations of the OOKP. Intraocular pressure (IOP) is generally estimated by digital palpation, and systemic medications like acetazolamide are commonly used. Surgical placement of drainage devices is an option for more advanced cases. Psychologically, many patients struggle with the transition from blindness to partial vision, often requiring mental health support to help them adjust to their new visual status and the demands of the postoperative regimen.

Results and Outcomes

Autografts in OOKP demonstrate high rates of both short and long-term retention, with excellent anatomical success. Long-term visual outcomes are also impressive: studies show approximately 90% survival over a 20-year period, provided that appropriate lamina exchange and regular follow-up are maintained. By contrast, allografts were abandoned early in the evolution of OOKP due to consistently poor outcomes, underscoring the importance of using the patient's own tissues for the best results.

Advances and Innovations

Recent advancements in OOKP have focused on refining surgical techniques and reducing complications. One major development has been the creation of a titanium keratoprosthesis analog designed to eliminate the need for an oral donor site, thereby reducing the associated morbidity and simplifying the procedure. Additionally, the use of bone-stabilizing agents like Alendronic acid has been implemented to prevent lamina resorption, a significant complication in OOKP that can compromise long-term success. Advances in imaging and the adoption of endoscopic vitrectomy techniques have further enhanced surgical outcomes by improving intraoperative visualization and management of posterior segment pathology.

CONCLUSION

OOKP is a life-transforming procedure for selected patients with no other visual rehabilitation options. It requires a highly skilled, multidisciplinary team and lifelong follow-up.

LATEEF CHAUDHARY AWARD LECTURE; Blindness in South Asia including Pakistan

Lateef Chaudhry is a distinguished ophthalmologist based in Lahore, Pakistan, with a career spanning several decades. He has been instrumental in advancing ophthalmic care and education in the country. Chaudhary has made significant contributions to ophthalmology education in Pakistan. He played a pivotal role in establishing the ophthalmology department at Sir Ganga Ram Hospital, Lahore, which is affiliated with Fatima Jinnah Medical University. His efforts have been foundational in shaping ophthalmology training programs and mentoring numerous eye specialists across the country. In recognition of his outstanding contributions to the field of ophthalmology, Chaudhary was honored with the Sitara-i-Imtiaz, one of Pakistan's highest civilian awards, presented by the Governor of Punjab.

Hugh Taylor was invited for Lateef Chaudhary named lecture on blindness in South Asia, with a special focus on Pakistan. Taylor's involvement in Pakistan dates to 1980, when he conducted the first national survey of blindness. Based in Melbourne, Taylor has made significant contributions to global eye health. He served as the Head of the International Eye Health Unit (IEHU) from 2002 to 2008, and prior to that, he was the Head of the Department of Ophthalmology at the University of Melbourne and the Founding Director of the Centre for Eye Research Australia. Before his tenure in Melbourne, Taylor held a professorship in Ophthalmology at the Wilmer Eye Institute and Johns Hopkins University in Baltimore, where he also held joint appointments in the Department of Epidemiology and International Health. Taylor has served as the Past President of the International College of Ophthalmology. His experience and leadership in the field has shaped global initiatives for the prevention of blindness and the development of eye care programs.

SUMMARY OF THE LECTURE

Introduction and Historical Context

Hugh Taylor reflected on his initial involvement with Pakistan's eye health system in 1980 as a WHO consultant, highlighting the severe challenges at that time: there were only 186 ophthalmologists serving the entire country, roughly one per 60,000 people, and 45 of Pakistan's 64 districts had no ophthalmologist at all. There were no allied eye care personnel, no optometrists, orthoptists, or similar professionals to support comprehensive eye care delivery. Blindness was alarmingly prevalent, affecting an estimated 2–4% of the population, primarily due to cataract and trachoma. The most recent blindness survey dated back to 1962, leaving the country with outdated data to guide interventions. Recognizing these gaps, Taylor made 10 critical recommendations to WHO: forming a National Eye Health Committee, conducting updated surveys, training medical technicians, community health workers, and Lady Health Visitors, establishing eye departments in every district, improving ophthalmology training, and enhancing access to affordable spectacles to address refractive errors.

Humanitarian Work and Public Health Lessons

During his work with Afghan refugees in the 1980s, he discovered that 40% of children had trachoma and 1.4% had xerophthalmia. This led to mass treatment initiatives with WHO, UNHCR, and UNICEF, a formative experience that demonstrated the impact of public health approaches over individual clinical practice.

Progress and Achievements

Taylor acknowledged considerable progress in Pakistan's eye health system over the years, noting the country's participation in IAPB and APAO meetings that highlighted its growing commitment to tackling blindness. A major milestone was the opening of the Institute of Community Ophthalmology in 2001, marking a significant step forward in developing local expertise and resources. Additionally, he highlighted the active role played by organizations like the Fred Hollows Foundation, which contributed to capacity building and service delivery, underscoring a collaborative effort that has steadily improved eye care in Pakistan.

Current Situation: Regional Comparison and Indicators

According to the Global Burden of Disease (GBD) Vision Loss Expert Group, Pakistan has a higher prevalence of blindness than neighboring countries like India and Bangladesh, especially among those aged 50 and above. Despite this, the country performs relatively well in cataract surgical coverage, with an effective coverage rate of 71%, the third-best among 20 countries in the region. Pakistan conducts approximately 500,000 cataract surgeries annually, ranking seventh highest globally, with a cataract surgery rate of 2,800 per million population per year, placing it 50th out of 179 countries. However, there is a shortage of trained eye care professionals, with around 2,800 ophthalmologists (about 15 per million, ranking 116th out of 191 countries), approximately 1,000 optometrists (around 4.6 per million, placing Pakistan in the bottom third globally), and about 1,700 allied ophthalmic personnel, also among the lower third globally. These figures underscore the need for strategic investments in human resources to meet the eye care demands of Pakistan's population.

Gaps and Needs

The last national Rapid Assessment of Avoidable Blindness (RAAB) survey in Pakistan was conducted in 2017, highlighting an urgent need for updated data to guide policy and resource allocation effectively. The country's National Eye Health Plan, which spanned from 2015 to 2020, has since lapsed and now requires comprehensive revision to align with current needs. Although WHO's Integrated People-Centered Eye Care (IPEC) model is being piloted in areas like Lahore, broader implementation across the country is essential to achieve meaningful impact. There is a particular need to focus on expanding effective cataract surgical coverage and improving access to refractive error services in line with WHO and UN targets to reduce avoidable blindness.

Major Achievement

Pakistan, along with Bangladesh, India, and Vietnam, has eliminated trachoma as a public health problem, a remarkable milestone. Taylor emphasized the remarkable progress in Pakistan's eye health over 40 years, especially in trachoma elimination and cataract services. Yet, he highlighted ongoing needs: updated strategic planning, human resource expansion and implementation of integrated, people-centered care.

CONCLUSION

He concluded: "The glass is no longer empty—it is more than half full. But there is still work to be done to fill it completely."

RAJA MUMTAZ MEMORIAL LECTURE: Pakistan's Journey Towards The Elimination of Trachoma

Raja Mumtaz is a name synonymous with the history and development of ophthalmology in Pakistan. He played a pivotal role in the foundation and growth of the Ophthalmological Society of Pakistan (OSP), serving as its President (Central) and later as the Patron of the OSP Lahore Branch until his passing. Notably, he was the founding General Secretary of the OSP in 1957. Raja Mumtaz is fondly remembered and deeply respected by ophthalmologists across the country for his lifelong dedication and invaluable contributions to the field. **Asad Aslam Khan** was invited to deliver the Raja Mumtaz Named Lecture, which focused on a highly significant topic: "Trachoma Elimination — A Good News for Pakistan."

Asad Aslam Khan who is a leading figure in ophthalmology in Pakistan currently serves as the Provincial Coordinator for Prevention of Blindness and Control of Eye Diseases in Punjab. He is Professor Emeritus at the College of Ophthalmology and Allied Vision Sciences (COAVS) and a Visiting Professor at King Edward Medical University. A graduate of King Edward Medical College (1985), Asad Aslam has amassed over 42 years of experience in ophthalmology, including 33 years in teaching and 18 years in leadership and administrative roles, notably as Vice Chancellor of King Edward Medical University, Pro Vice Chancellor and CEO of Mayo Hospital, and Dean of Surgery and Allied Health Sciences. He is also a member of the WHO Monitoring Committee for Vision 2020 and has an impressive academic record with 111 original research articles published in reputable national and international journals.

SUMMARY OF THE LECTURE

Asad started with words of praise for Hugh Taylor's 1980 report which was truly an *eye-opener* for the Government of Pakistan. That landmark report

significantly influenced national eye care planning and catalyzed major reforms in the country. He shared another good news regarding the progress of Pakistan since the last IAPB report of 2019. The highlights of the report were: The prevalence of blindness in Pakistan, which stood at 1.76% in 1990, has now decreased to 0.45% in 2022, reflecting significant strides in eye care delivery. In 1980, as per Taylor's original observations, Pakistan's surgeons were performing less than one cataract surgery per day. Today, the Cataract Surgical Rate (CSR) has increased to 5,340 surgeries per million population — *double the WHO-recommended threshold*. This achievement places Pakistan 12th globally and 1st in the EMR (Eastern Mediterranean Region) in terms of CSR. Pakistan has now been certified by WHO as a trachoma-free country.

Pakistan's Journey Towards The Elimination of Trachoma

Asad Aslam presented this lecture based on his role as Chair of the National Trachoma Task Force, and on behalf of the National Coordinator, Sajjad Pervaiz, who could not join due to a flight delay.

Pakistan was identified by WHO as an endemic country for trachoma and was included in the GET (Global Elimination of Trachoma) 2020 initiative, the global campaign to eliminate trachoma by the year 2020. He acknowledged the unwavering support of the international partners; Fred Hollows Foundation, Sight savers, Christian Blind Mission (CBM) and national NGOs such as LRBT, Al-Shifa Trust, and Al-Ibrahim Eye Hospital. Their collaboration was pivotal in achieving this goal.

Implementation of SAFE Strategy

From 2017 to 2022, Pakistan rolled out the WHO-recommended SAFE strategy:

- Surgery for trachomatous trichiasis (TT).
- Antibiotics (primarily azithromycin) distribution.
- Facial cleanliness education in schools and communities.
- Environmental improvements, including sanitation and hygiene infrastructure.

Key Milestones

- Between 2001 and 2017, various assessments including Trachoma Rapid Assessments (TRA), Population-Based Prevalence Surveys, and the Global Trachoma Mapping Project were conducted across 52 districts in Pakistan.
- In 2022, additional TRAs were conducted in the remaining low-priority districts.
- Based on these findings, the National Trachoma Elimination Program (2017–2022) was launched.
- From 2021 to 2022, impact surveys were conducted in previously endemic districts. Results showed:
    - Trachomatous trichiasis (TT) prevalence was below 1%
    - Follicular trachoma (TF) prevalence was below 5%, meeting WHO's elimination thresholds.

Dossier Submission and Certification

Following the surveys, WHO was requested for guidance to appoint a consultant. With their support, a comprehensive trachoma elimination dossier was prepared by December 2023, and submitted in January 2024. In July 2024, WHO officially certified Pakistan as trachoma-free, and the certificate was presented to the Prime Minister of Pakistan in October 2024.

Implementation Insights

During mass antibiotic distribution, COVID-19 and emerging azithromycin resistance warnings from WHO led to a halt in antibiotic use. Consequently, facial cleanliness campaigns were pivoted in schools and environmental improvements (e.g., construction of latrines and handwashing facilities). These efforts were surprisingly effective. Upon resurvey, trachoma prevalence had significantly dropped, and fewer than 6 or 7 cases of trichiasis were detected nationwide. However, the widespread use of azithromycin during COVID-19 (including over-the-counter use) may also have contributed, albeit unintentionally, to the reduction of trachoma prevalence, a blessing in disguise.

Key Partners and Contributions

The program's success was made possible by partnerships across national and international organizations:

- International NGOs: Fred Hollows Foundation, Sightsavers, CBM.
- National NGOs: LRBT, Al-Shifa Trust, Al-Ibrahim Eye Hospital.

- Government bodies: Ministry of Health, Provincial Health Departments.
- Academic institutions: COAVS, KEMU.
- Professional bodies: Ophthalmological Society of Pakistan (OSP).
- Multilateral agencies: WHO, IAPB.

Conclusion

With WHO's certification, Pakistan has proudly joined the list of trachoma-free countries. This achievement is a result of tireless efforts by the National Committee for Eye Health, the National Trachoma Task Force, the Ophthalmological Society of Pakistan (OSP), our public and private sector partners, NGOs, and our international collaborators, including WHO and IAPB.

OSP was requested to formally recognize and award certificates and shields to individuals and institutions that played a key role in the success of the trachoma elimination program.

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PAEDIATRIC OPHTHALMOLOGY

Paediatric ophthalmology is a crucial subspecialty that focuses on the eye health of infants, children, and adolescents. Its importance lies in the early detection and treatment of childhood eye disorders such as congenital cataracts, glaucoma, and amblyopia, conditions that, if left untreated, can lead to irreversible vision loss. Vision is fundamental to a child's overall development, impacting learning, motor skills, and social interaction. Therefore, timely intervention in paediatric eye diseases not only preserves sight but also supports a child's cognitive and developmental progress. In many developing countries, where the prevalence of preventable childhood blindness remains high, paediatric ophthalmology plays a vital role in public health by reducing visual impairment through screening programs and community outreach. Children require specialized care due to their unique anatomical and developmental needs, making paediatric ophthalmology essential for comprehensive and effective eye care. Ultimately, preserving vision in childhood leads to long-term benefits, improving educational outcomes and future socioeconomic opportunities, emphasizing the need for investment and focus in this field.

The conference addressed the importance of this sub-specialty by including five symposia and three instructional courses.

SESSION 1: Navigating The Challenges, Insights on Congenital Glaucoma

The first session on pediatric ophthalmology was a panel discussion chaired by **Alex V. Levin**, with **Sorath Noorani** as co-chair and **Shabana Chaudhary** moderating. The panelists included **Alex V. Levin, Prof. Sorath Noorani, Prof. Ali Ayyaz, and Ashaal Paal.** Discussions revolved around clinical challenges, surgical techniques, and management strategies for congenital glaucoma, initiated through case scenarios that guided expert insights. The session began with the question: "Are all photophobic children glaucoma suspects?" Panelists explored diagnostic criteria, emphasizing gonioscopy, corneal diameter assessment, axial length measurement, optic nerve evaluation, and intraocular pressure monitoring for precise diagnosis.

Alex V. Levin focused on gonioscopy and goniotomy, advocating for goniotomy due to its simplicity and minimal risk of Hyphema. He presented a complex case of a three-month-old with bilateral large corneas, heterochromia, and consanguineous background, discussing optimal diagnostic and management approaches.

Soorath Noorani led discussions on trabeculotomy, particularly Trabeculotomy-Trabeculectomy with consensus among panelists and the audience that trabeculotomy is a preferred approach for hazy corneas in children under three years.

Ali Ayyaz addressed trabeculectomy, outlining surgical decisions based on intraocular pressure. He noted that standard procedures work well for pressures below 20-25 mmHg, while higher pressures (above 30 mmHg) require adjunctive medications.

Ashaal Paal elaborated on trabeculectomy and flap techniques, explaining his preference for mitomycin (MMC) over 5-FU. He also discussed flap-suturing methods to manage hypotony and the role of air bubbles in enhancing surgical outcomes.

The panel examined surgical field optimization strategies, including bridal *sutures*, 7-0 Vicryl sutures, and refined conjunctival approximation techniques such as radial cuts and C-shaped incisions. Anti-VEGF therapy in congenital glaucoma was a debated topic, with **Shabana Chaudhary** presenting results from her pilot study on 10 patients. The discussion generated convincing arguments both in favor and against its use, leading to considerations for further research and ethical collaboration.

Case-based discussions continued with an emphasis on Postoperative Management. A case involving a 13-month-old with unilateral glaucoma was analyzed, focusing on gonioscopic confirmation and diurnal pressure monitoring. Panelists shared experiences on trabeculectomy with mitomycin, pressure control strategies, and flap modifications based on glaucoma severity. Discussions also covered pre-surgical medication, including timolol, latanoprost, and oral acetazolamide, along with systemic steroid use following trabeculectomy.

The session wrapped up with reflections on angle maturity, early post-op evaluations, and the importance of tailoring treatment to genetic variability in patient responses. The panelists emphasized early screening, surgical advancements, optimized medication

protocols, and continued research in congenital glaucoma management.

The interactive discussions enriched knowledge on diagnostic precision, innovative surgical approaches, and ethical considerations, making it a valuable and engaging session for all participants.

The Congenital Glaucoma Research Network classification system was referenced, highlighting the need for careful physical examination and gonioscopy. Photophobia and blepharospasm were discussed as indicators of corneal involvement, reinforcing that a normal cornea often suggested an alternate diagnosis. Parameters such as corneal diameter, axial length, gonioscopic findings, and optic nerve status were emphasized in the diagnostic process.

SESSION 2: A Deep Dive In Congenital Cataract

This session was focused on congenital cataract, chaired by **Abdul Qayyum** and moderated by **Asma Mushtaq.** The panelists included **Alex V Levin, Asim Ali, Mariya Nazish Memon, Dr Shabana Chaudhary and Zia Muhammad**. Congenital cataract was recognized as a significant cause of visual impairment and childhood blindness in Pakistan, characterized by lens opacity present at birth or developing in early infancy. Early diagnosis and timely surgical intervention were highlighted as critical to prevent irreversible amblyopia and optimize visual development. The discussion also involved management by careful preoperative assessment, including biometry and evaluation for associated ocular or systemic anomalies. Surgical techniques adapted for the pediatric eye, often involving lens aspiration with or without intraocular lens implantation, followed by diligent postoperative care including amblyopia therapy and refractive correction were discussed. Challenges in congenital cataract management included the risk of postoperative complications such as glaucoma, posterior capsule opacification, and the need for long-term follow-up. Multidisciplinary care, involving pediatricians, geneticists, and vision rehabilitation specialists, was regarded essential to address the complex needs of these patients and improve visual and developmental outcomes.

The panel discussed the prevalence of congenital cataracts and emphasized the necessity of early surgical intervention. They described various surgical techniques and instruments used in pediatric cataract surgery, highlighting the importance of proper counseling and long-term follow-up. Several cases were presented to illustrate the challenges and technical considerations involved. It was emphasized that a comprehensive eye examination, including mandatory imaging techniques such as OCT and gonioscopy were critical in diagnosis and management. Despite the challenges of gonioscopy, it was stressed as essential for assessing angle structures and optic nerve evaluation, alongside visual field testing to detect functional visual loss. Management options covered included refractive correction, glaucoma therapy, and medications such as acetazolamide and laser treatments. The multidisciplinary approach was highlighted, involving ophthalmologists, pediatricians, rheumatologists, and cardiologists, especially for patients with homocysteine disorders and suspected Marfan syndrome, where dietary restrictions and cardiac evaluations were crucial. Although genetic screening and counseling were considered important, their availability was limited. Patient and family education was underscored due to the chronic nature of these diseases requiring long-term follow-up. Surgical techniques included lensectomy via limbal and pars plana approaches, as well as visual rehabilitation options like aphakic glasses and scleral fixation intraocular lenses. Shunt procedures were reserved for cases with uncontrolled intraocular pressure after lensectomy, and cycloablation was described as a last resort. Finally, a detailed anterior and posterior segment evaluation was deemed necessary in cases of ectopia lentis.

SESSION 3: Beyond The Surface, Unveiling Systemic Diseases Through The Eyes

This session was chaired by **Zia Muhammad**, co-chaired by **Mazhar-ul-Hassan** and moderated **by Ajmal Chaudhary**. The meeting discussed various ophthalmic issues related to child abuse, systemic diseases, and pediatric surgeries.

Alex V. Levin emphasized the critical role of ophthalmologists in recognizing and responding to child abuse, noting that any ocular injury could be an indicator of abuse. He presented a tragic case in which a child with retinal hemorrhages was discharged without proper investigation, only to return deceased from abuse, underscoring the consequences of missed diagnoses. The presentation categorized four types of

child abuse, physical, sexual, neglect, and emotional, each with distinct ophthalmic signs. Physical abuse was illustrated through cases involving angle recession glaucoma and retinal detachments, often occurring without malicious intent. Subconjunctival hemorrhage was identified as a sentinel sign of possible abuse, and the session addressed medical child abuse (Munchausen syndrome by proxy), highlighting its varied ocular presentations. Retinal hemorrhages were discussed in depth, particularly in the context of Shaken Baby Syndrome, with guidance on how to document and differentiate them from other causes. Sexual abuse manifestations, including ocular signs of neonatal sexually transmitted diseases, and neglect such as corneal opacities from poor care were also covered. Emotional abuse was addressed in terms of the psychological toll on children exposed to violence or substance misuse. Levin stressed the moral and professional duty of physicians to examine the whole child, take thorough histories, and report suspected abuse to safeguard vulnerable patients, particularly in regions lacking robust child protection systems.

Seema Qayyum highlighted the vital role ophthalmologists played in detecting systemic diseases through detailed eye examinations. She presented a range of cases, including patients with headaches and disc edema, retinoblastoma, and coagulation disorders, to illustrate how ocular findings could point to serious systemic conditions. Emphasis was placed on the need for comprehensive ocular assessments, which revealed early signs of systemic illness, enabling timely diagnosis and intervention. Seema also highlighted the responsibility of ophthalmologists to refer patients appropriately for multidisciplinary management, reinforcing their role as key contributors to holistic patient care.

Sara Farooq presented a case of Shabbir syndrome, a rare epithelial disorder also known as laryngo-cutaneous syndrome. The discussion covered genetic basis of the condition and its characteristic features, with particular focus on the ophthalmic manifestations such as conjunctival granulomas and corneal opacity. Emphasis was placed on the importance of early diagnosis to initiate timely management and prevent progression of ocular and systemic complications.

Andaleeb Zahra discussed the atypical presentations of retinoblastoma, highlighting cases with orbital involvement and vitreous hemorrhage that complicated diagnosis. Emphasis was placed on the importance of thorough history-taking and detailed examination under anesthesia to identify subtle or misleading signs. Several cases were presented to demonstrate diagnostic challenges, and the need for vigilant follow-up and appropriate management strategies in suspected cases of retinoblastoma was underscored.

Rashid Baig presented a study examining the burden of ocular abnormalities in patients with beta thalassemia, outlining the prevalence and types of associated ocular complications. The study identified contributing factors such as gender and serum calcium levels, which may have influenced the development of these complications. The presentation emphasized the importance of routine ophthalmic evaluations and early detection to manage and mitigate vision-related issues in this patient population.

Summaya Anjum shared insights on the complex relationship between cataract and intraocular membranes, highlighting that cataracts could sometimes present misleadingly and trigger uveitis. She discussed various cases of octoplantic cataracts leading to secondary glaucoma, emphasizing the diagnostic and management challenges. The session concluded with expressions of gratitude to the participants for their engagement, followed by a request for a group photo session.

SESSION 4: Navigating The Crossroads Balancing Refractive Correction

Refractive corrections are especially important for pediatric population. Session on refraction in children was chaired by **Seema Qayyum**, co-chaired by **Alex V Levin** and moderated by **Fiza Azhar.**

Alex V. Levin discussed the ethics of innovation in ophthalmology, emphasizing that patient welfare must always take precedence over personal ambition or the desire to innovate. He explained that medical innovation ranges from urgent, life-saving interventions to elective, low-risk experimental techniques, with adoption thresholds varying according to evidence, clinical experience, and situational need. Levin introduced Scott's Parabola, a model describing the lifecycle of innovations, from initial high expectations and widespread adoption to eventual skepticism or failure, illustrating this with examples like the closed-loop anterior chamber, certain IOL, and the CyPass Micro-Stent. The session highlighted conflicts of interest influencing innovation, including academic

pressures to publish, financial incentives such as sponsored travel, and personal motives tied to ego or recognition, cautioning that these factors may bias clinical judgment. Levin stressed that disclosure of conflicts, while necessary, does not eliminate bias, and ethical innovation requires meaningful informed consent with transparent communication about procedure novelty, risks, and operator experience. Core ethical principles must guide practice, and formal research and validation of new treatments are essential to protect patients from unproven or premature innovations.

Fiza Azhar advocated for the immediate correction of astigmatism in preschool-aged children, emphasizing the risk of meridional amblyopia and the broader impact on early childhood development. She cited studies demonstrating that uncorrected astigmatism was associated with poorer performance on functional daily living scales and reduced academic readiness, reinforcing the need for early intervention. In contrast, **Amna Mehmud** presented a counterargument supporting a wait-and-watch approach. She highlighted the significant anatomical and physiological changes that occur in the developing eye during early childhood. According to her, this natural maturation often leads to emmetropization, potentially reducing or eliminating the need for early correction. She argued that premature intervention may not be necessary in all cases and that careful monitoring can prevent over-treatment.

Ashal Pal advocated for refractive surgery in exceptional pediatric cases, such as those involving severe anisometropia, trauma, or non-compliant patients. She presented examples of successful refractive surgeries performed on children with severe anisometropia and ocular trauma, emphasizing that, in certain cases, the benefits of surgery outweigh the risks. On the other hand, **Mariya Nazish Memon** argued against refractive surgery as a standard practice in children. She highlighted the unpredictable outcomes in pediatric refractive surgery, pointing to the biomechanical weakness of younger corneas and the lack of long-term safety data. Memon also raised ethical and legal concerns, particularly the issue of informed consent, noting that children are unable to make fully informed decisions about their medical care.

Asma Mushtaq supported the use of contact lenses over glasses in certain cases, citing several advantages such as improved image size, reduced chromatic and spherical aberrations, and a wider field of view. She explained that contact lenses offer greater flexibility compared to glasses and can be easily replaced, thus reducing the social stigma often associated with wearing glasses. In contrast, **Sarfaraz Hussain Syed** argued against the use of contact lenses in children, pointing out several challenges. He emphasized practical difficulties, such as the risk of corneal abrasions, and the need for parental counseling and education to ensure proper care. Syed also raised concerns about the high cost of contact lenses and the risk of losing them, particularly in environments with dust and other contaminants, further complicating their use in children.

Shabana Chaudhary endorsed the use of progressive addition lenses (PALs) for myopia control, highlighting their benefits in enhancing visual development and reducing accommodative fatigue. She pointed out that PALs offer better image quality and depth perception, which in turn helps reduce the risk of diplopia and overlapping images, making them a more effective option for managing myopia. On the other hand, **Ali Ayaz Sadiq** argued that single vision glasses are adequate for controlling myopia and are both more practical and cost-effective. He emphasized that the decision should consider factors such as the child's age, the increased use of new screens, and the need for glasses that are acceptable to both parents and children, suggesting that simpler solutions might often be sufficient and more manageable.

Ahmad Raza advocated for patching as a more effective and customizable option for amblyopia management, citing its fewer pharmacological side effects. He explained that patching is particularly efficacious in severe cases and in instances of bilateral amblyopia, as it can be tailored to meet the specific needs of each child, offering flexibility in the treatment plan. In contrast, **Ajmal Chaudhary** argued that pharmacological penalization is a better approach, emphasizing its ease of use, minimal disruption to daily life, and higher compliance rates among children. He suggested that pharmacological methods could be more practical for parents and children alike, with less resistance compared to patching. The debate underscored the importance of considering factors such as the child's age, the need for strict adherence to patching protocols, and the potential social stigma associated with wearing patches, all of which play a crucial role in treatment adherence and effectiveness.

Fiza Azhar argued that medical therapy should be considered a temporary measure and should not replace surgery in the management of primary congenital

glaucoma. She highlighted several limitations of medical therapy, including poor compliance, the challenges of polypharmacy, and the potential risks such as globe enlargement and optic nerve compromise, which can compromise long-term visual outcomes. In response, **Mariya Nazish Memon** countered that medical therapy could be a viable option in situations where surgery is not feasible or accessible. She pointed out that in remote regions or where there are financial constraints, medical therapy might be the only available treatment option. The debate emphasized the importance of considering factors such as the child's age, the availability of expert knowledge, and the accessibility of specialized care when making treatment decisions for congenital glaucoma.

Ashal Pal advocated for targeting emmetropia during pediatric cataract surgery to ensure that the child was not hyperopic post-surgery. He explained that this approach is straightforward, relying on measurable factors such as axial length and corneal curvature to calculate the appropriate IOL power. In contrast, **Ahmad Raza** argued for allowing a myopic shift to account for future eye growth, which could help reduce the risk of amblyopia. He pointed out that children's eyes grow over time, and a myopic shift would better match the child's evolving ocular anatomy, potentially leading to better long-term visual outcomes. The debate highlighted the importance of considering several factors when making IOL power calculation decisions, including the child's age, the potential need for glasses, and the impact on visual development. The appropriate strategy should be tailored to the individual needs of each child to ensure optimal visual outcomes.

SESSION 5: Navigating The Spectrum, A Comprehensive Look at Pediatric Ocular Diseases

The meeting was chaired by **M Shafique**, co-chaired by **Mubashar Jalees** and moderated **by Sarfraz Hussain Syed.** It covered comprehensive pediatric ocular diseases, focusing on pediatric cataract surgery and ocular genetics.

Majeed Malik discussed the candidates for pediatric cataract surgery, emphasizing the importance of timely intervention for dense and bilateral cataracts. He highlighted that early surgical intervention is crucial to prevent long-term visual impairment and ensure optimal developmental outcomes. He then detailed the surgical techniques used in pediatric cataract surgery, including the use of vacuum aspiration and the soft-shell technique to ensure a deep anterior chamber and minimize trauma to the eye. Malik emphasized the necessity of having all necessary surgical tools readily available during the procedure to ensure efficiency and reduce the risk of complications. In conclusion, he underscored the significance of proper wound closure and the use of sutures to minimize the need for further anesthesia, particularly in younger children, where minimizing the duration of anesthesia is essential for safety and comfort.

Alex V Levin provided an update on the genetics of retinal dystrophies, beginning with Donders' 1857 description of retinitis pigmentosa. He discussed the significant advancements in gene discovery for retinal dystrophies since 1990, highlighting the most common genes responsible for these diseases. Levin emphasized the importance of precise phenotyping and genotyping to accurately diagnose and treat retinal dystrophies. He pointed out that advancements in genetic testing were crucial in tailoring treatment plans for individual patients. He also explained the benefits of early diagnosis and treatment, particularly the potential for gene therapy to restore vision in affected individuals, thus offering hope for improved outcomes in retinal dystrophy patients. However, Levin acknowledged the challenges and barriers to the widespread implementation of gene therapy, including financial and political obstacles, which hindered accessibility and the development of these therapies. Levin continued to discuss the potential of gene therapy and stem cell treatment for retinal dystrophies, emphasizing the importance of accurate genetic testing to guide treatment decisions. He highlighted the cost of these therapies compared to traditional methods, noting the role of philanthropic support in making such treatments accessible. He also emphasized the role of education and fellowships in expanding the field of ocular genetics, and the potential for telemedicine to support remote patient care, especially in underserved areas. Ethical considerations surrounding early gene therapy for preventing future vision loss were also addressed, with Levin stressing the importance of informed consent and patient empowerment in the decision-making process. In conclusion, Levin made a call to action for increasing awareness and support for ocular genetics research and treatment, urging the medical community to advocate for further advancements in this promising field.

Hanif Malik presented cases of pediatric cataract

surgery, discussing the challenges associated with identifying and treating posterior polar cataracts. He highlighted the unique complexities of these cases, emphasizing the need for early detection and careful management to ensure optimal outcomes. He detailed the techniques for implanting IOLs in pediatric cataract cases, including the use of multi-piece IOLs and scleral fixation to secure the IOL in place. He emphasized the importance of precise surgical techniques to minimize the risk of complications during IOL implantation. He stressed the importance of careful handling of both the capsule and vitreous during surgery to avoid damaging the eye structures and prevent potential complications. He pointed out that meticulous attention to detail during these critical steps is key to achieving a successful surgical outcome. Malik also discussed the use of various surgical approaches, including anterior and posterior capsulotomy, to achieve successful IOL implantation, particularly in challenging cases like posterior polar cataracts. These techniques allow for better visualization and more controlled IOL placement. In conclusion, Malik highlighted the role of proper patient selection and follow-up care in ensuring successful outcomes in pediatric cataract surgery. He emphasized the need for a multidisciplinary approach involving careful assessment of the child's overall health and regular postoperative monitoring.

Tanveer Chaudhary discussed the importance of increasing awareness in early detection of retinopathy of prematurity (ROP). He emphasized that early identification of ROP is crucial for preventing vision loss in premature infants and highlighted how ultrasound can be a valuable tool in this process. He addressed the challenges of diagnosing and treating ROP in developing countries, particularly the lack of adequate equipment and training. Chaudhary pointed out that the availability of advanced diagnostic tools and skilled professionals is essential to improving outcomes for ROP patients in these regions. Chaudhary shared experiences from a study on ROP awareness conducted in Karachi, where he noted the need for improved protocols and training in neonatal intensive care units (NICUs). He stressed that better training for healthcare providers, along with standardized screening protocols, is key to enhancing early detection and treatment of ROP. The potential for telemedicine to support remote diagnosis and treatment was also discussed. Chaudhary highlighted that telemedicine could help bridge the gap in areas with limited access to specialists, allowing for timely interventions even in underserved regions. In conclusion, Chaudhary made a call to action for increasing awareness and support for ROP screening and treatment programs. He emphasized the importance of multi-center collaboration and training initiatives to improve the global response to ROP, ensuring that more infants receive timely diagnosis and treatment to prevent blindness.

Shabana Chaudhary shared cases of pediatric eye conditions, emphasizing the critical importance of early diagnosis and timely treatment. She discussed the challenges involved in identifying and managing conditions such as congenital glaucoma and corneal haze and underscored the essential role of parental awareness in ensuring that children receive prompt medical attention. She highlighted the urgent need for comprehensive screening programs aimed at detecting and managing pediatric eye diseases, noting that primary care providers play a pivotal role in the early identification and referral of such cases. She also emphasized the value of empathy and effective communication when interacting with the parents of children affected by ocular conditions, advocating for a supportive and informative approach that encourages cooperation and trust. In conclusion, she issued a call to action for enhancing awareness and support for pediatric eye care programs. She stressed the importance of ongoing education and community-level awareness campaigns to improve early detection and intervention, ultimately contributing to better visual outcomes in children.

SESSION 6: Instructional Course, Counselling In Medicine – Empowering Patients

The session titled *Counselling in Medicine – empowering patients* was chaired by **Mian Shafiq**, co-chaired by **Huma** and moderated by **Andleeb Zahra**. It was attended by ophthalmology faculty, postgraduate students, and international delegates. This interactive, case-based roundtable focused on the nuances of delivering difficult medical news with empathy and professionalism.

Nazish Imran led the session with a presentation titled 'Breaking bad news from diagnosis to dialogue,' offering practical insights into effective communication during challenging clinical conversations. She emphasized strategies for navigating emotionally charged discussions and shared a widely appreciated

video on empathy produced by Cleveland Hospital, which resonated strongly with the audience.

Volunteers performed role-play scenarios that allowed participants to observe and discuss various aspects of breaking bad news, including communication techniques, responses from patients and caregivers, physician safety, and appropriate methods for conveying diagnoses and prognoses. These activities encouraged reflection and active participation. A distinctive feature of the session was the inclusion of skits, which provided experiential learning opportunities. These dramatizations helped participants gain practical experience in handling real-life patient interactions. Alex V. Levin contributed by sharing perspectives from his international work, shedding light on cultural variations in caregiver reactions to distressing medical news.

The session was well received and stimulated meaningful dialogue on empathy, communication skills, and physician well-being. Shafiq concluded the event by underscoring the vital role of compassionate communication in clinical practice.

SESSION 7: Instructional Course, Prescribing Pediatric Spectacles

The meeting chaired by **Seema Qayyum** and moderated by **Ali Ayaz Sadiq** focused on the importance of accurate refractive error management in pediatric ophthalmology. The instructional course emphasized the significance of pediatric ophthalmology in residency training, underlining how patient satisfaction can influence perceptions of clinical competence regardless of technical expertise. A key focus was the critical role of refractive error correction and individualized management strategies rather than a uniform approach. Several pediatric cases were discussed to illustrate practical challenges and management principles. These included a three-year-old with eye shaking, exploring cortical visual blindness and myopia; a child with near vision issues and hypermetropia; and another with esotropia and mild hypermetropia, raising concerns about over-prescription and the importance of follow-up. A case of a twelve-year-old with convergence insufficiency highlighted the role of vision therapy exercises, while a ten-year-old with accommodative insufficiency underscored the value of dynamic retinoscopy. In the case of a two-year-old resisting glasses, the discussion centered on parental counseling, frame adjustment, and cycloplegic use. A teenager with keratoconus and prior cataract surgery brought attention to refractive techniques such as retinoscopy and stenopic slit use. Another case involved a ten-year-old with diplopia following a road traffic accident, emphasizing orbital imaging and optical adjustments.

SESSION 8: Strabismus Evaluation And Surgery

This session chaired by **Ali Ayaz Sadiq** and co-chaired by **Ashal Pal** was moderated by **Zaib un-Nisa** and addressed key aspects of squint surgery, particularly emphasizing the high risk of post-operative recurrence and the critical role of post-operative diplopia assessment. Sensory squints, third nerve palsy, and thyroid eye disease were identified as complex clinical scenarios requiring early intervention, precise monitoring, and multidisciplinary coordination. The importance of sensory screening and the need for well-trained ophthalmologists in managing these cases were highlighted, especially in children and patients with long-standing deviation.

In the context of third nerve palsy, the discussion focused on paralytic squints secondary to recent cranial nerve involvement, with early surgical planning recommended to prevent long-term misalignment. Similarly, in thyroid eye disease, the challenges posed by extraocular muscle fibrosis were outlined, necessitating cautious surgical planning and the potential use of prisms for managing intractable diplopia.

The session also explored broader surgical challenges, including residual deviations, bleeding disorders, and situations where patients are deemed unfit for general anesthesia. Ethical concerns were raised regarding the increasing trend of publishing before-and-after surgical images on social media for promotional purposes, underscoring the need for professional integrity and patient privacy. The importance of informed parental involvement in decision-making was also stressed, particularly in pediatric cases.

The session concluded with the initiation of a hands-on training workshop, during which facilitators and instructors were assigned to various participant groups. Emphasis was placed on time management, professional conduct during teaching, and the value of practical exposure in mastering the nuances of strabismus surgery.

SESSION 9: Difficult Neuro-Ophthalmology Cases

This session was chaired by **Soorath Noorani** and moderated by **Shabana Chaudhry.**

The neuro-ophthalmology session featured a series of complex and insightful pediatric cases, illustrating the intricate relationship between ocular findings and systemic or neurological conditions. **Shabana Chaudhary** presented the first case involving a six-year-old boy with congenital left ptosis and a family history of café-au-lait spots. Ocular examination revealed bilateral temporal disc pallor, and CT imaging showed orbital dysplasia with NF1 infiltration, leading to a diagnosis of neurofibromatosis type 1 (NF1). The discussion emphasized the role of plexiform neurofibromas, the autosomal dominant inheritance pattern of NF1, and the importance of recognizing craniofacial anomalies in affected patients.

Aisha presented a rare case of a five-year-old girl who exhibited inward turning of the right eye, abnormal head posture, oscillopsia, diplopia, vertigo, and vomiting. Examination revealed the right abduction deficit and temporal disc pallor. These findings led to a diagnosis of right sixth nerve palsy, and MRI confirmed the presence of a diffuse intrinsic pontine glioma. The case highlighted the need for thorough neurological evaluation and imaging in pediatric cranial nerve palsies.

Nazli discussed a 12-year-old girl with gradual bilateral vision loss and generalized headache. Despite normal visual acuity, IOP, and reactive pupils, fundus examination showed increased cup-disc ratio, and visual field testing demonstrated temporal hemianopia. MRI revealed a pituitary macroadenoma, underscoring the importance of neuroimaging in atypical glaucoma presentations, especially in pediatric patients with visual field defects inconsistent with primary open-angle glaucoma.

Rebecca presented the case of a seven-year-old girl who experienced sudden painless bilateral vision loss following a febrile illness. Ocular examination showed swollen optic discs with blurred margins and obliterated cups. MRI revealed diffuse thickening of the intraorbital and intracanalicular segments of the optic nerves, consistent with optic neuritis. The patient responded well to intravenous corticosteroids, and serological tests were negative, supporting a diagnosis of para-infectious optic neuritis. This case emphasized the need for early diagnosis, prompt treatment, and close follow-up.

Finally, **Shabana Chaudhary** concluded with the case of a 15-year-old boy who presented with headaches, seizures, blackouts, and behavioral changes. Imaging revealed a parasitic cyst and astrocytic hamartomas, leading to a diagnosis of tuberous sclerosis complex (TSC). The case highlighted the broad clinical spectrum of TSC and the importance of recognizing its ocular and neurological manifestations for appropriate management and genetic counseling.

The session underscored the value of detailed neuro-ophthalmic assessment, the role of neuroimaging in atypical pediatric presentations, and the importance of a multidisciplinary approach in managing complex neuro-ophthalmic disorders.

SESSION 10: Retinopathy of Prematurity

This session featured a detailed overview of ROP-related activities and findings from various hospitals and institutions of Pakistan. The session was chaired by **Khurram Azam Mirza**, with **Muhammad Amjad** serving as Co-Chair and **Lubna Siddiq Mian** moderating the proceedings. The session began with presentations from key speakers including **Muhammad Moin,** who delivered the ROP report as the National Coordinator; and **Huma Kayani,** who presented data from Ganga Ram Hospital and KMSMC in Sialkot. **Shabana Chaudhry** reported on ROP cases from the Children Hospital in Lahore, while **Lubna Siddiq Mian** provided updates from Mayo Hospital.

Further reports were presented by several healthcare professionals from various hospitals. **Khurram Azam Mirza** reported on Hameed Latif Hospital, and **Muhammad Amjad** presented findings from Al Shifa Trust. **Nazli Gul** shared data from Khyber Teaching Hospital, while **Saima Amin** discussed the situation at LRBT Karachi. Additional contributions came from **Haroon Tayyab** (AKU Karachi), **Danish Zafar** (Ayub Medical College Abbottabad), **Tayyaba Gul Malik** (Lahore General Hospital), **Andleeb Zahra** (Jinnah Hospital), and **Amer Awan** (Shifa International). The session highlighted collaborative efforts in monitoring and managing ROP, underscoring the commitment of medical professionals to improving neonatal eye health.

CATARACT

Cataract and refractive surgery sessions are vital components of ophthalmology conferences due to their direct impact on patient outcomes and the rapid pace of innovation in these fields. These sessions offer a platform to present the latest advancements in surgical techniques, intraocular lenses, and technologies such as femtosecond lasers and image-guided systems. They also provide updates on evidence-based practices and clinical trials, helping clinicians make informed decisions in their surgical approach. With growing patient expectations for spectacle independence and enhanced visual outcomes, these sessions address strategies for optimal patient selection, surgical planning, and management of complications. These sessions encourage interdisciplinary collaboration, particularly in complex cases involving coexisting ocular conditions like glaucoma or corneal disease. For many regions, especially in developing countries where cataract remains a leading cause of blindness, these sessions also highlight cost-effective solutions and public health strategies. Overall, cataract and refractive surgery sessions serve as a critical forum for knowledge exchange, skill enhancement, and professional collaboration, ultimately contributing to improved standards of care in ophthalmology. There were three symposia, three instructional courses and one live workshop on cataract.

SESSION 1: Video Cataract Symposium

Video Cataract Symposium was chaired by **Muhammad Ramzan**, co-chaired by **Tehseen Mahmood Mahju** and moderated by **Muhammad Ali Haider**. The meeting discussed various techniques and challenges in cataract surgery with video presentations.

Abdul Majeed Malik talked about the sutureless paediatric cataract surgery. He explained the importance of staining the capsule with blue dye to make it easier to identify. Viscoelastic was recommended to maintain the anterior chamber during the procedure. Importance of hydro-dissection in pediatric cataract surgery was discussed. Role of Multi-piece lenses in pediatric patients for stabilizing and reducing the shrinkage of the capsule was highlighted. It was recommended to make a hole of about four millimeters in the center of the posterior capsule to prevent opacification.

Usman Saeed highlighted the importance of pre-operative assessment and planning, and shared techniques for managing complications like capsular rupture and soft cataracts especially focusing on the trainees and trainers. He discussed the importance of recognizing complications early and taking immediate action. He shared his approach to managing complications such as PC rupture and nucleus drop. He also emphasized the importance of recording surgeries to learn from mistakes. Usman Saeed advised to call Vitreo-retinal surgeons for complex cases and the importance of timely intervention.

Abdullah Mazhary presented cases of cataract surgery in eyes with Axenfeld Rieger syndrome and subluxated microspherophakia, detailing specific surgical steps. He discussed the challenges of shallow anterior chambers and thick corneas in these patients. Techniques for creating a Capsulorhexis and performing hydrodissection were shared. Abdullah presented a case of managing subluxated microspherophakia. Techniques for marking fixation sites and creating scleral tunnels. The importance of using peritomy and cautery to create a clear scleral bed was highlighted. The use of proline sutures to fixate the lens and the importance of maintaining the natural anatomy of the eye were emphasized.

Saad Sohail discussed the benefits of extra capsular cataract extraction (ECCE) and managing oil-filled eyes. ECCE was highlighted as a more accessible, cost-effective, and resource-efficient option compared to phacoemulsification. Saad Suhail shared a video demonstrating the steps of ECCE, including creating a partial thickness incision and using a squint hook to orient the nucleus. The importance of thorough coating of the endothelium with viscoelastic and careful delivery of the nucleus was emphasized. Saad presented a case of managing phacoemulsification in an oil-filled eye. He discussed the challenges of posterior synaechia, iris vessel bleeding, and compromised corneal health. Techniques for synechiolysis, pupil stretching, and managing fibrous anterior capsules were shared. The importance of maintaining chamber stability and using different filters for enhanced visualization was also discussed.

Rehan Naqaish introduced the two-hole assisted phacoemulsification chop technique. The technique was designed for surgeons transitioning from stop and chop to direct chop. The importance of creating

adequate-sized Capsulorhexis and good pupillary dilation was emphasized. Techniques for creating holes and using the mechanics of the direct chop technique within the Capsulorhexis margin were shared.

Hamza Ali Tayyab covered managing capsular bag without capsular tension rings (CTR) and capsular bag fixation with Cionni ring in hereditary subluxation. He presented a case of capsular bag fixation with scleral rings. The importance of staining the capsule and using capsular hooks to support the capsular bag was highlighted. Techniques for gentle hydro-dissection and irrigation aspiration of the lens were shared.

M Haris Shehbaz presented a case of Phacoemulsification and iridotomy repair in a mature traumatic cataract. The importance of staining the capsule and using iris hooks to ease Capsulorhexis was highlighted.

The session ended with Q and A discussions with active participation from the audience.

SESSION 2: Handling Challenging Cataracts

The second symposium was focused on handling challenging cataracts, chaired by Majeed Malik, co-chaired by Yehia Salaheldin and moderated by Soufia Farrukh.

The symposium covered various techniques and strategies for managing hard and subluxated cataracts. **Amer Awan** began by explaining the term "cataract" and its implications, highlighting the importance of evaluating anterior chamber depth, corneal status, and pupil dilation before surgery. He emphasized the role of lens hardness in surgical planning and the necessity of adopting different strategies for managing dense and hypermature cataracts. The use of trypan blue dye, CTR, and viscoelastic substances was underscored to aid in capsule visualization and to protect the corneal endothelium during surgery. Amir outlined his preferred strategies for managing hard cataracts, favoring phacoemulsification under topical anesthesia, often with the use of pupil dilators. In cases of poor dilation, iris hooks and pupil expanders were employed. He stressed the importance of capsulorhexis sizing and the benefit of starting with smaller incisions for hard or hypermature cataracts. Correct phacoemulsification settings and awareness of potential zonular weakness were considered critical for achieving optimal outcomes.

Amir stressed the importance of careful hydrodissection in hard cataracts and cautioned against overhydration to avoid complications in posterior polar cataracts. He described the application of both vertical and horizontal chop techniques for effective nucleus division, with continued attention to corneal protection. The presentation concluded with a discussion on subluxated lenses. Amir underscored the need for thorough history-taking and clinical evaluation, particularly pupil response and lens edge visibility. He also presented the modified Yamane technique for scleral fixation in the presence of vitreous loss, emphasizing the need for precise lens centration and secure fixation for long-term stability.

Yehia Salaheldin addressed the challenges of managing hard cataracts, emphasizing the importance of fully understanding the pathology and preparing an individualized surgical strategy. He elaborated on the concept of "two nuclei" and highlighted the necessity of creating a deep central groove to enhance intraoperative visibility and control. Salahedin described his preferred surgical techniques, including vertical chopping and whole nucleus drilling, which facilitated effective fragmentation of dense lenses. Drawing from his clinical experience, he illustrated the value of using high magnification and minimizing ultrasound energy to protect intraocular structures and achieve favorable outcomes in complex cataract cases.

Christopher Liu presented the full glaucoma surgical protocol, stressing the importance of avoiding disruption to pre-existing filtering blebs and the use of both topical and intracameral anesthesia to enhance patient comfort. He detailed the application of dispersive ophthalmic viscosurgical devices (OVDs) during surgery and emphasized the need for thorough removal of all OVD at the conclusion of the procedure to prevent postoperative IOP spikes. Liu described a refined insertion technique for IOL placement, in which the leading haptic was used to guide the lens into the capsular bag with a controlled twist. He illustrated this technique with case examples, highlighting the importance of inflating the anterior chamber and injecting OVD under continuous irrigation to maintain chamber stability and ensure optimal IOL positioning.

Connor Ramsden addressed the incidence of severe visual loss following cataract surgery, drawing on data from the National Ophthalmology Database. He outlined key risk factors contributing to poor outcomes, including advanced glaucoma, retinal vein occlusion, and procedures performed by less experienced surgeons. Emphasizing the need for individualized

patient care, Ramsden highlighted the importance of tailored consent processes and thorough counseling, particularly for patients with underlying conditions such as macular degeneration and diabetic retinopathy. He also discussed strategies for managing intraoperative and postoperative complications and underscored the critical role of long-term follow-up, especially in patients who had undergone corneal transplantation.

Soufia Farrukh discussed the preoperative evaluation of patients undergoing cataract surgery after penetrating keratoplasty, emphasizing the importance of addressing corneal astigmatism and biometric challenges. She explained key surgical principles, including the use of donor corneas and the liberal application of OVDs to protect the endothelium. Farrukh highlighted the significance of identifying and managing associated comorbidities and stressed the need for long-term follow-up due to compromised endothelial cell counts. She also shared her experience with combined procedures, advocating for the use of surgical techniques familiar to the surgeon to minimize the risk of complications.

In a separate talk, Soufia presented the complexities of performing cataract surgery in eyes with short axial lengths. She underlined the importance of thorough preoperative evaluation and the role of advanced biometric assessment, including newer formulas incorporating artificial intelligence. Soufia described her preferred surgical approach, which involved creating temporal ports and a scleral tunnel to enhance access and stability. She also discussed strategies for managing intraoperative challenges, such as the administration of intravenous mannitol to control intraocular pressure and the need for meticulous, steady surgical technique to avoid complications.

Majeed Malik presented a video demonstration outlining ten practical tips for managing hard cataracts. He highlighted the use of viscoelastic agents to maintain chamber stability and described the technique of shaving the anterior cortex to enhance visibility and minimize traction. He stressed upon the importance of working within the iris plane to maintain safety. In managing the perinuclear cortex, Malik underscored the value of using OVDs to protect the corneal endothelium throughout the procedure.

Usman Saeed discussed strategies to minimize iris manipulation during cataract surgery to reduce the risk of postoperative inflammation. He recommended the use of the second version of the Malyugin ring, which, although more pliable, was found to be gentler on the iris. In his experience, a 6.25 mm ring was most commonly used, though a 7 mm ring was considered in selected cases. He advocated for the use of a silicone-tipped irrigation/aspiration (IA) handpiece to avoid retention of sublenticular material (SLM) within the capsular bag. Regarding IOL selection, Saeed preferred a hydrophobic, single-piece acrylic lens for routine cases. In cases requiring sulcus placement, he selected a posterior vaulted three-piece lens, aiming for optic capture. He emphasized the importance of senior surgical support in cases with posterior capsule rupture. Postoperative care involved the use of topical steroids, with adjustments based on the severity of inflammation and history of uveitis. For refractory uveitis, alternative treatments included intravitreal and intracameral dexamethasone, oral steroids, and methotrexate, which required a six-week lead time to become effective and was initiated alongside steroids. He stressed the importance of excluding tuberculosis in endemic areas before initiating immunosuppressive therapy. For patients with Down syndrome or cognitive impairment, Saeed recommended intravitreal Ozurdex due to its shorter duration of action and favorable safety profile.

Irum Raza presented a case of phacoemulsification in a patient with a thin cornea and a history of ocular trauma. Her surgical strategy focused on a slow and controlled emulsification technique to minimize the risk of corneal damage. She emphasized the importance of carefully chipping the nucleus into smaller fragments to facilitate removal while avoiding contact with the cornea. Raza highlighted the need for gentleness and patience when managing complex or atypical cases. During the final steps, she recommended avoiding the central corneal zone and remaining slightly paracentral during emulsification to preserve corneal integrity.

SESSION 3: Premium IOL Surgery Tips

This session was focused on the Premium IOL surgery tips by the experts. It was chaired by **Aamir Asrar**, co-chaired by **Afzal Hussain** and moderated by **Rehan Moinuddin Shaikh**.

Aamir Asrar discussed astigmatism correction during cataract surgery, the benefits and limitations of toric lenses, and when not to use premium IOLs. **Nadeem Riaz** discussed toric lenses, noting that 80% of patients need post-surgery glasses, while 15% do not. He emphasized the importance of accurate toric calculators and proper patient selection. He focused on the importance of correcting astigmatism during

cataract surgery, highlighting the limitations of spectacle correction and the superior outcomes associated with toric intraocular lenses. Toric lenses were noted to offer better predictability and higher success rates compared to corneal incisions. Key inclusion criteria for implantation were discussed, along with the value of using precise toric calculators such as the Alcon and Barrett formulas. Surgical techniques included careful preoperative marking and accurate lens orientation, with particular emphasis on the use of slit lamps for precise alignment and thorough removal of viscoelastic fluid to prevent postoperative lens rotation. The session also featured a case involving a trifocal toric lens, underlining the importance of pupil dilation for correct placement.

Sadia Hamayun highlighted the need for thorough pre-operative assessments, including ocular health, corneal astigmatism, and patient expectations. Her presentation focused on identifying appropriate and inappropriate scenarios for the use of premium IOLs, with particular emphasis on patient selection criteria. Key considerations included overall ocular health, the presence of corneal astigmatism, occupational visual demands, and lifestyle needs. A comprehensive preoperative assessment was described, incorporating history, refraction, contrast sensitivity, and detailed ocular examination. Special attention was given to identifying and managing ocular surface diseases before surgery. Diagnostic tools such as OCT and specular microscopy were highlighted for evaluating retinal and corneal integrity, especially to detect endothelial decompensation. The importance of topography, tomography, and angle kappa measurements was discussed in relation to alignment and IOL suitability. Higher order aberrations were noted as important metrics in determining candidacy and selecting the appropriate IOL type, whether monofocal, enhanced monofocal, or trifocal. A case study illustrated the step-by-step approach to biometry and underscored the critical role of accurate measurements. Finally, the need for thorough patient counseling was emphasized, ensuring realistic expectations and understanding of both the benefits and limitations of premium IOLs.

Abdul Majeed Malik compared trifocal and EDOF lenses, noting that EDOF lenses offer better mesopic vision and reduced glare. His talk featured a comparative analysis of trifocal and EDOF IOL, focusing on their design, clinical outcomes, and suitability for different patient profiles. The presentation began with a discussion on the limitations of traditional multifocal lenses, underscoring the critical importance of appropriate patient selection and thorough preoperative counseling. Differences between trifocal and EDOF IOLs were explained, particularly in terms of optical zones and lens architecture. Case studies illustrated how each lens type performed in varied clinical scenarios, highlighting their respective advantages and drawbacks. Trifocal lenses offered superior near vision but were more prone to photic phenomena, while EDOF lenses, with their central microlens design and extended range of focus, provided better mesopic vision and reduced halos and glare. Patient-reported outcomes data were presented, showing high satisfaction rates with EDOF lenses when selection criteria were appropriately applied. Emphasis was placed on the need for comprehensive preoperative evaluation to optimize results and manage expectations. His presentation concluded with a call for ongoing education and training to remain abreast of evolving IOL technologies and their clinical applications.

Hamza Ali Tayyab presented scleral fixation techniques and managing difficult cataract cases. He gave a comprehensive presentation on a modified scleral fixation technique. The technique was detailed, highlighting the use of smaller gauge needles for haptic externalization, meticulous marking for centration, and the critical need to maintain haptic integrity throughout the procedure. A case study illustrated the procedural steps and the importance of gentle handling to avoid complications. The discussion then transitioned into strategies for managing difficult cataract cases, focusing on high-vacuum techniques, and trench formation to ease nucleus manipulation. Specific techniques such as central debulking and careful phaco needle strokes were recommended to protect the posterior capsule. Emphasis was placed on the value of patience and precision in challenging scenarios. The session concluded with expressions of gratitude, final remarks from the panel, and a vote of thanks, underscoring the commitment to continued learning and surgical refinement.

SESSION 4: Management of Cataract Surgery in The Setting of Poor or Absent Capsular Support

This instructional course focused specifically on the management of cataract surgery in the setting of poor or absent capsular support, an area of significant surgical

challenge and clinical importance. This course was chaired by **Yehia Salaheldin,** co-chaired by **Shahzad Saeed Sheikh**, and moderated by **Hammad Ayub**. **Yehia** delivered an insightful presentation on real-life clinical scenarios involving iridoplasty and various forms of IOL displacement and dislocation. His discussion emphasized practical decision-making strategies and intraoperative techniques tailored to complex anatomical situations. **Majeed Malik** further enriched the session by presenting on phacoemulsification in cases of 50% zonular dialysis. He demonstrated the effective use of capsular hooks and a CTR to stabilize the capsular bag, underscoring the importance of meticulous surgical planning and advanced instrumentation in achieving successful outcomes. This instructional course provided valuable pearls for anterior segment surgeons dealing with compromised capsular support and highlighted innovative approaches to restoring visual function in such challenging cases.

SESSION 5: Surgical Amnagement of Aphakia

Another instructional course was on Surgical management of aphakia. It was moderated by **Faisal Iqbal**. **M. Tariq Khan** opened the session by providing an overview of the evolution in the management of aphakia, tracing developments from the use of aphakic glasses to anterior chamber lenses (ACLs). He highlighted the complications associated with these methods, particularly retinal detachments and glaucoma, setting the stage for an in-depth discussion by the subsequent speakers on newer and safer approaches.

Saad Iqbal focused on ACL, elaborating on its indications in cases of poor zonular support, particularly in older patients with adequate anterior chamber depth. He outlined contraindications such as corneal pathology, low endothelial counts, and iris abnormalities, especially in younger patients. The discussion covered the benefits of ACLs, including lower cost and shorter surgical time, alongside complications such as iris trauma, angle damage, and inflammation. He introduced a modified scleral fixation technique using flanged 5-0 or 6-0 Prolene sutures with PMMA lenses. This approach involves thermally creating flanges to secure the haptics, offering improved lens stability and cost-effectiveness compared to 10-0 Prolene methods.

Junaid Hanif presented a posterior fixation technique using the Alcon MS60 IOL. He detailed a method involving three-port pars plana vitrectomy followed by scleral fixation, demonstrated with surgical videos. The procedure includes scleral marking, precise needle passage, and lens insertion through a constructed main wound. Advantages of this technique include minimal intraocular manipulation, elimination of specialized instrumentation, and a more stable lens position.

Faisal Iqbal highlighted a four-point scleral fixation method integrated with a partial scleral tunnel approach. This involved meticulous scleral marking and the use of 9-0 Prolene or Gore-Tex sutures with 25- or 23-gauge needles, yielding benefits such as reduced IOL tilt and postoperative astigmatism. He also demonstrated a single-haptic fixation technique for repositioning a tilted multifocal IOL, emphasizing the creation of a new port and the careful manipulation of the lens for optimal centration. He highlighted the importance of patient communication and avoiding complications.

SESSION 6: Basics of Cataract Surgery

A solid foundation in the basic principles of cataract surgery is essential for every ophthalmic surgeon, regardless of experience level. Mastery of the fundamentals, such as proper wound construction, Capsulorhexis formation, hydro-dissection, nucleus management, and cortical cleanup—not only ensures surgical safety and efficiency but also significantly reduces the risk of intraoperative complications. These core skills form the basis for managing routine cases and are crucial when faced with challenging situations, such as weak zonules or small pupils. Moreover, a deep understanding of the underlying anatomy, fluidics, and tissue behavior allows surgeons to adapt their techniques with confidence and precision. Emphasizing the basics also builds the foundation for learning advanced procedures, such as femtosecond laser-assisted cataract surgery or premium IOL implantation. In training and continuing education, revisiting these fundamental concepts reinforce surgical discipline, enhances patient outcomes, and upholds the highest standards of ophthalmic care. The session was chaired by **Yehia Salaheldin**, co-chaired by **Aqil Qazi** and moderated by **Nauman Hashmani**. **Sharon** presented her team's real-world experience with the swept-source OCT-based biometer, highlighting its advantages in optimizing cataract surgery outcomes. After briefly tracing the evolution of biometry from ultrasonic to

optical techniques, she emphasized the limitations of earlier devices, particularly in cases with dense cataracts, corneal opacities, or subtle macular pathology. The newer swept-source technology, exemplified by the IOL Master 700, uses a 1080 nm infrared wavelength that enables better tissue penetration, precise axial length measurement, and visualization of the fovea, allowing detection of issues such as poor fixation and subtle retinal disease. She demonstrated how the machine accounts for variables like prior refractive surgery and silicone oil, thus preventing postoperative surprises. The device offers detailed corneal, lenticular, and retinal B-scans, and automatically flags suboptimal fixation, where even minor discrepancies in axial length readings can impact refractive outcomes. Two clinical examples illustrated how early macular pathology, missed on clinical exam but detected by the biometer, helped avert inappropriate premium IOL implantation. Overall, the swept source biometer improved preoperative screening, reduced refractive surprises, enhanced workflow efficiency, and proved especially valuable in planning for premium IOLs, with scans completed in under a minute and minimal operator dependence.

Nauman Hashmani presented on optimizing monovision surgery, a cataract technique that involves inducing myopia in the non-dominant eye while keeping the dominant eye emmetropic to enhance near and distance vision. He emphasized the importance of understanding ocular aberrations, especially when planning monovision or premium IOL implantation, as both corneal and internal aberrations affect contrast sensitivity and depth of focus. Using technologies like iTrace and the VSOTF (visual Strehl ratio based on the optical transfer function), his team has standardized the measurement of depth of focus curves in their clinical trial unit. Through a series of case studies involving monofocal and extended monofocal lenses, he demonstrated how varying refractive targets between eyes can extend functional vision across distances. His findings suggest that inducing slight myopia in one eye, particularly with extended monofocal lenses, can improve near and intermediate vision without fully compromising distance acuity, though careful patient selection and preoperative testing (e.g., contact lens trial) remain essential.

Dr. Yehia Salahedin gave a highly practical and experience-driven talk on the importance of mastering posterior capsulorhexis for anterior segment surgeons. He emphasized that the posterior capsule is stronger than commonly believed, and with the right technique, it can be safely managed, vacuumed, or even peeled without causing tears, provided one avoids traction. The technique is particularly useful when encountering posterior capsular plaques or membranes that cannot be removed by simple aspiration. In such situations, rather than leaving an opacity or relying on postoperative YAG laser, a controlled posterior capsulorhexis provides a clear visual axis and better outcomes.

He highlighted several key indications for primary posterior capsulorhexis: congenital or pediatric cataracts, young adults undergoing multifocal IOL implantation, or intraoperative findings such as primary posterior capsule opacities or plaques. He also underscored its utility in managing complications like posterior capsule rupture. The technique involves first creating a shallow scratch on the posterior capsule to initiate the opening without penetrating the anterior vitreous face. Viscoelastic is then injected behind the capsule to push the anterior vitreous phase posteriorly and create working space. A continuous curvilinear posterior capsulorhexis is then completed using similar principles to anterior CCC, taking care to always maintain viscoelastic support anterior and posterior to the capsule.

He stressed that this technique is highly repeatable and safe if performed systematically and allows the surgeon to implant the IOL in the capsular bag even when complications occur. Compared to YAG capsulotomy, it avoids issues like multifocal IOL decentration or posterior segment complications. He also shared intraoperative video examples where posterior capsulorhexis allowed successful management of dense plaques, and even salvaged cases with unintentional capsule rupture by converting the opening into a controlled posterior capsulorhexis. He concluded by emphasizing that with consistent practice and adherence to key surgical rules, posterior capsulorhexis becomes a reliable, versatile tool for optimizing surgical outcomes in both planned and unexpected scenarios.

Ejaz Latif discussed the evolving shift from manual irrigation/aspiration (IA) with a simple cannula to automated IA systems. He emphasized that while many junior surgeons and even some senior faculty still perform manual IA, automated systems now offer a safer and easier alternative. This shift enhances control and efficiency during cortex removal, especially in complex cases such as pediatric or traumatic cataracts. The discussion then transitioned to posterior capsular

management in pediatric cataracts, where anterior vitreous face (AVF) integrity plays a crucial role. It was emphasized that in children under three years of age, even when a posterior capsulorhexis is performed, an anterior vitrectomy is often indicated due to the strong and elastic nature of the AVF, which acts as a scaffold for lens epithelial cell proliferation. The presence of persistent fetal vasculature or high risk of posterior capsule opacification (PCO) justifies this step. However, in slightly older children or selected cases, if the AVF remains undisturbed, surgeons can avoid vitrectomy. There was a detailed exchange on the choice and role of viscoelastics during posterior capsulorhexis. A cohesive or dispersive viscoelastic can be used, but the key is not the type, it is ensuring a balanced pressure across the capsule by creating a "viscoelastic sandwich" around the posterior capsule opening. This stabilizes the capsule and prevents anterior vitreous herniation. Maintaining equilibrium ensures the surgeon's force is the only vector acting on the capsule, allowing precise control of the capsulorhexis.

A discussion followed on the anatomy of the posterior segment, particularly Berger's space, which offers a safe margin (approximately 3 mm) between the posterior capsule and anterior hyaloid, especially in young eyes. This anatomical buffer allows posterior capsulorhexis to be performed safely without disrupting the AVF.

On the issue of PCO prevention, it was noted that the younger the patient, the higher the risk of opacification. Strategies to mitigate this include use of square-edged, 360-degree overlapping optic designs, meticulous capsule polishing, and the use of primary posterior capsulorhexis in selected cases. However, concern was raised about over-intervening, particularly in young patients, where every intraoperative maneuver adds trauma with potential long-term macular implications. A staged approach, with transparent preoperative counseling, was advised.

The dialogue closed with a consensus that while Nd:YAG capsulotomy remains a standard and effective treatment for PCO, it is not without risks, particularly in multifocal IOLs or eyes with preexisting retinal vulnerabilities. The laser generates shockwaves that can precipitate macular edema or retinal detachment, particularly in high myopes. In such cases, a well-performed primary posterior capsulorhexis may offer a safer and more physiological option for maintaining a clear visual axis. The key takeaway was that posterior capsular management, especially in younger patients or premium IOL cases, requires individualized planning, proficiency in posterior capsulorhexis, and readiness to adapt intraoperatively, with full understanding of the anatomic and physiologic considerations.

Tariq Aziz addressed the sensitive and often stigmatized topic of postoperative endophthalmitis, emphasizing that it is a rare but universally possible complication, regardless of surgical skill. He noted that surgeons who claim never to have seen endophthalmitis are likely not performing enough surgeries. The discussion encouraged openness about complications and stressed that endophthalmitis should never be hidden or denied.

Key recommendations included avoiding patient-blaming, maintaining transparency, and managing such cases with empathy and professionalism. Surgeons were advised to stay calm, refrain from being defensive, and clearly communicate with patients and families, offering realistic not falsely optimistic expectations. If practicing in a peripheral or under-equipped setting, prompt referral to a trusted vitreoretinal (VR) surgeon or tertiary care center is critical. The referring surgeon should be respectful and transparent with the VR colleague, ideally giving no more than two intravitreal injections before referring if there is no improvement.

Aziz strongly advised against charging or retaining surgical fees in these scenarios; instead, he recommended refunding the amount as a gesture of goodwill and patient support. He emphasized that the cost of VR surgery and emotional distress could be substantial, so the original surgeon should not add to the burden.

From a legal and reputational standpoint, proper documentation, frequent follow-up, and detailed discussions with the patient are crucial. Questions like "Why me?," "What went wrong?," or "Will I regain vision?" must be answered patiently. Visual recovery is often limited, and any visual improvement beyond light perception is considered fortunate. Surgeons must avoid false reassurance while remaining compassionate.

He also stressed the importance of proper sterilization protocols, including swab testing from scrub rooms and identifying potential contamination sources, such as poorly trained assistants or instrument handling lapses. The role of the surgical team's hygiene, especially the assistant, was highlighted as a possible cause of infection.

The overall message was clear: manage endophthalmitis with humility, honesty, and a patient-centered approach. With timely referral, emotional intelligence, and systemic hygiene checks, one can navigate this dreaded complication while preserving both patient trust and professional reputation.

SESSION 7: Live Cataract Surgery Symposium

The live cataract surgery symposium was chaired by **Mohammed Moin** and co-chaired by **Naeem Khatak**. Key surgeons included **Qasim Latif Chaudhary**, **Zia Ul Mazhary**, and **Khalid Mahmood**. The moderator was **Raza Ali Shah**. The session featured live surgeries using various intraocular lenses, including the Vivinex, Liberty trifocal, and ELON EDOF lenses. Techniques discussed included Phaco settings (60% power, 42 flow rate, 450 vacuum), bi-manual I/A, and the importance of proper lens insertion. The discussion also covered the benefits and patient selection for EDOF lenses, the advantages of bilateral sequential cataract surgery, and the technique for posterior Capsulorhexis.

The live surgical session began with a detailed description of the surgical setup, including the use of a 2.75 mm incision and a Lumera microscope. A discussion followed on the phacoemulsification (phaco) settings, including the phaco power, flow rate, and vacuum parameters used during the procedure. Panelists elaborated on the phaco machine and IOL details, such as the A-constant and the use of a pre-loaded lens delivery system.

The session transitioned into a demonstration of IOL insertion. The surgeon highlighted the use of the preloaded Vivinex lens system, noting its streamlined delivery and smooth unfolding. The panel emphasized the advantages of the Vivinex lens, including its blue-light filtering capability and hydrophobic acrylic material, which minimize glistening and enhance contrast sensitivity. Audience members were invited to share their experience with Vivinex lenses and phaco surgery techniques.

Subsequently, the discussion turned to lens selection and patient satisfaction. Concerns were raised about choosing an appropriate lens for ophthalmologists themselves, reflecting the importance of informed lens selection. The benefits of the cataract machine's SPEED mode, especially for soft nuclei and equatorial cortex, were reviewed. The conversation emphasized that patient satisfaction is closely tied to visual quality, contrast sensitivity, and the presence or absence of photic phenomena like glare or halos. The importance of proper patient selection for premium lenses was also underscored, with cautionary notes about the risk of dissatisfaction if expectations are not appropriately managed.

The session then introduced trifocal lens surgery, led by a presentation on the Liberty trifocal lens. The speaker discussed the patient's biometry and the dual incision surgical plan. The Liberty lens was noted for its dual haptic design, which ensures greater centration and resistance to capsular phimosis. The lens was inserted using a bi-manual irrigation/aspiration system, and surgical tips such as the need for an optimal Capsulorhexis and vertical phaco tip were shared. Additional details included the use of miostat for pupil management and the need for meticulous hydration to secure wound closure. The superiority of EDOF lenses over traditional multifocals was debated, with consensus forming around their reduced risk of glare and halos and their more forgiving optics. Patient selection criteria for EDOF lenses were discussed, emphasizing the need for clear ocular media and realistic visual expectations. Bilateral Sequential Cataract Surgery (BSCS)was also discussed. Its advantages were outlined, including reduced patient travel, faster visual rehabilitation, and higher satisfaction. However, associated risks such as bilateral discomfort, rare cases of bilateral endophthalmitis, and financial concerns for surgical centers were also discussed. The panel agreed that BSCS should only be offered by experienced teams with strict protocols, and only in patients meeting specific inclusion criteria. A three-step safety framework was presented: careful case selection, true sequential surgery with separate instrument trays, and use of fresh medicines and consumables for each eye. Ethical considerations, such as fully informed patient consent and risk-benefit communication, were emphasized.

The session concluded with an introduction to the Posterior Capsulorhexis technique, a method for addressing residual lens epithelial cells or opacities on the posterior capsule. The steps of the procedure were demonstrated, including the use of viscoelastic to push back the anterior vitreous, controlled tearing of the posterior capsule, and the importance of surgical magnification. This was illustrated with a case involving a young patient undergoing premium lens exchange, highlighting the technique's role in managing posterior capsule rupture or fibrosis.

REFRACTIVE SURGERY

Refractive sessions in ophthalmic conferences are of vital importance, as they provide a focused platform for discussing the latest advancements, techniques, and outcomes in the field of refractive surgery. These sessions facilitate knowledge exchange on evolving technologies such as SMILE, femtosecond LASIK, phakic IOLs, and presbyopic solutions, enabling ophthalmologists to make evidence-based decisions in their clinical practice. They also offer opportunities to address familiar challenges, complications, and patient selection criteria, thereby enhancing surgical safety and visual outcomes. For trainees and early-career ophthalmologists, refractive sessions serve as valuable learning modules, combining theoretical insights with real-world surgical experiences. Furthermore, these sessions help align local practices with international standards and encourage innovation and research in refractive care. Overall, refractive sessions contribute significantly to improving the quality of vision correction services and advancing the subspecialty within comprehensive ophthalmology.

SESSION 1: Panel Discussion on Refractive Surgery

The first session was a panel discussion on refractive surgery. Sadia Humayun moderated the session**.** She introduced the panelists; **Mazhar Ishaq**, **Sharif Hashmani**, **Zafar ul Islam** and **Qasim Lateef**. The panel addressed critical clinical considerations and best practices for safe and effective outcomes. It was agreed that candidates should be at least 18 years old, with a stable refraction for a minimum of one year and no significant change exceeding 0.5 diopters in the previous 12 months. Chronic contact lens users were advised to discontinue lens wear at least one week prior to surgery and undergo epithelial and corneal topography mapping to detect any warpage or irregular astigmatism. Refractive surgery was contraindicated during pregnancy and lactation due to hormonal effects on corneal biomechanics. Patients with glaucoma required careful evaluation of intraocular pressure and ocular surface health, while diabetic patients could be considered only if the disease were stable and free of retinal changes. Cycloplegic refraction was deemed essential, especially for hyperopic patients, to detect latent hyperopia. The panel emphasized that refractive surgery should be avoided in individuals with active dry eye syndrome unless adequately treated beforehand. High myopes were identified as suitable candidates for femtosecond laser or implantable collamer lenses (ICL), provided anterior chamber depth was sufficient. The importance of calculating the Percentage of Tissue Altered (PTA) and maintaining it below 40% was underscored to reduce the risk of postoperative ectasia. Additionally, the discussion covered management of postoperative complications, such as Diffuse Lamellar Keratitis (DLK), highlighting the need for vigilant monitoring and appropriate surgical hygiene.

SESSION 2: SMILE

The session on SMILE was chaired by **Murat Direl** co-chaired by **Zafar ul Islam** and moderated by **Mushtaq Khattak**. The discussion focused on the advantages and disadvantages of SMILE (Small Incision Lenticule Extraction) technology in refractive surgery. SMILE is praised for its stability, reduced flap complications, and long-term visual outcomes. However, it faces challenges due to its high cost and steep learning curve. The technology is noted for its precision, minimal tissue damage, and better corneal strength compared to LASIK. Recent advancements include SMILE Pro, which offers faster procedures and more customization. The conversation also highlighted the importance of surgical experience, particularly in handling astigmatism and high myopia, and the need for efficient and gentle techniques to avoid complications.

Murat Direl discussed the benefits of SMILE highlighting its advantage over traditional refractive procedures due to the absence of flap-related complications and the convenience it offers to the patients, such as the ability to sleep without concerns about flap dislocation. He praised the tissue-preserving nature of SMILE, the lower vacuum settings during the procedure, and the stable, long-term visual outcomes. He noted that patients generally report high satisfaction, though the high cost remains a significant limitation. The discussion emphasized the importance of clinical observations over financial incentives, with **Direl** noting that his first SMILE patient, operated on eight years ago, remained satisfied. The group also acknowledged the challenges during the early postoperative visual recovery phase and emphasized surgical experience, especially for managing hyperopia and astigmatism. The importance of avoiding

substandard equipment and the value of using high-quality lasers like the Max 800 were also mentioned.

The conversation transitioned to corneal strength and dry eye management, with SMILE being credited for preserving the anterior corneal structures, including the Bowman layer, thus potentially reducing postoperative dry eye. The role of confocal microscopy in assessing corneal nerves and the call for more long-term studies on corneal biomechanics post-SMILE were highlighted.

From a practical perspective, Direl shared his supervisory experience and emphasized the steep learning curve associated with SMILE. He discussed the importance of maintaining a smooth, swift surgical flow and being prepared to manage complications effectively. Tips included ensuring proper corneal hydration to prevent sticking, using drapes to reduce debris contamination, and employing gentle techniques in astigmatic cases to avoid epithelial trauma.

Direl concluded by stressing patient comfort, advocating for the use of cold anesthetics to minimize intraoperative pain, and reiterated the need for adequate training and institutional investment in SMILE technology to achieve consistently successful outcomes.

Zafar-ul-Islam discussed the advancements in SMILE technology, particularly focusing on the introduction of new machines and improved techniques. The conversation highlighted the benefits of the SMILE Pro system, emphasizing its ability to provide more precise customization for refractive surgeries, thus expanding the range of treatment options available. He compared SMILE to LASIK, noting that SMILE tends to induce fewer higher-order aberrations, which can lead to improved visual quality post-surgery. Additionally, SMILE was found to maintain similar biomechanical strength as LASIK, which is important for long-term corneal stability. The discussion also touched upon the potential future uses of lenticules, including overlay additive keratoplasty and the correction of hyperopia, which could further broaden the scope of SMILE applications.

Mushtaq Khattak shared a patient's experience with SMILE Pro, highlighting the procedure's comfort and the patient's high level of satisfaction. The conversation included impressive data on the success of SMILE Pro, with 99.5% of patients achieving a glasses-free outcome and 95% expressing full satisfaction with the results.

SESSION 3: HOAs, The Importance and Interpretation

The third session was chaired by **Mazhar Ishaq**, co-chaired by **Khalid Najmi** and moderated by **Irfan Muslim.** The meeting started with discussion on High Order Aberrations (HOA) by **Mazhar Ishaq** who elaborated on the importance and interpretation of HOA. He described the HOA as subtle optical imperfections that cannot be corrected with glasses or standard contact lenses. They significantly affect visual quality, especially in low-light conditions, causing glare, halos, and decreased contrast sensitivity. Understanding and measuring HOAs is essential for optimizing outcomes in refractive and cataract surgeries. Interpreting HOA maps helps in customizing treatments like wavefront-guided LASIK or selecting appropriate intraocular lenses.

Sharif Hashmani discussed the significance of addressing astigmatism in retinal surgery and diagnostics, particularly with toric intraocular lenses (IOLs). He emphasized the need to align the toric IOL with the steep axis of the cornea, noting that a 10% loss of power occurs for every three degrees of rotation. He highlighted the value of digital markers for precise alignment during video-guided surgery, ensuring accuracy throughout the procedure. Additionally, Hashmani emphasized the importance of polishing the posterior part of the lens and using irrigation and expression cannulas to prevent rotation, thereby enhancing the stability and effectiveness of the toric IOL placement.

Mushtaq Khattak introduced the topic of emerging trends in refractive surgery, beginning with the evolution from radial keratotomy to LASIK. He explored the differences between PRK (Photorefractive Keratectomy) and transPRK, focusing on the variations in epithelial removal techniques and the associated healing times.

The discussion also covered the evolution of LASIK, including the shift toward customized LASIK procedures. Additionally, the introduction of blended vision with presbyopic lenses was addressed, demonstrating advances in accommodating the visual needs of patients with presbyopia. Khattak highlighted the emergence of SMILE as a minimally invasive procedure, emphasizing its use of a femtosecond laser to create precision and minimize tissue disruption.

Saeed Khan discussed a range of complications associated with femtosecond laser surgery for myopia,

highlighting issues such as subconjunctival hemorrhage and the formation of thin epithelial flaps. He emphasized the importance of early recognition of these complications and maintaining composure during surgery to ensure effective management. He presented several clinical cases, including decentered and irregular flaps, as well as challenges with docking. For each scenario, Khan outlined practical strategies and adjustments to improve outcomes. The session also covered the use of specialized instruments and refined surgical techniques tailored to address these complications and support successful surgical results.

Zafar-ul-Islam discussed current trends in phakic IOLs, focusing on both posterior chamber (PC) and iris-supported models. He highlighted the evolution of Implantable Collamer Lenses (ICLs) since their introduction in 1993, emphasizing the significance of recent innovations such as the central port (a small hole) that enhances aqueous flow and reduces the risk of complications related to metabolism and intraocular pressure. He stressed the necessity of meticulous patient selection and preoperative assessment, particularly measurements of anterior chamber depth and white-to-white distance. Zafar also discussed the use of specialized instruments designed for precise ICL insertion, noting the advantages of using pre-loaded ICL systems to minimize surgical time and enhance procedural reliability.

Majeed Malik discussed the unique challenges and important considerations in refractive surgery for hyperopia. He emphasized the need for comprehensive patient evaluation, particularly incorporating both manifest and cycloplegic refractions to ensure accurate assessment of refractive error. Corneal topography was highlighted as a critical tool for evaluating corneal shape and suitability for surgery. He reviewed the role of femtosecond laser-assisted procedures in treating hyperopia, noting the technical adjustments required, such as using larger flap diameters and careful hinge placement to accommodate the peripheral ablation zones needed for effective correction. Malik also underscored the importance of managing patient expectations, especially given the potential for postoperative myopic shift and the variable stability of hyperopic corrections. He concluded by pointing out the advantages of addressing early presbyopia concurrently, offering patients a more comprehensive refractive solution.

SESSION 4: Corneal Topography

Instructional course on Corneal topography was conducted by **Zia-ul-Mazhary.** The session began with an introduction to corneal topography and its role in refractive surgery, focusing particularly on the utility of the Pentacam. The purpose was to understand the capabilities of the device, especially in generating refractive maps that include anterior and posterior elevation, sagittal curvature, and corneal thickness. Emphasis was placed on avoiding overdiagnosis of conditions like pellucid marginal degeneration (PMD) based solely on the nine-millimeter map and highlighting the importance of reviewing raw images and proper segmentation for accurate interpretation. The discussion on keratometric readings (K readings) pointed out their limitation to the anterior corneal surface and a restricted diameter, underscoring their non-diagnostic nature for keratoconus and the need to interpret K max values cautiously. Sagittal curvature maps were then explored, explaining their underlying assumptions and the role of angle kappa, while also noting that patterns like skewed radial axes or asymmetric bow ties are not definitively diagnostic. Elevation maps were presented as a more sensitive tool for early keratoconus detection, with a detailed explanation of best fit spheres and their enhanced forms, and the importance of comparing elevation data with pachymetry. The session also covered pachymetry's diagnostic value, its role in identifying biomechanical deficits, and the need for re-imaging in abnormal cases. A strong emphasis was placed on integrating clinical examination with topography findings, acknowledging the limitations of imaging and the significance of patient history, contact lens use, and slit-lamp findings. Applications of topography in refractive surgery were discussed, including post-keratoplasty suture management and the assessment of corneal densitometry in cases of inflammation or infection. Interpretation of topography data was further elaborated with an explanation of map types, scan quality, the Q value, and the importance of clinical correlation. Advanced topography techniques such as the Belin-Ambrosio Display (BAD) were introduced, particularly for evaluating posterior elevation and improving early keratoconus detection. The session concluded by stressing the value of clinical experience, the limitations of relying solely on mathematical models, and the importance of understanding corneal wound healing responses. A comprehensive, continuously updated approach to diagnosing and managing keratoconus and

utilizing topography in refractive surgery was strongly advocated.

SESSION 5: Understanding Refractive Surgery And Keratoconus

The refractive sessions also included a dedicated panel discussion on ‘understanding refractive surgery and keratoconus.’ It was moderated by **Nauman Hashmani**. The panelists included **Sharif Hashmani, Azhar Nafees, Sadia Humayun, Nadeem Riaz, Majeed Malik and Dr Qasim Lateef**.

The discussion was focused on the importance of understanding refractive surgery and keratoconus for accurate diagnosis, patient selection, and safe surgical planning. Keratoconus, a progressive corneal ectasia, can mimic refractive errors like myopia and astigmatism but requires a distinct management approach. Recognizing early signs through corneal topography and tomography helps prevent iatrogenic ectasia following refractive procedures. Proper screening ensures that only suitable candidates undergo refractive surgery, while keratoconus patients benefit from tailored treatments such as corneal cross-linking or specialty lenses.

GLAUCOMA

Glaucoma sessions in an ophthalmology conference are crucial as they focus on one of the leading causes of irreversible blindness worldwide. These sessions update clinicians on the latest advances in diagnosis, medical and surgical management, and emerging research. There were three symposia on glaucoma: 1) Nightmare glaucoma cases, 2) Advanced diagnostics and management in glaucoma and challenges and 3) Innovations in glaucoma surgery. The sessions also included two instructional courses: Laser treatments in glaucoma and OCT in glaucoma.

SESSION 1: Nightmare Glaucoma Cases

The first symposium, which was on nightmare glaucoma cases, highlighted complex, challenging scenarios that push the boundaries of current knowledge and management. It provided valuable insights into diagnostic dilemmas, treatment failures, and innovative approaches. Such discussions foster critical thinking, enhance critical thinking skills, and encourage collaboration among glaucoma specialists. Ultimately, this improves clinical strategies for managing difficult cases and advancing patient care.

The symposium was chaired by **Aslam Razaq**, co-chaired by **Nadeem Hafeez Butt** and moderated by **Nasira Inayat**. Aslam Razaq presented first case. It was a complex case of a 49-year-old woman with severe glaucoma and a background of diabetes, who had undergone multiple ocular surgeries. Her initially an angle closure glaucoma evolved into a devastating clinical course marked by multiple failed interventions. Despite early identification of narrow angles and prompt laser PI, she developed uveitis, persistent elevated IOP, and ultimately aqueous misdirection. Repeated surgical attempts including lens extraction, vitrectomy, trabeculectomies, tube surgery, and cyclodiode failed to provide lasting control. The patient experienced severe complications, including visual loss, pain, and a drastic decline in quality of life. Meanwhile, the fellow eye, managed more conservatively with clear lens extraction, PI, and minimal medication, stabilized. The case underscores how complex, protocol-driven systems can miss critical planning time, and how poor outcomes affect not just vision, but the entire life of the patient. It is a powerful reminder that each eye is unique, and glaucoma care requires individualized, cautious planning.

Razaq emphasized the importance of patient-centered care, particularly in managing complex cases with systemic and psychological implications and concluded with lessons on the seriousness of glaucoma and the need to treat patients holistically.

Nadeem Hafeez Butt shared a complex and instructive case of an 8-year-old child with congenital nephrotic syndrome on long-term systemic steroids who developed steroid-induced glaucoma and cataract. The child presented with a painful red eye, high intraocular pressure (42 mmHg in the right eye), corneal edema, and bilateral subcapsular cataracts. Gonioscopy confirmed open angles, and fundoscopy revealed advanced optic nerve cupping in the right eye. Given the steroid-induced etiology, systemic therapy options like mannitol were contraindicated by nephrology, so maximal topical therapy was initiated.

Due to uncontrolled IOP and visually significant cataract, a combined procedure of lens aspiration with IOL implantation and trabeculectomy with MMC was performed. Intraoperatively, high IOP contributed to a tear in the anterior capsule during capsulorhexis. Despite the complication, the lens was successfully removed and a multipiece IOL was implanted. The trabeculectomy followed standard protocols, including MMC application.

Postoperatively, the IOP was initially controlled, but the child developed a resistant pupillary membrane and subsequent IOP spike in the fellow eye, requiring trabeculectomy on the left as well.

Butt raised key clinical questions for discussion:

1. Should a combined procedure be the default in similar cases?
2. Should the incision sites for cataract and glaucoma surgery be the same or different?
3. If surgeries are staged, what should be the interval between them?
4. Which procedure cataract or trabeculectomy should be prioritized?

This case highlights the dilemmas in pediatric glaucoma-cataract co-management, especially in the context of systemic comorbidities. It also emphasizes the importance of individualized planning, surgical adaptability, and long-term follow-up in young, high-risk patients.

P.S. Mahar presented a 34-year-old male with a complex glaucoma history, including trabeculectomy in both eyes (left in 2017, right in 2018), cataract surgery in the left eye in 2021, and Ahmed Glaucoma Valve (AGV) implantation in the left eye in July 2021. The patient presented to the glaucoma clinic in November 2023 with a complaint of blurring of vision in the left eye for one month. He was using latanoprost in both eyes. His best corrected visual acuity was 20/25 in the right eye and 20/30 in the left. Intraocular pressure (IOP) was 12 mmHg in the right eye and 21 mmHg in the left. Gonioscopy revealed open angles in the right eye and multiple peripheral anterior synechiae in the left. The optic disc showed a cup-to-disc ratio of 0.5 in the right eye and total cupping in the left. The anterior segment of the left eye demonstrated significant iris atrophy, an irregular pupil, a large iridectomy, and a non-functioning AGV visible in the superior nasal quadrant.

OCT and visual fields confirmed advanced glaucomatous damage in the left eye. The patient started on a combination of dorzolamide and timolol twice daily in the left eye. Needling of the existing AGV plate was attempted but failed. Three weeks later, with persistent IOP elevation (30–32 mmHg), a second AGV was implanted in the superotemporal quadrant under general anesthesia using mitomycin C. Postoperatively, the IOP reduced to 10 mmHg without additional medications, and the patient was placed on standard postoperative care including antibiotics, steroids, and anti-glaucoma drops.

Seven months after surgery, the patient reported a progressive decline in vision in the left eye, now 20/100, despite a well-controlled IOP of 12 mmHg. Examination showed diffuse corneal edema with Descemet's folds, suggestive of tube–cornea touch. Specular microscopy showed a right eye endothelial cell count of 1592/mm², and the left eye could not be assessed due to corneal haze. Carbonic anhydrase inhibitors were discontinued due to their known adverse effect on corneal endothelium, and the patient was started on hypertonic saline, topical steroids, and lubricants.

As the vision continued to decline, surgical tube trimming was done. By September 2024, the patient's visual acuity in the left eye improved to 20/40, and the IOP remained well-controlled at 12 mmHg. The patient was continued on a regimen of topical prostaglandin analogues, beta-blockers, alpha agonist, hypertonic saline, and lubricants. At last follow-up in November 2024, the right eye vision remained 20/25, the left eye was stable at 20/40, and the IOPs were 12 and 14 mmHg, respectively.

This case highlights the complexity of managing advanced glaucoma with multiple previous surgeries and the importance of individualized, multimodal therapy. Tube–cornea touch remains a significant long-term complication of drainage implants and must be addressed promptly to prevent corneal decompensation. Close monitoring, appropriate imaging, and timely surgical intervention are key to preserving vision in such challenging cases.

Karim F. Damji discussed a case of normal tension glaucoma in a 50-year-old patient with Raynaud's disease and no family history of glaucoma. She had glaucomatous optic neuropathy and progressive visual field loss in one eye. Her systemic health was otherwise unremarkable, with normal blood pressure, no diabetes, and no family history of glaucoma. On initial presentation, best corrected visual acuity was preserved, IOP without treatment was 18 mmHg in the right eye and 16 mmHg in the left. Color vision was intact. Central corneal thickness was within normal limits, and the refraction showed mild myopia. Gonioscopy revealed open angles with no signs of pseudoexfoliation or inflammation.

Optic disc photographs showed markedly thinned neuroretinal rims in both eyes, more pronounced in the left, with vessel nasalization and visible lamina cribrosa. The right eye visual field was nearly normal, while the left showed advanced paracentral and superonasal defects, encroaching fixation. OCT revealed diffuse retinal nerve fiber layer (RNFL) thinning, more severe in the left eye, consistent with structural glaucomatous damage.

Given the low baseline IOP, a diagnosis of normal tension glaucoma (NTG) was considered after excluding secondary causes. The differential diagnosis included intermittent angle closure, Posner-Schlossman syndrome, uveitic or steroid-induced glaucoma, and previous trauma. Non-glaucomatous optic neuropathies, including compressive lesions, ischemic optic neuropathy, or congenital disc anomalies, were also ruled out using careful history, clinical examination, and imaging.

The patient's diurnal IOP fluctuated between 14–20 mmHg in the right eye and 12–18 mmHg in the left, with peak pressures in the morning. Given the progression and threat to central vision, target IOP was set in the lower teens. Initial therapy with latanoprost

was started, but despite pressure control to 14–15 mmHg, the disease progressed with new disc hemorrhages and worsening structural and functional parameters.

Management options discussed included medical therapy optimization, recognizing that agents like brimonidine may offer neuroprotection and carbonic anhydrase inhibitors may improve ocular perfusion. SLT was noted to be potentially effective even at low baseline pressures. However, with continued progression, filtration surgery such as trabeculectomy was considered. The importance of pressure-independent factors was emphasized, including evaluation of nocturnal hypotension via 24-hour blood pressure monitoring, systemic conditions such as anemia or autoimmune disease, and even intracranial pressure-related translaminar gradient abnormalities. Non-pharmacologic interventions like elevating the head of the bed were also suggested.

In conclusion, NTG remains a diagnosis of exclusion. Management requires careful evaluation of both ocular and systemic risk factors. Treatment decisions should be guided by the severity of visual field loss, proximity of defects to fixation, rate of progression, and presence of high-risk characteristics such as disc hemorrhage, female gender, migraine, or strong family history. Target pressure reduction of 30% or more is generally recommended, but attention to vascular and systemic contributors is equally crucial in preventing further progression.

Nasir Saeed presented a rare case involving a 67-year-old patient with longstanding primary open-angle glaucoma who was later diagnosed with a pituitary tumor compressing the optic chiasma. A 67-year-old male was diagnosed with primary open-angle glaucoma (POAG) in 2000. At the time of diagnosis, his IOP was 17 mmHg bilaterally, cup-to-disc ratio (CDR) was 0.6, and his visual acuity was 6/6 in the right eye and 6/12 in the left. He was initiated on prostaglandin analog therapy. He had no significant systemic comorbidities.

His first visual field test, in 2008, demonstrated changes consistent with glaucomatous damage. Despite apparently adequate IOP control in the range of 10–13 mmHg, serial fields showed progressive visual field loss. By 2009, given ongoing deterioration and IOP persistently within the statistically normal range, he was reclassified as having NTG. Dorzolamide-timolol combination therapy was added for additional IOP lowering and potential neuroprotection.

Over the subsequent years, his IOP remained between 10–12 mmHg, with occasional readings up to 15 mmHg. He was further started on memantine 15 mg, aiming at neuroprotection, although the evidence for its efficacy remains limited. Despite excellent compliance and multiple therapies, the patient continued to lose visual function, predominantly in the left eye, where field loss resembled a bitemporal pattern.

Given the atypical progression despite optimal glaucoma management and the unusual pattern of visual field loss, neuroimaging was eventually performed in April 2016, nearly a year after it was advised. MRI revealed a pituitary macroadenoma compressing the optic chiasm. The tumor was surgically excised in June 2016. However, visual decline persisted post-operatively. The patient became severely depressed, ceased further ophthalmic evaluations, and ultimately passed away.

This case raises an important question: was this solely a compressive optic neuropathy from a pituitary tumor, or was there coexisting NTG? Although the IOP was well-controlled, visual field progression and OCT changes persisted, suggesting a possible dual pathology. This distinction is clinically relevant but often challenging.

The key message from this case is the necessity of maintaining a broad differential diagnosis and exercising diagnostic vigilance. Even with a plausible initial diagnosis and consistent follow-up, clinicians must remain open to re-evaluation, particularly in the face of atypical progression or poor response to therapy. This case also serves as a reminder that diagnoses should not become static, and reliance on prior opinions, even from highly regarded colleagues, should not replace critical reassessment. A holistic, individualized approach to each patient is essential in glaucoma care.

Syed Imtiaz Ali presented case of a 35-year-old obese, unmarried woman from Chitral, who had been referred to him from a secondary care facility. She was initially noted to have visual acuity of 6/18 in the right eye and hand movements in the left eye. The referring ophthalmologist had diagnosed glaucoma based on a reported cup-to-disc ratio of 0.4 in the right eye and 0.9 in the left and started her on latanoprost. However, the diagnosis appeared inconsistent with the clinical picture.

On reassessment, Imtiaz Ali recorded IOP of 16 mmHg in the right eye and 18 mmHg in the left. His cup-to-disc ratios were 0.5 and 0.7, for right and left eye, respectively. Vision in the left eye remained

significantly impaired at counting fingers. His CCT was 480 µm potentially compounding an underestimation of true IOP. The OCT printout revealed diffuse RNFL thinning in the left eye with only one green quadrant, raising concern. Although the initial impression could be compatible with glaucoma, Ali remained skeptical, particularly given the patient's demographic profile and systemic features. The visual fields revealed a bitemporal hemianopia an uncommon finding in glaucoma but suggestive of chiasmal compression. An MRI of the brain with contrast revealed a suprasellar lesion, likely a pituitary macroadenoma, with the radiologist also considering differential diagnoses like aneurysm and craniopharyngioma. Hormonal studies, though not available in the report, were reportedly consistent with a pituitary tumor. The patient subsequently underwent neurosurgical intervention. Communication from a relative confirmed that surgery was done, though the patient did not return for follow-up.

The panel discussion that followed emphasized the importance of maintaining a high index of suspicion and avoiding cognitive anchoring in presumed glaucoma diagnoses. Several red flags were highlighted, early age, vertical visual field defects, poor central vision, optic disc pallor greater than cupping, disproportion between OCT and visual field findings, and the presence of a relative afferent pupillary defect. The need for MRI was reinforced when clinical features do not align with typical glaucomatous progression. The consensus was that glaucoma and compressive neuropathies can co-exist, but care must be taken to thoroughly assess cases that deviate from the usual clinical pattern.

SESSION 2: Advanced Diagnostics and Management in Glaucoma and Challenges

The second symposium on advanced diagnostics and management in Glaucoma was chaired by **Huma Shahid,** co-chaired by **Waleed Tantawy** and moderated by **Yousuf Jamal Mahsood.**

The session began with a talk by **Waleed Tantawy.** He gave a comprehensive overview on normal tension glaucoma, emphasizing its enigmatic nature and variable prevalence across countries. The condition, often found in elderly patients, also required a high index of suspicion in younger individuals. Two primary theories for its pathogenesis were explored: vascular insufficiency, characterized by reduced ocular perfusion and systemic hypertension; and immune-mediated mechanisms, involving elevated antibodies to retinal proteins and a higher incidence of autoimmune diseases. Diagnosis was underscored as one of exclusion, requiring clinicians to distinguish it from mimicking conditions such as large physiological optic cups or compressive lesions. The discussion stressed the importance of optic nerve assessment, detailed visual field analysis, and neuroimaging, especially in younger patients with rapid progression or optic disc pallor. Management strategies focused on significant IOP reduction, with caution against beta blockers in susceptible individuals. The second segment transitioned to the concept of glaucoma suspects, highlighting the risks of over-diagnosis and over-treatment. A case was presented by Waleed involving an elderly patient on long-term anti-glaucoma therapy without definitive clinical evidence of disease, prompting a reevaluation of diagnostic criteria and reinforcing the need for judicious use of imaging and functional testing before confirming a diagnosis of glaucoma.

Huma Shahid introduced the topic of angle closure glaucoma, focusing on its prevalence in South Central Asia. She discussed the key risk factors for the condition, which included older females, individuals of Asian descent, hypermetropia, and a family history of glaucoma. Huma then elaborated on the critical role of gonioscopy in diagnosing angle closure glaucoma, emphasizing that relying solely on IOP measurements could be misleading. She provided an overview of treatment options for chronic angle closure glaucoma, which included laser iridotomy, peripheral iridoplasty, and lens extraction,

Michael Smith discussed the changes in the management of angle closure disease in the UK over the past decade, highlighting key advancements and studies. He focused on the ZAP trial, which investigated the effectiveness of prophylactic laser iridotomy in primary angle closure suspects, emphasizing its findings. However, Smith also outlined the limitations of the ZAP trial, stressing the importance of individualized treatment approaches tailored to each patient's specific risk factors. Additionally, he underscored the significance of considering cataract surgery as part of the treatment plan for patients with angle closure disease, while also highlighting the role of biometry in accurately assessing the patient's risk.

Syed Imtiaz Ali discussed the critical role of gonioscopy in the diagnosis and management of

glaucoma. He explained various methods and lenses used for gonioscopy, highlighting both direct and indirect techniques. Syed emphasized the key structures to observe during gonioscopy and stressed the importance of regular gonioscopy to monitor any changes in the anterior chamber angle and underlined the need for proper training in gonioscopy techniques to ensure reliable and consistent results.

Karim Damji discussed the benefits of ultrasound biomicroscopy (UBM) in assessing the anterior segment of the eye, particularly its advantages over gonioscopy in visualizing structures behind the iris. He explained the limitations of gonioscopy, emphasizing how UBM provides detailed images of anterior chamber structures, aiding in more precise diagnoses. Karim Damji presented examples of narrow angles and explained the different mechanisms involved, including plateau iris and phacomorphic closure. He highlighted the role of UBM in documenting changes following interventions and in planning tailored treatment strategies for patients with angle closure or other anterior segment abnormalities.

Fatima Zahra presented on behalf of **Zubaida Sirang,** discussing a hospital-based survey on the prevalence of pseudoexfoliation syndrome in northern Pakistan. She explained the condition and its potential to lead to glaucoma, stressing the importance of early diagnosis and timely intervention to prevent vision loss. She revealed a high prevalence of pseudoexfoliation syndrome in the study population and emphasized the need for enhanced screening programs and early intervention strategies to address this condition effectively.

Yousuf Jamal Mahsood presented a study on the compliance of Pakistani ophthalmologists with the ICO guidelines for glaucoma eye care. He explained the significance of adhering to evidence-based guidelines to enhance glaucoma management practices and ensure optimal patient outcomes. Masood revealed a low overall compliance level with the ICO guidelines and emphasized the need for improved training and heightened awareness among ophthalmologists to better align with best practices in glaucoma care.

Afzal Bodla discussed the importance of neuroretinal rim in diagnosing glaucoma. He explained the anatomy of neuroretinal rim and its critical role in transmitting visual information from the retina to the brain. Afzal then presented case studies that highlighted the misdiagnosis of glaucoma due to the neglected neuro-retinal rim assessments. He emphasized the need to consider neuroretinal rim thickness in conjunction with other diagnostic parameters to ensure accurate diagnosis and effective management of glaucoma.

Minahil discussed the outcomes of selective laser trabeculoplasty (SLT) in Southern Punjab. She showed a significant reduction in IOP after SLT, although the target of 21 mmHg or lower was not consistently achieved. She highlighted the challenges faced during the study, including issues with patient compliance. Minahil called for further research and larger studies to validate the effectiveness of SLT in managing glaucoma.

SESSION 3: Challenges And Innovations In Glaucoma Surgery

The third symposium highlighted the challenges and innovations in glaucoma surgery. It was chaired by **Michael Smith, co**-chaired by **Ayisha Shakeel** and moderated by **Uzma Hamza. Michael Smith** opened the session by outlining key topics in surgical glaucoma management, including over-draining and leaking blebs, bleb revisions, glaucoma tube exposure, and new surgical technologies. He described various techniques such as transconjunctival compression sutures and the island suture technique to control over-filtration, as well as autologous blood injections and cryotherapy for leaking blebs though acknowledging their limited efficacy. For severe cases, he advocated open revision or scleral patch grafting. He also discussed the management of exposed glaucoma drainage devices and emphasized careful surgical handling and the use of donor tissue scaffolds.

Smith introduced several newer surgical options including the Preserflo MicroShunt, highlighting its low complication profile. While acknowledging procedural challenges, he reported favorable outcomes with IOP reductions to the mid-teens and a 60% success rate in one year.

Huma Shahid provided a comprehensive overview of trabeculectomy complications, emphasizing both preventive techniques and therapeutic interventions. Huma Shahid discussed the complications of trabeculectomy, emphasizing that early complications generally do not impact long-term outcomes. She categorized complications as early or late, citing risk factors such as anticoagulant use, younger age, poor lid coverage, and supranasal bleb location. Using case examples, she illustrated management strategies for hypotony, bleb leaks, over-drainage, ciliary body

shutdown, and bleb fibrosis. For instance, she recommended suppressing aqueous production and stopping steroids to promote fibrosis in early leaks. Vision blue dye and viscoelastic can help distinguish over-drainage from ciliary body shutdown. She also described techniques for bleb needling, highlighting its effectiveness in restoring bleb function. Hypotony maculopathy was presented as a vision-threatening complication that may occur years later, requiring timely surgical revision. Shahid stressed meticulous surgical technique, cautious use of antimetabolites, and precise conjunctival handling to minimize postoperative complications.

Michael presented practical insights on managing exposed glaucoma drainage tubes, a complication that often arises several years after surgery. The exposure is typically due to mechanical forces acting on a fixed plate and tube, combined in some cases with ischemic or inflammatory factors. Although early literature reported exposure rates around 30%, the adoption of techniques such as scleral tunnels and patch grafts has reduced the incidence to approximately 2% within the first two years.

He emphasized that early exposures, occurring within weeks of surgery, are usually due to patch graft failure and can often be corrected by resuturing after undermining adjacent tissue. These are generally straightforward repairs. Late exposures, seen years after surgery, pose more complex challenges. If the defect is small and there is no infection, conservative management with antibiotic prophylaxis may be acceptable, particularly in patients with poor vision or who are reluctant to undergo further surgery. However, definitive surgical revision is often required.

When infection is present, prompt surgical intervention is essential. The tube may need to be removed, especially if the eye has no useful vision or the infection is severe. If the plate is not exposed, it may be left in place due to dense scarring; otherwise, it should also be removed. Surgical repair strategies include mobilizing the tube, re-covering with conjunctiva and Tenon's tissue, and avoiding closure directly over the tube to reduce the risk of re-exposure. In more challenging cases with significant tissue loss, options such as sliding or rotating conjunctival tissue from distal sites, or using donor material as a scaffold, may be necessary. Tube extension using a 23-gauge angiocatheter is a useful technique when the tube needs to be repositioned and is too short.

Michael noted the importance of applying mitomycin-C to the drainage area and maintaining regular long-term follow-up, typically once or twice a year. He cautioned that while tube exposure does not always lead to infection immediately, it does carry a significant risk, warranting close monitoring and individualized patient management strategies.

Hanif Malik addressed the unique challenges of pediatric glaucoma surgery, underscoring the importance of selecting incision sites that preserve tissue for future procedures. He shared insights from his experience with congenital glaucoma, particularly the importance of scleral flap integrity and the judicious use of Mitomycin C. He discussed managing complex anatomical cases, such as aniridia and microspherophakia, and stressed preoperative counseling due to the likelihood of multiple surgeries in this patient population. Hanif Malik advised placing the initial incision temporally or nasally rather than centrally, as children often require multiple surgeries, including trabeculectomy or valve implants. Central incisions can complicate future procedures.

Malik highlighted that even in eyes with poor corneal clarity, trabeculectomy can yield good outcomes, often resulting in significant corneal clearing postoperatively.

He discussed technical difficulties in pediatric surgeries, such as making scleral flaps in thin sclera and managing intraoperative complications like flap tears and aqueous leakage. He routinely uses mitomycin-C and adapts his technique based on intraoperative findings, including in cases with aniridia, floating lenses, and megalo cornea.

Malik also warned against performing trabeculectomy before lensectomy in microspherophakia, as inflammation can cause surgical failure. He advocates addressing the lens pathology first when appropriate.

In one case, he encountered significant intraoperative bleeding due to undiagnosed thrombocytopenia (platelets 60,000), prompting him to abandon the procedure and later complete it successfully with medical clearance.

Michael shared his experience with Preserflo MicroShunt, a subconjunctival glaucoma drainage device that is gaining popularity in the UK and Europe but is not widely used in Pakistan. Unlike MIGS (Minimally Invasive Glaucoma Surgery), it requires conjunctival dissection, falling under the category of

"minimally ablative bleb surgery." It is designed to deliver trabeculectomy-like IOP reductions with fewer complications.

The device is made of SIBS (poly styrene-block-isobutylene-block-styrene), a biocompatible material used in cardiac stents. Although it does not cause inflammation by itself, fibrosis from aqueous humor still necessitates the use of anti-fibrotic agents like mitomycin-C. The procedure is relatively straightforward for those familiar with trabeculectomy, involving similar steps such as conjunctival opening, scleral dissection, mitomycin application, and conjunctival closure. A key technical point is precise placement of the tube to avoid over-insertion, as it has a fixed flange for stabilization.

Long-term data, though limited, suggest Preserflo achieves modest IOP reductions typically to mid-teens with some patients requiring medications again by year three. Compared to trabeculectomy, success rates are slightly lower, and the need for revisions or needling is significant 25% to 33%. Revision surgeries are often needed due to fibrosis, and although tube obstruction by tissue is uncommon, fibrosis around the tube is a major issue. Erosion and leakage can also occur, prompting many surgeons to suture the device for stability.

In summary, Michael uses Preserflo in cases where trabeculectomy might carry high risks such as high myopes or only eyes and when a quicker visual recovery is desired. However, he remains cautious in patients with thin conjunctiva or those needing exceptionally low IOP targets, and he still prefers tube shunts like Ahmed or Baerveldt for more complex secondary glaucomas.

Tayyaba Gul Malik highlighted the value of patience and precision in mastering skills, introducing the Kahook Dual Blade (KDB) goniotomy, a simple yet effective glaucoma procedure that gained prominence around 2015-2016. The device has a 230-micron-wide footplate with dual blades that excise a strip of trabecular meshwork to improve aqueous outflow. Indications include reducing glaucoma medication burden in noncompliant patients or those with ocular surface disease, and it can be used in primary open-angle glaucoma, pseudoexfoliation, pigment dispersion, steroid-induced glaucoma, and some angle-closure cases combined with lens surgery.

Key preoperative considerations include a clear cornea, understanding glaucoma type and severity, and stopping warfarin if needed due to bleeding risk. Contraindications include raised episcleral venous pressure, active neovascularization, angle dysgenesis, large peripheral anterior synechiae, iris processes, chronic uveitis, and neck problems limiting patient positioning. Initial cases should be done during cataract surgery when the angle is well visualized using a gonio prism.

The procedure involves a clear corneal incision, viscoelastic injection to open the angle, insertion of the KDB, and removal of the trabecular meshwork strip. Postoperative care is straightforward with antibiotics and steroids, sometimes pilocarpine. Pitfalls include managing blood obscuring the view by irrigation and avoiding advancing inferiorly to prevent iridodialysis or endothelial damage.

Complications are rare, including hypotonous eye. Limited data show a 69-72% success rate at one year (defined as ≥20% IOP reduction or medication reduction), with better outcomes in pseudoexfoliation glaucoma compared to primary open-angle glaucoma. Alternative instruments like the bent needle goniotomy (BANG) can replicate the effect if KDB is unavailable. Malik encouraged starting the procedure without waiting for perfection, emphasizing learning through practice.

Usman Saeed a consultant ophthalmologist at the Royal Liverpool University Hospital and researcher at St Paul's Eye Unit, discussed his approach to managing patients with coexisting cataract and mild to moderate glaucoma. He explained that while advanced cases often require more invasive options, a considerable number of patients fall within the mild to moderate category, suitable for combined cataract surgery and minimally invasive glaucoma surgery (MIGS), particularly using the iStent Inject. He demonstrated the technique, discussed patient selection, and shared outcomes from Liverpool, reporting an 85% success rate in achieving target IOP, with many patients reducing or stopping drops. He emphasized the safety, ease of integration with cataract surgery, and the importance of improving ocular surface health to preserve future surgical options.

Later, **Michael** discussed the Omni MIGS device, which combines two procedures: canaloplasty, where Schlemm's canal is dilated with viscoelastic, and trabeculotomy, which removes trabecular meshwork to improve aqueous outflow. Typically performed alongside phacoemulsification, the procedure requires angling the microscope and patient's head, using a

goniolens for visualization. The surgeon advances a cannula through Schlemm's canal, injecting viscoelastic while rolling it 180 degrees forward and back. Then, the trabecular meshwork is torn and removed using the cannula.

Challenges include variable anatomy, such as a high myope with a canal close to the iris, or angle-closure glaucoma with damaged trabecular meshwork limiting cannula advancement. Intraoperative bleeding is common and sometimes recurrent, requiring irrigation and viscoelastic to clear the view. Postoperative Hyphema is often resolved within weeks but rarely may require surgical evacuation.

Cannula bending or breakage can occur, occasionally requiring conversion to a trabeculotomy. After surgery, patients are followed closely for bleeding and IOP control. Data from about 100 cases showed a 20% success rate (defined as ≥20% IOP reduction) with pressures lowered to mid-teens and 60% success at 12 months, particularly in patients with preoperative IOP above 18 mmHg. Side effects are rare. The procedure is mainly offered in combination with cataract surgery or for patients needing better IOP control, without promises of guaranteed success but potential to reduce medications or delay more invasive surgery.

SESSION 4: Instructional Course: Lasers In Glaucoma

This instructional course was chaired by **M Afzal Bodla**, co-chaired by **Saeed Niazi** and moderated by **Ayisha Shakeel**.

Huma Shahid presented an in-depth overview of **Selective Laser Trabeculoplasty (SLT)**, emphasizing its efficacy, safety, and cost-effectiveness as both first line and adjunctive therapy in open-angle glaucoma. She reviewed data showing long-term IOP control in 70% of patients without additional medications over six years. The theoretical mechanisms including macrophage activation and endothelial cell regeneration were explained alongside procedural details such as energy settings, use of the Latina lens, and pre-laser preparation with iopidine and topical anesthesia. SLT's repeatability, favorable safety profile, and patient tolerance were highlighted. She referenced a pivotal *Lancet* study comparing SLT with prostaglandin analogues, which found SLT to be equally effective and more cost-efficient. Shahid also discussed contraindications, potential complications, and future directions, including pattern scanning and direct SLT, while underscoring the importance of informed consent and further clinical trials.

Karim Damji offered a comparative analysis between SLT and Argon Laser Trabeculoplasty (ALT), providing historical context and noting the development of the Latina lens as pivotal in advancing SLT. He presented evidence suggesting SLT's superior outcomes in younger patients, with approximately 25% IOP reduction. Procedural contrasts were discussed, including differences in spot size, energy parameters, and tissue interaction. A comparative study showed similar IOP-lowering efficacy but differences in durability and long-term outcomes. Predictors of success, such as baseline IOP, degree of trabecular pigmentation, and number of pre-existing medications, were analyzed.

Afzal Bodla introduced Micropulse Diode Laser Cyclophotocoagulation (MP-CPC) as a non-invasive alternative for glaucoma management, presenting data from an ongoing Pakistan Glaucoma Association study showing a mean IOP reduction of 47.66% across 40 eyes. He outlined its historical development, mechanism via repetitive low-energy bursts that avoid collateral damage and its application across various glaucoma types. He discussed the procedure's advantages, including safety and tolerability, with mild uveitis being a manageable side effect. Patient selection criteria and the role of MP-CPC in refractory cases were highlighted.

Mahmood Ali discussed Continuous Wave Diode Laser Cyclophotocoagulation (CW-CPC), detailing its historical evolution and distinction from cryotherapy and micropulse techniques. He described the procedural steps, such as transillumination for localization of the ciliary body, probe placement, and alignment. Techniques to select laser settings slow coagulation, fixed power-duration protocols, and titration based on audible feedback were shared. Practical tips for maximizing outcomes included the use of effective anesthesia, coupling gel, and proper probe stabilization. CW-CPC was positioned as a viable option in refractory glaucoma, albeit with a more aggressive tissue effect than micropulse lasers.

P.S. Mahar concluded the session with a presentation on Laser Iridoplasty (Gonioplasty), explaining its mechanism in reducing angle crowding by contracting the peripheral iris. He traced its development and discussed its utility in acute primary angle closure and specific glaucoma subtypes. Indications included medically unresponsive attacks

and plateau iris configurations, while contraindications were also clearly outlined. Mahar described the procedural technique involving low energy burns under gonioscopic visualization, and addressed complications such as transient iritis, IOP spikes, and potential endothelial damage. He emphasized the need for meticulous patient selection and follow-up for safe and effective outcomes.

SESSION 5: Instructional Course: Optical Coherence Tomography

The second instructional course was on Optical Coherence Tomography (OCT) in glaucoma by **Waleed Tantawy**. It was chaired by **Syed Imtiaz Ali**, co-chaired by **Nasir Saeed** and moderated by **Waleed Tantawy.** The discussion focused on the use of OCT in glaucoma diagnosis and monitoring. OCT, which has been around for 30 years, is highlighted as the best imaging tool for glaucoma, providing high-resolution, fast scanning, and detailed data. Key metrics include signal strength, RNFL thickness, and deviation maps. The importance of accurate patient data entry to avoid misdiagnosis was emphasized. Examples illustrated how OCT can detect glaucoma even when visual fields appear normal, and the significance of RNFL asymmetry (>80%) in diagnosing glaucoma. The session also covered artifacts and limitations of OCT, particularly in high myopes and children.

The historical background of OCT was covered, crediting David Huang for its development nearly 30 years ago. The Stratus OCT, now outdated, was contrasted with the more advanced Cirrus spectral domain OCT, which offers significantly higher resolution and faster scan rates up to 40,000 points with over 20,000 A-scans.

Tantawy detailed the importance of interpreting OCT printouts systematically, beginning from the top and focusing on key regions. He stressed the critical role of accurate patient data entry, noting that errors like incorrect birth dates can distort normative comparisons and lead to misinterpretation.

Signal strength was discussed as a quality determinant, with values between 8 and 10 being ideal. The RNFL thickness map should exhibit 'hotter' colors (reds and oranges) in healthy nerve fibers, while the deviation map highlights areas of loss. Correlation with clinical findings is essential, especially in suspected RNFL thinning. The speaker emphasized that the thickness map should display superior and inferior arcs of dense RNFL, and in advanced glaucoma, the deviation map may lose these hot zones entirely, reflecting severe damage.

Pupil dilation was recommended for accurate scans, particularly when evaluating RNFL. Normal RNFL thinning with age should be interpreted with caution and verified against correct demographic data. OCT parameters such as disc area, average RNFL thickness (typically 80–120 μm), cup-disc ratio, and cup volume were discussed. The normative database comparison via the tomogram provides additional context, with green indicating within normal limits.

Ganglion cell analysis was described as pivotal since glaucoma is characterized by ganglion cell loss. This loss often mirrors RNFL damage and helps confirm diagnostic hypotheses. Artifacts such as segmentation errors, media opacities, and disc border identification issues were addressed, with a strong recommendation to repeat scans when suspicious areas are seen especially if black pixels or abnormal redness appears.

Two clinical cases were presented. The first involved a 78-year-old patient on anti-glaucoma treatment with controlled IOP and normal visual fields. OCT findings showed normal RNFL thickness, suggesting no glaucomatous damage. The second case was a 55-year-old with a strong family history and normal fields, but the OCT revealed clear RNFL thinning, indicating early glaucoma despite the absence of functional loss.

Tantawy also discussed limitations of OCT, particularly in high myopia, where anatomical distortions may hinder disc margin identification. OCT's role as an adjunct, not a replacement for clinical examination and visual field testing was underscored. He highlighted the learning curve in interpreting OCT and the importance of adequate training, particularly when assessing children, where cooperation and anatomical variations can impact scan quality.

The session concluded with a discussion on the essential role of OCT in every suspected glaucoma case, reinforcing the need for a comprehensive glaucoma workup including IOP measurement, central corneal thickness, visual field testing, fundus photography, and OCT. Audience questions addressed practical topics such as RNFL asymmetry thresholds and interpretation nuances.

SURGICAL RETINA

Surgical retina holds a special importance in ophthalmology conferences of Pakistan. There were nine sessions on surgical retina in this conference.

SESSION 1: Advanced Diabetic Eye Disease

This session was chaired by **Abdul Jalil Daula**, co-chaired by **Lalit Kumar Verma** and moderated by **Najam Iqbal.**

Abdul Hannan Qadir gave introduction to dual linear (DLs) and dual linear reverse (DLR) modes for Diabetic Tractional Retinal Detachment, explaining that these modes were new software updates in the Dorc Eva and DORC Eva Nexus systems. The modes were not specifically designed for diabetic TRD but can be used by surgeons to innovate in their practice. He shared his experience with these modes and their application in diabetic TRD. The paddle works in a linear way with three steps: irrigation, cutting, and aspiration, but the dual linear mode allows simultaneous control of cut rate and aspiration using a three-dimensional movement of the foot. Hannan described two ways to use DLs and DLR modes: for flat TRD membranes and for bridging membranes. For flat membranes, high cut rate and low vacuum were used to shave the membranes close to the retina. For bridging membranes, the vacuum was used to engage the bridge, and the foot was moved to cut the bridge simultaneously. He presented surgical videos to demonstrate the practical application of these modes in diabetic TRD. In one of his videos, he showed a case of flat membrane where DLs and DLR modes were used to create a surgical plane without causing hydrogenic damage. The mode allowed for precise control of the cutter on the surface of the membrane, leading to a successful surgical plane. Another video demonstrated the use of DLs and DLR modes for bridging membranes, where the bridge was held and cut using the mode. He emphasized the replacement of bi-manual techniques with these modes, which are more efficient and reduce surgical time and hydrogenic damage. He explained that the 3D mode in Constellation has only two settings, while the dual linear mode offers infinite settings for controlling cut rate and aspiration. The dual linear mode allows for more precise control.

Mashal Tayyab talked about the dilemma of diabetic vitrectomy, defining it as a difficult choice between equally undesirable alternatives. The dilemma included decisions about whether to operate, peel, or inject anti-VEGF, and when to do so. Mashal presented a 10-step approach to managing difficult cases of diabetic vitrectomy, including dealing with hazy lenses, corneal edema, and intravitreal injections. The approach also included dealing with PVD, bridges, hydrogenic breaks, and endo laser photocoagulation. She presented a case of a 48-year-old lady with diabetic retinopathy and VMT, where the vitreous was hazy due to asteroid hyalosis. The membranes were stained with trypan blue and brilliant blue to identify the retina and membranes. Gripping forceps and extrusion needles were used to create a flap and remove the membranes. Intraoperative OCT was used to ensure the retina was not peeled off.

Asad Jalil talked about gene therapy, explaining its history and how it works. Gene therapy involves inserting new DNA into cells to provide a functioning gene or a therapeutic function. He described retina as an excellent target for gene therapy due to its small size, accessible intraocular environment, and the blood-retinal barrier. Different ways of administering gene therapy include intravitreal, subretinal, and suprachoroidal delivery. He also presented the results of phase one and phase three trials of gene therapy for RP65 mutation. The phase one trial showed the treatment was safe, while the phase three trial showed it was effective in improving visual function. The drug, Luxturna, was approved by the FDA and European Medicine Agency in 2017 and 2019, respectively. The treatment involves a subretinal injection of Luxturna following vitrectomy, with perioperative steroids to reduce immune response.

Asad also discussed the challenges of gene therapy, including intraocular inflammation and choroidal retinal atrophy. The earlier the treatment is done, the better the results, as advanced disease has less to gain.

The future of gene therapy includes trials for dry and wet AMD, with the potential to change the treatment landscape significantly. In an answer to a question, he affirmed the importance of intraoperative OCT and the use of machine-assisted injection systems for subretinal injections. The speaker provided an overview and institutional experience with gene therapy in inherited retinal dystrophies, particularly involving *RPE65*-related conditions such as retinitis pigmentosa type 20 and Leber congenital amaurosis type 2. Best

results were seen in pediatric patients treated early. Notable complications included transient vitritis and retinal atrophy, likely immune-related. Inflammation and post-surgical atrophy are key concerns. Debate exists regarding whether to detach the fovea during subretinal injection.

The field is advancing rapidly with ongoing exploration of optimal surgical techniques and delivery vectors. Gene therapy, especially *Luxturna*, represents a major advance in treating inherited retinal diseases.

SESSION 2: Trauma and Endophthalmitis

The second session on surgical retina was on '**Trauma and Endophthalmitis.'** The meeting was chaired by **Mazhar Ishaq** and moderated by **Shamshad Ali.** The meeting discussed the management of intraocular foreign bodies and endophthalmitis.

Tariq Khan discussed the challenges of intraocular foreign bodies in the eye, emphasizing the need for careful manipulation and surgical techniques. In his first video he showed a foreign body which was floating in vitreous cavity after being disengaged. It can damage the macula, lens, and cause retinal breaks and bleeding. He suggested using heavy liquid, intraocular magnets, and controlled vitrectomy to prevent damage to the macula. The second video demonstrated the difficulty of removing a foreign body that got stuck in the wound, highlighting the importance of aligning the foreign body perpendicular to the wound. Tariq Khan described a case where a large glass foreign body was removed using a large forceps used for conjunctiva. The foreign body was too large to be removed through the initial wound, so the wound was enlarged to facilitate removal. He also emphasized the importance of securing the wound and applying cryotherapy to prevent further damage. Another video showed a foreign body impacted in the retina, which can produce a capsule around the foreign body or require removal to prevent retinal detachment.

Huma Kayani talked on the topic of endophthalmitis, a major diagnostic and therapeutic challenge in ophthalmology, caused by intraocular colonization of infectious agents. The consequences of endophthalmitis include retinal exposure to bacterial toxins, vascular occlusion, retinal necrosis, and detachment, leading to permanent sight loss. The modes of entry for endophthalmitis include endogenous (hematogenous spread, pneumonias, dengue) and exogenous (post-operative, chronic, post-traumatic, post-intravitreal injections). The pathophysiology of endophthalmitis involves elevated inflammatory mediators and complement factors, leading to retinal damage and vision loss. Huma Kayani outlined the key points for managing endophthalmitis, including controlling infection, inflammatory management, and preventing reinfections. The importance of timely delivery of antibiotics to limit bacterial loads was emphasized. Local and intravitreal antibiotics are used, with vancomycin and ceftazidime being preferred for initial presentation. The use of steroids was discussed, with intravitreal dexamethasone being commonly used but with caution due to potential fungal infections. Huma Kayani discussed the indications for vitrectomy in endophthalmitis, including clinical deterioration and poor presenting vision. The benefits of vitrectomy include improving retinal oxygenation, reducing inflammatory load, and providing specimens for diagnostic evaluations. The timing of vitrectomy is crucial, with early vitrectomy within 48 to 72 hours being recommended for better visual outcomes. The use of silicone oil in vitrectomy was discussed, highlighting its bacteriostatic activity and rapid control of infections. Huma Kayani presented a case of exogenous endophthalmitis due to an intraocular foreign body, demonstrating the need for careful surgical techniques. The importance of looking for causes of retinal detachment, such as intraocular foreign bodies, was emphasized.

Mahwish Shahid presented a case of familial exudative vitreoretinopathy (FEVR) in a full-term baby, highlighting the importance of early intervention. Mahwish discussed the management of FEVR, including laser photocoagulation, vitrectomy and genetic testing. The baby was found to have a positive mutation for the Frizzled gene, which is associated with FEVR. The importance of follow-up and repeat fluorescein angiography is emphasized to monitor the baby's condition. The video shows the baby's good fixation and following, after vitrectomy, lensectomy and the use of refractive glasses.

Ejaz Ahmad Javed Lak presented a study in which they evaluated 25 patients referred from various centers across Punjab with intravitreal lens matter after phacoemulsification. Despite this, most of them retained good visual potential, which was subsequently restored following appropriate vitreoretinal intervention. The selected cases had relatively small and soft nuclear fragments, less than half the size of the nucleus, and mostly around one-fourth or softer in

consistency. No silicone oil or perfluorocarbon liquids (PFCL) were used for tamponade or intraoperative support, no fragmatome was required, only a 25G vitrectomy cutter was used to remove the retained lens matter. Intraocular lenses (IOLs) were implanted either in the ciliary sulcus or with scleral fixation, depending on the integrity of the posterior capsule. A few patients presented with IOLs implanted on a compromised posterior capsule with some residual lens material in the vitreous cavity, but these were still managed successfully without fragmatome assistance. Postoperative recovery was uneventful, and visual outcomes were favorable. In summary, for carefully selected cases with retained soft nuclear fragments following complicated phacoemulsification, vitrectomy using only a cutter without fragmatome or tamponade agents can lead to excellent outcomes. He showed a video which highlighted representative cases.

Asaad Jalil discussed the challenges of managing retinal detachments highlighting the critical importance of timely intervention. He presented multiple cases. One of the cases was suprachoroidal hemorrhage (SCH) in a patient who had undergone cataract surgery, stressing the role of prompt surgical response. He described the use of fluid and silicone oil in managing SCH, noting that fluid was preferred in cases not involving the posterior pole. He also emphasized the importance of maintaining high intraocular pressure intraoperatively to minimize the risk of further bleeding. The accompanying surgical video demonstrated the successful management of SCH using fluid and oil, resulting in a favorable visual outcome.

In another case, Asaad presented a patient with primary intraocular lymphoma (PIOL), an elderly individual who initially presented with unilateral vision loss and vitritis. Despite negative vitreous biopsy results, further evaluation with retinal biopsy confirmed the diagnosis, after which the patient received chemotherapy. Asaad underscored the importance of maintaining a high index of suspicion for sinister cases such as PIOL in elderly patients presenting with unexplained vitritis.

SESSION 3: Treatment and Outcomes of Retinal Detachments

This session focused on the treatment and outcomes of retinal detachments. It included retinoschisis associated with retinal detachment. Factors affecting outcomes were the location and size of the outer leaf break. The conversation also highlighted the shift from scleral buckling to vitrectomy due to expertise and equipment availability, noting a 76% single surgery success rate for vitrectomy. The importance of accurate vitreous status and the challenges of treating non-PVD detachments were emphasized.

Aamir Arain presented a comprehensive overview of the shifting trends in retinal detachment surgery, noting a decline in scleral buckle procedures and a rise in vitrectomies. He explained that while vitrectomy was preferred in the absence of posterior vitreous detachment (PVD), scleral buckling remained useful in cases with PVD, particularly in non-PVD detachments such as round hole detachments and retinal dialysis, commonly seen in younger patients. The transition toward vitrectomy was attributed to the challenges of indirect ophthalmoscopy and limited industry support for scleral buckling. Arain described a retrospective case series of 109 patients with non-PVD detachments, most of whom were younger and had prolonged symptom duration. Despite the presence of localized PVD in some cases, vitrectomy was often chosen due to difficulties in identifying retinal breaks. Reported complications included iatrogenic retinal tears, choroidal effusion, and retinal incarceration. The single surgery anatomical success rate was 76%, with a final success rate of 99% and a mean of 1.32 surgeries per patient. Scleral Buckling showed higher success rates in this subset. Retinal re-detachment occurred in 24% of cases, with proliferative vitreoretinopathy (PVR) as the leading cause. Factors such as age, symptom duration, and intraoperative use of perfluorocarbon liquid (PFCL) influenced outcomes, with better vision observed in patients with favorable preoperative status and PFCL use. The presentation concluded with a call for enhanced training in indirect ophthalmoscopy and scleral buckling to equip future vitreoretinal surgeons with comprehensive surgical skills.

Mir Ali Shah presented a brief history of scleral buckling and its current use with chandelier-assisted techniques. Tips for performing scleral buckling include proper positioning of the patient and fundus chart. The presentation includes a case study of a 30-year-old male with retinal dialysis, demonstrating the steps of scleral buckling.

Usman Mahmood discussed the surgical management of intraocular tumors, emphasizing the importance of diagnosis before treatment. Cases of hemangioma, lymphatic tissue, and melanoma were presented, highlighting the need for biopsy and

histopathology. The importance of making an accurate diagnosis before advising enucleation was stressed. Techniques for removing tumors and applying cryotherapy were demonstrated. He shared experiences with diagnosing and treating retinal tumors, including cases of melanoma and hemiangioma. The importance of close follow-up and biopsy in making an accurate diagnosis was reiterated. Techniques for managing tumors that do not respond to treatment, such as cryotherapy and laser, were discussed.

SESSION 4: Retinal Diseases

This session was chaired by **Qasim Lateef**, co-chaired by **Kashif Iqbal** and moderated by **Lalit Kumar Verma** who began with a focus on submacular hemorrhage, identifying idiopathic polypoidal choroidal vasculopathy as the most common cause, followed by retinal artery macroaneurysm, trauma, and age-related macular degeneration. Emphasis was placed on the urgency of intervention when the hemorrhage involved visible vessels, classifying such cases as ocular emergencies. In less urgent cases, management with laser or anti-VEGF injections was discussed. Deeper hemorrhages were identified as more critical due to risks such as iron toxicity and clot-induced photoreceptor damage.

Clinical scenarios were presented to demonstrate treatment strategies. A thin subretinal hemorrhage responded well to a single anti-VEGF injection with visual improvement, while a larger hemorrhage required pneumatic displacement combined with anti-VEGF. In complex cases involving large submacular hemorrhages, particularly in high myopes, vitreous surgery with hyaloid peeling and subretinal recombinant tissue plasminogen activator (rtPA) was employed, resulting in notable visual recovery. Subretinal rtPA was injected at multiple sites to facilitate clot dissolution, followed by an air-fluid exchange to complete the procedure.

The session transitioned into the management of macular holes. The classification and evolution of surgical techniques were reviewed, highlighting vitrectomy as the most effective approach. The use of internal limiting membrane (ILM) peeling, assisted by brilliant blue G (BBG) dye, was described. ILM flap surgery was particularly emphasized for large macular holes, supported by meta-analysis data demonstrating improved success rates. Advanced techniques, such as human amniotic membrane grafts and autologous retinal transplants, were discussed for complex cases. Prognostic indicators, including the size and height of the hole, were considered crucial in surgical planning.

Epiretinal membrane (ERM) surgery was another major focus. The distinction between ERM and other vitreoretinal interface disorders was explained. The use of indocyanine green (ICG) dye to stain and visualize the ERM edge was highlighted through multiple case presentations. The removal technique involved MVR blades and forceps, with caution against excessive traction to avoid retinal damage. In complicated cases, cutters were used to address resistant membranes. The removal of concurrent disorders, such as lamellar macular holes alongside ERMs, was also demonstrated.

The session concluded with a summary of best practices in ERM surgery, stressing the importance of avoiding unnecessary interventions, utilizing staining agents to enhance precision, and identifying the correct surgical plane. Intraoperative OCT was recommended as a valuable adjunct to improve surgical outcomes. Patient counseling remained a consistent theme, underlining the need for clear communication regarding prognosis and expected outcomes.

SESSION 5: Rare and Difficult Cases of Vitreoretinal Surgery

The session was chaired by **Amer Awan** and moderated by **Hafiz Ateeq ur Rehman**. The session started with a talk by **Sidra Riaz** who discussed uveal effusion syndrome (UES), highlighting its unique characteristics and treatment via partial thickness sclerectomy, achieving vision recovery from counting fingers to 6/12. She expanded on the pathogenesis, attributing UES to congenital scleral abnormalities in nanophthalmos, which hinder transscleral protein diffusion and cause protein accumulation in the choroidal space. The preferred treatment involves quadrant sclerectomy, effectively relieving choroidal effusion and preventing complications like neovascularization. The procedure included careful dissection around extraocular muscles, creation of a scleral flap, and postoperative management involving conjunctival closure and monitoring for resolution of exudation over a three-month period.

Connor Ramsden shifted focus to age-related macular degeneration (AMD), emphasizing the limitations of existing treatments for dry AMD and the therapeutic goal of replacing lost cells. He discussed the critical role of the retinal pigment epithelium (RPE) and the challenges of maintaining its health beneath the

macula. He reviewed historical surgical interventions, such as macular translocation and autologous RPE transplantation, which achieved only limited success. He then introduced the concept of generating RPE cells from stem cells, outlining their maturation and functional testing. Ramsden described the development of an implantable patch containing stem cell derived RPE cells and detailed the surgical steps, including the creation of a sclerotomy, a retinotomy, and the subretinal placement of the patch. He presented early clinical outcomes from five patients, noting varying degrees of visual improvement and underscoring the importance of precise patch placement. He concluded by stressing the necessity of regulatory oversight in stem cell research to safeguard patients from unproven therapies and reflected on the ongoing evolution of stem cell-based treatments with potential applications in both AMD and inherited retinal disorders.

Irfan Karamat presented his personal experience with regenerative therapy for inherited retinal diseases, outlining the four progressive stages of these conditions and emphasizing the importance of intervention before the final stage involving ganglion cell loss. He described various regenerative modalities, including platelet-rich plasma (PRP), exosomes, and stem cells, along with their respective routes of administration. Karamat shared outcomes from case studies that demonstrated improvements in visual acuity, contrast sensitivity, and reading speed. He concluded by highlighting the pressing need for further research and funding to advance the development and application of regenerative therapies for retinal dystrophies.

Amer Awan addressed the management of giant retinal tears, emphasizing the importance of timely intervention. He discussed the prevalence and risk factors associated with these tears, including high myopia, trauma, genetic conditions, and prior intraocular surgeries. He explained the significant challenges in managing large retinal breaks and the associated risk of developing proliferative vitreoretinopathy (PVR). Awan detailed the surgical techniques used in vitrectomy to reduce traction and stabilize the retinal flap, utilizing heavy liquids and laser photocoagulation. He demonstrated the application of modern surgical tools such as high-speed vitrectomy cutters, brilliant viewing systems, and perfluorocarbon liquids to improve intraoperative visualization and precision. Through case examples, he highlighted the critical role of prompt surgical intervention and highlighted the advantages of using advanced tamponade agents and instrumentation in improving anatomical and visual outcomes.

Amna Rizwan reported on her study evaluating visual outcomes and prognostic factors following pars plana vitrectomy (PPV) for intraocular foreign bodies (IOFBs). The study findings revealed that preoperative visual acuity was the strongest predictor of visual improvement, whereas the interval between injury and IOFB removal did not significantly influence outcomes. Amna Rizwan recommended regular training and education on eye safety to reduce the incidence of occupational eye injuries and enhance awareness among at-risk workers. She also emphasized the importance of counseling patients regarding visual prognosis and advocated for broader community awareness campaigns to promote ocular injury prevention.

Muhammad Tariq Khan described various tumor resection techniques, including both internal and external approaches, and discussed the use of cautery and laser modalities in treatment. Through a series of case examples, he illustrated the identification and management of diverse tumor types, such as lymphangiomas, granulomas, and melanomas. Khan highlighted the importance of vision preservation and the need to avoid unnecessary enucleations by employing accurate diagnostic strategies. He concluded by encouraging ongoing research and specialized training to improve diagnostic accuracy and therapeutic outcomes in intraocular oncology.

Zubeda Sirang presented a retrospective survey assessing the safety of nurse-led intravitreal anti-vascular endothelial growth factor (anti-VEGF) injections. In this study, trained ophthalmic nurses administered a total of 1,782 injections under ophthalmologist supervision, adhering to strict disinfection protocols. The reported complications included 12 cases of subconjunctival hemorrhage, one case of ocular hypertension, and one case of corneal abrasion. Notably, there were no instances of endophthalmitis, retinal tears, lens damage, vitreous hemorrhage, or retinal detachment. Zubeda Sirang concluded that with proper training, nurses could safely perform intravitreal injections, suggesting a viable strategy to enhance accessibility and efficiency in ophthalmic care delivery.

SESSION 6: Surgical Management of Retinal Detachment

This session was chaired by **Asad Aslam Khan,** co-chaired by **Khawaja Mohsin Ihsan** and moderated by **Irfan Muslim**.

Kashif Iqbal explained the importance of proliferative vitreoretinopathy (PVR) as a leading cause of re-detachment following vitreoretinal (VR) surgery, occurring in approximately 5–10% of cases. He highlighted the need for uniform classification criteria in PVR, pointing out the limitations of existing systems. He discussed the challenges faced in managing PVR in public hospital settings, emphasizing the relevance of patient history and the duration of retinal detachment. Kashif outlined several surgical approaches employed in PVR management, including pars plana vitrectomy (PPV) with an encircling band, retinotomy or retinactomy, and advanced techniques involving heavy liquids or silicone oil. Addressing the challenges in PVR management, Kashif described the technical difficulty of handling dense epiretinal membranes, which often required meticulous peeling to avoid iatrogenic retinal breaks. He explained the adjunctive role of scleral buckling in relieving anterior-posterior traction and facilitating effective retinotomy. He shared a case of recurrent retinal detachment that was managed with silicone oil tamponade and limited retinectomy, where subretinal fluid was successfully drained externally. Furthermore, he discussed the benefits of lens removal in cases with poor visualization, which could allow for thorough vitreous base shaving. Kashif also mentioned the utility of heavy liquids in stabilizing the retina during surgery and enhancing surgical control during membrane dissection and base shaving.

Hamza Ali Tayyab discussed the management of complex inferior retinal detachment. He described a case involving total retinal detachment, including the inferior quadrant, where he employed a 360-degree encircling scleral band as part of the surgical strategy. He emphasized the importance of thoroughly cleaning the rectus muscles before passing the band. Tayyab detailed his surgical technique of PPV, which included careful trimming of the vitreous to avoid iatrogenic retinal breaks, the use of triamcinolone to enhance visualization of residual vitreous, and the application of a 360-degree laser barrage to secure the retina. He also underscored the significance of meticulous conjunctival closure, noting its role in preventing postoperative surface complications and contributing to a successful surgical outcome.

Sara Riaz discussed the management of retinal detachments in eyes with inferior coloboma. She explained the rarity of ocular coloboma and its genetic associations, noting that up to 40% of patients with choroidal coloboma may develop a retinal detachment. She described the classification of coloboma, ranging from those involving the optic disc to those extending peripherally. Sara Riaz shared a case involving a retinal detachment in a patient with inferior choroidal coloboma, which was managed using pars plana vitrectomy, endolaser photocoagulation, and silicone oil tamponade. She emphasized the critical importance of accurately localizing retinal breaks in such cases and highlighted the variability in visual prognosis depending on the size and anatomical location of the coloboma

Qasim Latif discussed the role of scleral buckling in retinal detachment surgery. He explained that the primary aim of scleral buckling is to close retinal breaks and relieve vitreoretinal traction forces. He outlined key preoperative evaluation and surgical planning steps, including assessment of the size, location, and type of retinal breaks, the presence and grade of PVR, and the status of PVD. Latif described the various types of explants used in buckling procedures, including silicone rubber and sponge materials, and their configurations, radial, segmental, circumferential, or a combination thereof. He emphasized the importance of precisely adjusting the height of the buckle to ensure adequate indentation and highlighted the role of the encircling band in achieving the optimal anatomical configuration for retinal reattachment.

Lilith Kumar Verma discussed “oops” moments encountered during VR surgery, sharing his experiences with intraoperative complications and emphasizing the importance of managing them calmly and effectively. He described a case involving a pigmented lens surface and multiple retinal breaks, which required meticulous handling to prevent further complications. In another case, Verma recounted an incident where aggressive membrane peeling led to a large iatrogenic retinal tear, necessitating prompt management with perfluorocarbon liquid (PFCL) to stabilize the retina. He underscored the significance of patient cooperation and adherence to refined surgical techniques to minimize intraoperative risks and achieve favorable outcomes.

Rana Fahad discussed the removal of scleral buckles in cases where the intended relief becomes a long-term burden. He shared a case involving a young

woman who presented with severe ocular pain six years after undergoing scleral buckle surgery. Fahad described the surgical steps undertaken for buckle removal, which included careful dissection to remove the sponge, accessing and severing the sleeve, and ensuring minimal trauma to surrounding tissues. He emphasized the need for readiness to manage potential scleral defects during explantation, highlighting the use of scleral patch grafts, fibrin glue, and the importance of long-term postoperative follow-up. Fahad also pointed out risk factors associated with buckle intrusion, such as thin sclera, clear eyes, extensive cryotherapy, and the use of prolonged circumferential buckling elements.

Naveed Qureshi discussed the use of bimanual techniques in managing complex cases of PVR. He explained the advantages of these techniques, particularly the enhanced field stability and the ability to simultaneously grasp and peel adherent membranes. Qureshi described a case in which a superior approach was utilized to delicately peel adherent membranes and excise the membrane base using intraocular scissors. In another case, he employed a temporal approach, carefully avoiding retinal trauma during membrane dissection. He emphasized the value of bimanual techniques in facilitating retinal flattening, performing controlled air-fluid exchange, and delivering effective endolaser treatment for retinal stabilization.

Aamir Arain discussed the management of retinal detachment in the presence of a dropped capsular tension ring (CTR) in the vitreous cavity. He presented a case involving a 60-year-old man with a history of cataract surgery, during which the CTR was inadvertently dropped. Arain described the surgical approach, which included the injection of perfluorocarbon liquid (PFCL) to stabilize the posterior pole, removal of the CTR and the creation of a sclerotomy to facilitate controlled access. He emphasized the importance of meticulous surgical techniques to minimize intraoperative complications and achieve optimal anatomical and functional outcomes. Postoperatively, the retina remained attached, and the patient's visual acuity improved to 6/24 at the three-month follow-up.

SESSION 7: All About Scleral Buckling

This session was all about scleral buckling as a time-tested art, chaired by **SanaUllah Jan**, co-chaired by **Tehmina Jahangir** and moderated by **Abdul Rauf.**

The discussion focused on the techniques and considerations for treating retinal detachments. **Sana Ullah Jan** emphasized the continued relevance of both scleral buckling and vitrectomy in the management of retinal detachment, highlighting the importance of training in both techniques. He described scleral buckling as a time-tested procedure whose use has declined in favor of microsurgical vitrectomy, which is now performed nearly ten times more frequently. However, he argued that the anatomical success rate of scleral buckling is comparable to that of vitrectomy and that initial treatment choice does not necessarily impact failure outcomes. **Sana Ullah Jan** listed several advantages of scleral buckling, including its relative ease of learning and cost-effectiveness, particularly in resource-limited settings. He dispelled common misconceptions about the procedure, such as assumptions of lower success rates and higher astigmatism, citing departmental studies that showed outcomes aligned with international standards. Scleral buckling was recommended for non-complex detachments, younger patients, and cases with minimal vitreoretinal traction. In contrast, vitrectomy was advised for complex cases involving giant retinal tears, choroidal detachment, or failed prior buckle surgeries. He noted that vitrectomy may be preferable in pseudophakic eyes and in detachments with multiple retinal breaks. Jan also highlighted the significantly higher costs associated with vitrectomy due to specialized equipment and consumables, pointing out that scleral buckling could treat up to ten patients at the cost of a single vitrectomy. He concluded by stressing the need to preserve scleral buckling skills among young ophthalmologists to ensure the availability of this effective and economical treatment option in diverse clinical settings.

Imran Ahmad presented a historical overview of retinal detachment treatment, tracing its evolution from being considered untreatable in 1904 to the development of scleral buckling in 1951. He discussed the critical decision-making process regarding whether to drain subretinal fluid, noting that this choice depended on factors such as the chronicity of the detachment, degree of myopia, and location of the retinal breaks particularly the need for drainage in inferior breaks due to gravitational considerations. He emphasized the importance of thorough preoperative planning and the need for intraoperative adaptability. Ahmad explained various drainage techniques, including single and double approaches, and outlined

potential complications such as subretinal hemorrhage, retinal incarceration, and choroidal incarceration. He advised avoiding drainage near the 3 and 9 o'clock positions to prevent injury to the ciliary choroidal vasculature. Postoperative care involved close monitoring of intraocular pressure and prompt management of any arising complications.

Aziz Jan explained that the primary goal of scleral buckling was to close the retinal break by indenting the sclera using an appropriate explant. He emphasized that key factors such as the number, type, and location of the retinal breaks were essential in determining the surgical approach. He also highlighted the importance of media clarity in retinal visualization, noting that the presence of cataract or vitreous hemorrhage could significantly affect intraoperative visibility. Aziz Jan discussed the selection of different types of explants, including solid silicone rubber and sponges, based on individual clinical scenarios and surgical requirements.

Shahzad Saeed discussed the common causes of scleral buckling failure, including inadequate retinopexy, improper buckle positioning, and postoperative complications. He emphasized the critical importance of early detection and prompt management of retinal re-detachment to minimize further damage and preserve vision. In cases where the initial procedure failed, secondary interventions such as laser retinopexy or buckle augmentation were often required. Saeed also highlighted the vital role of patient compliance and regular follow-up in achieving successful surgical outcomes and preventing long-term complications.

Mahwish Shahid presented two case studies involving pneumatic retinopexy using SF6 and C3F8 gases. She described the procedure, which involves injecting a gas bubble into the vitreous cavity and positioning the patient to facilitate the displacement of subretinal fluid. Retinal adhesion is then achieved through laser photocoagulation or cryotherapy. Shahid outlined the key indications for pneumatic retinopexy, including superior retinal breaks, single or multiple breaks within one clock hour, and the absence of media opacities or PVR. She compared the advantages and limitations of pneumatic retinopexy with vitrectomy, highlighting its cost-effectiveness and time efficiency. However, she noted that proper case selection is critical, particularly in pseudophakic patients, to ensure optimal outcomes. Emphasizing patient safety, Shahid concluded by stressing the importance of careful preoperative planning and diligent postoperative follow-up to maximize the success of this minimally invasive procedure.

SESSION 8: Surgical Management of Diabetic Retinopathy

This session was a panel discussion focused on surgical management of diabetic retinopathy. **Ali Afzal Bodla** welcomed the Chair and co-chair, **Sanaullah Jan and Huma Kayani** and introduced the five panelists: Kashif Iqbal, Sanaullah Jan, Nadeem Qureshi, Waqar Muzaffar, and Khalid Waheed. The discussion focused on the surgical management of diabetic retinopathy, particularly vitrectomy. Key indications included non-clearing vitreous hemorrhage, tractional retinal detachment, and diabetic macular edema. The panelists emphasized the importance of preoperative B-scan, intraoperative techniques, and postoperative outcomes. They debated the role of anti-VEGF agents, with some preferring early vitrectomy and others advocating delayed surgery. The use of trypan blue for confirming complete posterior vitreous detachment and the importance of thorough laser treatment were highlighted. The session also addressed the challenges of managing diabetic retinopathy in resource-limited settings.

The session addressed the surgical management of diabetic retinopathy, beginning with a comprehensive overview of the indications for vitrectomy in diabetic patients. Discussions highlighted key factors influencing the decision to proceed with surgery, such as traction affecting the macula and findings on B-scan ultrasound. The impact of the Diabetic Retinopathy Vitrectomy Study was noted; particularly how surgical indications have evolved with the advent of anti-VEGF therapy. Panelists outlined common indications including persistent vitreous hemorrhage and the importance of timing and classification in treatment planning.

The discussion then shifted to the role of anti-VEGF, with emphasis on its impact in delaying the need for vitrectomy, treating macular edema, and altering preoperative planning. Challenges in areas with limited access to anti-VEGF were highlighted, including reliance on older surgical methods. Insights were shared on optimal dosing and timing of preoperative anti-VEGF, with particular attention to avoiding crunch syndrome and the role of preoperative panretinal photocoagulation.

Case scenarios were presented to illustrate practical considerations. Techniques such as endolaser application, and use of intraoperative OCT were discussed. The management of dense vitreous hemorrhage emphasized the creation of a PVD, use of illumination techniques, and dye-assisted visualization to confirm complete PVD induction. Complications such as iatrogenic retinal breaks were reviewed, with emphasis on gentle technique, appropriate laser use, and strategies for managing combined rhegmatogenous and tractional detachments. The session concluded with audience questions, focusing on recurrent bleeds, the use of silicone oil, port suturing, and the ongoing challenges of managing diabetic retinopathy in resource-limited environments.

SESSION 9: Instructional Course on Retinal Surgery

This was an instructional course on retinal surgery. **Usama Manzoor** presented an overview of modern wide-angle viewing systems used in vitreoretinal surgery, emphasizing their critical role in enhancing surgical visualization and precision. He categorized systems into conventional and wide-angle types, further subdivided into contact and non-contact methods. Key devices discussed included stereoscopic inverters, reinverting prisms (e.g., Mini Quad), and wide-field contact lenses offering up to 150° views. Usama highlighted current reliance on non-contact systems like the Oculus BIOM, along with advanced platforms such as the Topcon Optic Fiber Free Intravitreal Surgical Systems (OFFISS), Haag-Streit EIBOS, Leica RUV800, and Zeiss Resight. He also described intraoperative OCT-integrated microscopes and the TrueVision 3D heads-up display system, which improves ergonomics and educational value.

Ali Noman presented an overview of vitrectomy machines, detailing their core components and technological advancements. Key systems include the infusion system (either gravity-fed or active pressurized), aspiration pumps (venturi and peristaltic types), and vitrectomy cutters, mainly dual pneumatic guillotine probes with cut rates up to 20,000 cpm. He emphasized the importance of the duty cycle and dual dynamic drive settings for optimal control. Hypersonic vitrectomy, a newer modality, liquefies the vitreous using ultrasonic energy, maintaining an always-open port. Endoillumination methods were also discussed, including various probe designs and chandelier systems for bimanual surgery, especially beneficial in diabetic cases due to reduced focal retinal toxicity.

Hamza Ali Tayyab discussed the surgical techniques of PPV in the context of TRD, particularly in diabetic retinopathy. He outlined key steps including thorough preoperative preparation, anesthesia, proper sclerotomy placement, and ensuring optimal visualization. The procedure typically begins with core vitrectomy, followed by PVD induction, assisted by triamcinolone if needed. Shaving of the vitreous base is critical to minimize iatrogenic breaks. The pathological membranes are addressed through delamination, segmentation, or en bloc dissection. Tamponade choice, gas or silicone oil depends on the complexity of the pathology, with diabetic eyes often requiring longer-acting agents. He emphasized recent advancements such as small-gauge instrumentation, high-speed and ultrasonic cutters, improved visualization systems, and the use of fluorescein staining to enhance surgical precision.

Farhan Lodhi presented on advanced diabetic eye disease, often seen when prior treatment has been inadequate or unsuccessful. He highlighted key clinical features such as vitreous hemorrhage (VH), TRD, and combined retinal detachments. VH may be pre-retinal, intragel, or both, with intragel hemorrhage clearing more slowly and sometimes forming a dense, organized preretinal membrane. TRD results from the contraction of fibrovascular membranes at vitreoretinal adhesions, often sparing the entire retina due to localized strong adhesions. Combined detachments are frequent in severe cases and may lead to neovascular glaucoma. PPV is indicated for persistent VH, progressive TRD threatening the macula, combined detachments, dense premacular hemorrhage, and macular traction. He emphasized that prompt surgical intervention is essential for macula-involving pathology, while extramacular TRDs may be observed.

Arsalan Shahid Malik presented surgical videos of complex diabetic vitrectomy performed by Kashif Iqbal, demonstrating advanced techniques for managing fibrovascular membranes. A 23-gauge valved trocar system was inserted to establish stable intraocular access. The importance of evaluating cyclodialysis and the adherence of the posterior hyaloid was emphasized, as retinal breaks commonly occur at these adhesion sites. Chandelier lighting facilitated bimanual dissection, and triamcinolone was injected to visualize the hyaloid. Segmentation of the fibrovascular tissue was carefully performed using a 27-gauge cutter, allowing precise dissection close to the retinal surface

while minimizing trauma. The procedure concluded with air-fluid exchange and silicone oil tamponade, highlighting meticulous membrane removal and thoughtful stepwise surgical planning.

When anti-VEGF agents are administered in Advanced diabetic eye disease, they primarily target the vascular component. However, this often allows the fibrous component to become more dominant. Clinically, this manifests in scenarios where anti-VEGF injections lead to worsening tractional elements with increased risk of tractional retinal detachment despite reduction in neovascularization or vitreous hemorrhage. Many of us have observed this phenomenon: in patients with pre-existing tractional components, multiple anti-VEGF injections, such as bevacizumab (Avastin), may result in a taut vitreous and progression of traction. This underscores the importance of recognizing the biochemical milieu within the vitreous cavity in eyes with higher Platelet Derived Growth Factor levels, fibrous activity prevails, often necessitating earlier surgical intervention with vitrectomy rather than relying solely on pharmacologic therapy.

It is important to recognize that intravitreal injections are relatively simple to administer, which sometimes leads to their overuse. While preoperative anti-VEGF can reduce intraoperative bleeding if timed appropriately (typically a few days before surgery), using them in eyes with significant fibrosis may cause more harm than benefit. In such cases, surgical intervention remains the more definitive solution.

Surgical techniques also vary. One surgeon emphasized the need to start membrane dissection from the periphery toward the center in diabetic vitrectomy, especially as the central retina, including the macula, is at high risk of iatrogenic damage. Starting centrally can lead to inadvertent macular injury, especially when clearing dense hemorrhage or fibrous tissue.

Different surgeons have developed individualized approaches. Some prefer a forceps-and-scissors technique over high-speed cutters when operating near the macula, citing the risk of the cutter's vacuum inadvertently aspirating healthy retina. While modern small gauge vitrectors (25G/27G) have improved safety, precision tools like scissors still offer superior control in complex fibrovascular membranes. Experienced surgeons often operate from multiple positions around the patient (superior, temporal, nasal) to access membranes optimally while minimizing lens injury, especially in phakic eyes.

Another point of debate is the use of tamponade. Some surgeons strongly discourage routine use of oil in TRD cases unless there is a co-existing rhegmatogenous component. Silicone oil, though helpful in selected scenarios, can be toxic in diabetic eyes and may reduce visual quality due to its impact on the compromised diabetic retina. In many cases, once traction is relieved, residual subretinal fluid may resolve spontaneously without tamponade, especially when coupled with complete intraoperative panretinal photocoagulation (PRP). However, this judgment relies heavily on surgical experience and retinal behavior.

When an iatrogenic break occurs during TRD surgery, it becomes a different scenario. Such cases often necessitate endolaser and occasionally tamponade. Even so, many surgeons remain conservative in tamponade use, relying on complete PRP and observation. There was consensus that ILM peeling should not be routinely performed in diabetic eyes, especially when the fovea is uninvolved. The ILM in diabetic eyes is more adherent, and manipulation over a diseased retina risks further injury. Studies have not shown clear visual benefit from ILM peeling in this context, and it may, in fact, worsen outcomes by increasing foveal trauma or precipitating macular holes.

As newer agents like Faricimab, which targets both VEGF and angiopoietin-2 become more commonly used, the incidence of epiretinal membranes and ILM-related changes may decrease due to their broader anti-proliferative action.

Regarding lens status, the panelists advised against combined phacovitrectomy in diabetic patients unless cataract significantly limits the surgical view. The natural lens may offer some protective effect against progression of diabetic retinopathy. Furthermore, placing an IOL in a vitrectomized eye, especially when tamponade or postoperative posturing is required, can lead to complications like pupillary capture or IOL decentration. Therefore, unless the cataract is advanced, delaying cataract surgery is often safer. A related technical consideration is peripheral vitreous shaving. While essential in eyes with peripheral tears, aggressive shaving in diabetic TRD may not always be necessary, especially in phakic eyes where lens safety is a concern. However, adequate peripheral PRP is non-negotiable. Intraoperative lasers are crucial, and surgeons should avoid deferring PRP for postoperative slit-lamp application, which is less effective and more painful for patients. Finally, regarding residual intravitreal hemorrhage, particularly inferior blood accumulation, it

is often best addressed intraoperatively. Using scleral depression and modern viewing systems can help identify and remove blood effectively. The key message here is to take advantage of the surgical opportunity to complete thorough PRP, as it significantly reduces postoperative complications.

MEDICAL RETINA

Medical retina sessions play a crucial role in advancing the understanding, diagnosis, and management of retinal diseases, which are among the leading causes of visual impairment globally. They provide a platform to discuss emerging treatments for conditions such as diabetic retinopathy, age-related macular degeneration, retinal vein occlusions, and inherited retinal dystrophies. Furthermore, they encourage interdisciplinary collaboration and foster innovation by highlighting ongoing research and new therapeutic approaches, including gene and cell-based therapies. For early-career ophthalmologists, these meetings are valuable for networking, mentorship, and exposure to cutting-edge practices. In this conference, there were four medical retina symposia and an instructional course on uveitis.

SESSION 1: Anti-VEGF Updates

The first session in medical retina was on anti-VEGF updates. It was chaired by **PS Mahar**, co-chaired by **Rao Rashad Qamar** and moderated by **Khan Muhammad Nangrejo**.

Shahid Jamal Siddiqui introduced the session focused on updates in anti-VEGF therapy emphasized the critical role of hypertension and the duration of diabetes in the pathogenesis of diabetic retinopathy. He described a study conducted at a retina clinic involving 438 patients, noting the gender distribution (61.64% male, 38.35% female) and age range (14–75 years). He reported that 74% of patients had uncontrolled diabetes, 50% had hypertension, 13% had hypercholesterolemia, and 3.19% had nephropathy. Siddiqui discussed treatment options and stressed the importance of managing diabetes and associated systemic risk factors.

Shahzad Shafqat presented on dry age-related macular degeneration (AMD), focusing on the emerging role of Faricimab in the management of wet AMD and diabetic macular oedema (DMO). He explained the dual mechanism of Faricimab, which targets both VEGF and ANG-2, and described its modified Fc region that reduces immunogenicity. He discussed the molecular basis of ANG-1 and ANG-2 in vascular stability and highlighted Faricimab's benefit in reducing epiretinal membrane formation. Shafqat shared real-world data from 21 NHS sites in the UK, comparing outcomes in treatment-naïve and treatment-experienced eyes, and noted the absence of adverse events. He concluded that 98% of patients remained on Faricimab, with both cohorts showing significant improvements in visual acuity. He also addressed challenges in real-world data, including protocol deviations and socioeconomic factors, and noted the recent NICE approval of Faricimab in the UK.

Tariq Aziz discussed the challenges in managing geographic atrophy (GA), a severe form of dry AMD with limited treatment options. He introduced the clinical features of GA and reviewed the current limitations in its management, including the need for frequent injections and potential risks like ischemic optic neuropathy. He mentioned the recent approval of a complement inhibitor for GA in the United States but pointed out its high cost and restricted access. Aziz emphasized the urgent need for further research and development to provide more effective and accessible therapies for patients with GA.

Usman Saeed presented findings from the TENAYA and RHINE trials in wet AMD. He outlined the inclusion criteria and the head-to-head design of the trials, noting comparable improvements in visual acuity and central foveal thickness. He also shared insights from real-world data from Liverpool, which showed favorable outcomes in cost-effectiveness and patient satisfaction. Saeed concluded with practical guidance for optimizing treatment strategies in wet AMD, highlighting the need for individualized care.

M. Afzal Bodla presented a comparative clinical study on the efficacy of Aflibercept versus Bevacizumab in the treatment of central serous chorioretinopathy (CSCR). He explained the study methodology involving 20 eyes of 20 patients. he reported that both treatments significantly reduced central macular thickness, with Aflibercept demonstrating superior outcomes. He highlighted the statistical significance of the findings and recommended Aflibercept as the preferred treatment for CSCR in clinical practice.

A group discussion on CSCR management followed, focusing on the classification of CSCR based on the presence of neovascular membranes and the role of half-dose photodynamic therapy (PDT) for mild cases. The panel agreed that many CSCR cases resolve spontaneously within three months and suggested that a conservative approach may be appropriate initially. They also addressed the unavailability of PDT in

Pakistan and the potential use of alternative therapies, such as subthreshold micropulse laser. The discussion emphasized the importance of individualized treatment plans and close follow-up.

Shakaib Anwar shared a case study of a patient with neovascular AMD managed with Aflibercept injections. He described the patient's baseline condition and highlighted improvements in visual acuity and resolution of exudative fluid following treatment. He discussed the long-term challenges of AMD management, particularly the necessity for regular injections and patient adherence. Anwar underscored the value of a comprehensive approach, integrating medical therapy with lifestyle modification, including smoking cessation, healthy diet, and use of nutritional supplements to support visual outcomes.

SESSION 2: Diabetic Macular Edema Updates

The second session was on Diabetic macular edema updates. It was chaired by **Nasir Chaudhary**, co-chaired by **Tariq Khan Marwat** and moderated by **Shahid Jamal Siddiqui.**

Tariq Khan Marwat opened the session by addressing the global and national burden of diabetes, emphasizing its high prevalence in Pakistan at 30.8%. He reviewed the treatment modalities for diabetic retinopathy, highlighting laser therapy, including the use of yellow laser for pan-retinal photocoagulation (PRP) and subthreshold micropulse laser for tissue preservation. He also discussed surgical options and emphasized the role of pharmacological interventions such as systemic glycemic control and intravitreal anti-VEGF agents as integral components of diabetic retinopathy management.

Hamid Mahmood provided a historical perspective on the evolution of diabetic retinopathy treatment. He emphasized the critical role of long-term glycemic control and described the mechanism of PRP, advocating for gentle burns to reduce the risk of peripheral visual field loss. He reviewed the growing role of anti-VEGF therapy in diabetic macular edema and suggested a combination approach where appropriate. He also addressed the limitations of PRP and emphasized the need for individualized treatment, referencing current global standards for managing proliferative diabetic retinopathy.

Mariam Shamim discussed the increasing prevalence of diabetic retinopathy in Pakistan and the systemic challenges in its management. She stressed the importance of early detection and consistent follow-up to prevent vision loss. Shamim advocated for a national diabetic retinopathy screening policy and emphasized the potential for collaboration with NGOs, local health units, and international foundations. She also discussed the growing role of artificial intelligence in screening programs and the importance of specialized training for healthcare professionals.

Abdul Sami Memon presented on the clinical utility of Optical Coherence Tomography Angiography (OCTA) in the diagnosis and monitoring of diabetic retinopathy. He explained OCTA's ability to visualize microaneurysms, capillary dropout, and neovascularization without dye injections. He also discussed key biomarkers such as macular vessel density and macular ischemia. However, he noted that OCTA has limitations in detecting peripheral retinal changes and should be complemented by other imaging methods. His presentation included real-world clinical examples demonstrating the value of OCTA.

Sidra Riaz discussed the use of suprachoroidal triamcinolone acetonide injections in the treatment of diabetic macular edema. She described its anti-inflammatory properties and noted the advantages of this route, including targeted delivery, reduced systemic exposure, and lower cost. She presented evidence from a clinical study showing significant reductions in macular thickness and improvement in visual acuity. Riaz also detailed the technique for administration and addressed possible side effects.

Amash Aqil presented real-world audit data from University Hospital Birmingham on the use of Faricimab for wet AMD. He reiterated the drug's dual-action mechanism and showed clinical outcomes indicating improvement in both vision and macular anatomy. He emphasized the importance of initiating treatment with a loading dose of four consecutive monthly injections. Aqil also noted the ongoing need for careful patient monitoring and discussed practical challenges in wet AMD management.

In the concluding panel discussion, Shahzad Shafqat emphasized the use of small spot sizes and nanosecond durations in laser therapy for diabetic retinopathy to enhance precision and safety. Abdul Sami Memon reiterated the peripheral limitations of OCTA imaging, while Amash Aqil reinforced the need for a consistent loading protocol when using Faricimab.

The session ended with a strong call to action for greater public health advocacy to address the growing diabetes epidemic in Pakistan and its ophthalmic complications.

SESSION 3: Panel Discussion on Avastin Standard Operating Procedures SOPs

There was a panel discussion on Avastin SOPs chaired by **Tariq Aziz**, co-chaired by **Asad Aslam Khan** and moderated by **Hamid Mahmood Butt**. The meeting discussed the use of Avastin, an anti-VEGF drug, in Pakistan, particularly after a 2023 disaster that led to a ban on its use. The panel included **Tariq Aziz. Asad Aslam, Aamir Ali Chaudhary. Shakaib Anwar, Azhar Qazi, Muhammad Moin and Zulfiqar Ali**.

Tariq Aziz opened the session by addressing a critical incident involving Avastin use in Punjab, which led to the suspension of its supply of ophthalmic indications. He outlined the global applications of Avastin, particularly in treating retinal vascular diseases, and introduced emerging anti-VEGF agents such as Faricimab discussing their mechanisms of action. Following the disaster, there was a significant increase in patient refusals of Avastin therapy, largely fueled by media reports linking the drug to cases of blindness. In response, the Punjab government established an expert board to investigate the issue and restore public confidence. He stressed the urgent need for adherence to standardized protocols in the handling and administration of Avastin to ensure safety and prevent future incidents.

Azhar Qazi began his presentation by discussing the importance of SOPs and protocols in the safe administration of Avastin, originally developed for colorectal cancer but widely used off-label for retinal diseases in Pakistan. He highlighted Avastin's success in improving visual outcomes among underprivileged patients and outlined the serious challenges following the 2023 Avastin-related mishap. Qazi described how his center implemented rigorous SOPs, including strict aseptic techniques, cold chain maintenance, and patient stratification into paid, subsidized, and free categories. He also detailed the preparation and administration processes used to ensure safety. In comparing Avastin with other anti-VEGF agents, Qazi highlighted its cost-effectiveness and comparable efficacy, particularly for poor populations. He supported his argument with regional data from India and Pakistan, reinforcing the need to offer safe, affordable anti-VEGF therapies to those in need.

Mohammed Moin outlined the significant challenges encountered during the 10-week suspension of Avastin use and its impact on retinal disease management and patient care. He emphasized that strict adherence to SOPs is essential to safeguard patient outcomes and prevent future mishaps. Recognizing the resource limitations in many centers, Moin advocated for SOP modifications to enhance feasibility across varied healthcare settings.

In the ensuing discussion, the critical role of pharmacists in Avastin preparation was highlighted, with a call for their integration into the injection workflow to ensure compliance with aseptic standards. Moin stressed the importance of using laminar airflow hoods and specialized injection rooms to minimize contamination risk. Finally, he reiterated the need for robust cold chain maintenance and consistent aseptic conditions as cornerstones of safe intravitreal Avastin use.

SESSION 4: Free Papers

The free papers session on medical retina was chaired by **Chaudhary Javed Iqbal,** co-chaired by **Ali Zain** and moderated by **Sana Jahangir**.

Sana Naveed presented a detailed case of a patient with sudden visual decline in the right eye over a week. The patient was non-diabetic, non-hypertensive, and had no ischemic heart disease, but had a notable family history of hypertension and consanguinity, suggesting genetic predisposition. She exhibited ectatic corneas and bilateral angioid streaks radiating from the optic disc. Fundus imaging revealed hemorrhages and characteristic gray lines, while OCT demonstrated subfoveal hyperreflective spaces and loss of foveal contour. Blue autofluorescence showed hypoautofluorescent streaks. A diagnosis of angioid streaks secondary to pseudoxanthoma elasticum was confirmed on skin biopsy. Treatment with monthly intravitreal Avastin led to restoration of foveal contour and reduced central macular thickness. OCT-A revealed hyperreflective foci at the level of the choriocapillaris. She was advised regular three-month follow-ups. The presentation also provided a historical and pathophysiological overview of angioid streaks, their systemic associations, complications like CNV, and imaging modalities, emphasizing early detection and appropriate management using anti-VEGF therapy and, when indicated, photodynamic therapy.

Noor-ul-Ain discussed a case involving a 25-year-

old woman with a history of trauma at age 15 and progressive bilateral visual impairment. The patient had no perinatal risk factors or systemic illnesses, but trauma to the left eye preceded her vision loss. Visual acuity was severely reduced, and dense cataract in the left eye precluded fundus examination. Posterior subcapsular cataract and vitreous changes were noted in the right eye, with OCT revealing an elevated macula and epiretinal membrane. Fundus and red-free photographs of the right eye showed fibrovascular proliferation with retinal vessel dragging. Differential diagnoses included FEVR, ROP, Coats' disease, and incontinentia pigmenti (IP). ROP was excluded due to normal perinatal history; Coats' and IP were unlikely given the bilateral involvement and absence of systemic signs, respectively. A diagnosis of FEVR was made, characterized by peripheral retinal avascularity and variable inheritance patterns. Management included cataract extraction and prophylactic panretinal photocoagulation. Postoperative visual acuity improved significantly, underscoring the value of early diagnosis and targeted intervention in inherited vitreoretinal disorders.

Nida Khalid presented a paper on Hydroxychloroquine (HCQ) correlation with retinopathy and **Marium Shamim** elaborated on neuroretinitis. **Arifa Farooq** highlighted the OCT predictive metrics and **Khizar Niazi** compared the posterior sub-tenon's injection with suprachoroidal triamcinolone for macular edema. The session ended with token of thanks and a group photograph.

SESSION 5: Uveitis

Sessions on uveitis at ophthalmology conferences are significant due to the complex, sight-threatening nature of intraocular inflammation and its diverse systemic associations. These sessions provide an essential platform for disseminating current knowledge on the diagnosis, classification, and management of various forms of uveitis, including infectious, non-infectious, and masquerade syndromes. Given the interdisciplinary nature of uveitis care, such sessions foster collaboration between ophthalmologists, rheumatologists, infectious disease specialists, and internists, promoting a comprehensive approach to patient management. They highlight advancements in imaging (such as OCT and ultra-widefield angiography), laboratory testing, and the use of immunomodulatory therapies and biologics. Additionally, sessions on uveitis help in standardizing diagnostic criteria and treatment protocols, particularly valuable in regions where access to subspecialty care may be limited.

The session was chaired by **Shakaib Anwar**, co-chaired by **Uzma Naz** and moderated by **Sohaib Abbas Malik**. **Shakaib's** talk provided a comprehensive overview of posterior uveitis, highlighting it as a particularly challenging subset due to its diverse etiologies, diagnostic complexities, and therapeutic demands. While not delving into full pathogenesis, he emphasized the importance of understanding uveitis as an anatomically classified condition, posterior involvement often necessitating detailed evaluation and multidisciplinary management. Common causes include toxoplasmosis and idiopathic cases, with tuberculosis, sarcoidosis, and Vogt-Koyanagi-Harada disease also featured prominently, though prevalence varies by region. Diagnosis hinges largely on clinical acumen, supported by focused laboratory investigations and advanced imaging techniques such as OCT, FFA, and ICGA. Clinical findings vary widely, from vitritis and retinitis to vasculitis and disc granulomas. OCT is instrumental in identifying disease activity, macular changes, choroidal involvement, and complications like CNV. Illustrative cases demonstrated typical findings in toxoplasmosis, sarcoidosis, Behçet's disease, and others, showing how OCT evolves with disease progression. The presentation also explored mimickers of uveitis, such as masquerade syndromes, toxic chorioretinopathy, metastatic lesions, and posterior scleritis, each distinguishable through imaging and systemic correlation. Emphasis was placed on the importance of a tailored, evidence-based diagnostic approach integrating ocular signs with systemic findings. Posterior uveitis, as presented, is not a monolithic entity but a spectrum requiring careful differential diagnosis, continuous monitoring, and collaboration across specialties to achieve optimal outcomes. The session set the stage for deeper exploration and encouraged clinicians to develop a structured yet flexible strategy for managing such complex cases.

Uzma Naz delivered a compelling and clinically relevant presentation on infectious uveitis, emphasizing its potential for serious visual morbidity if not identified and managed promptly. She noted that while infectious etiologies account for a smaller proportion of uveitis cases in high-income settings, they represent a substantial burden globally, particularly in endemic regions. Through a series of illustrative cases, she demonstrated the diagnostic challenges and varied

presentations of infectious uveitis. These included acute retinal necrosis due to herpes viruses, cytomegalovirus retinitis in advanced HIV, syphilitic chorioretinitis often coexisting with HIV, atypical ocular toxoplasmosis, and ocular tuberculosis. Across these scenarios, Naz highlighted the dangers of misdiagnosis and the critical need for timely recognition, appropriate imaging, targeted laboratory workup, and cautious use of corticosteroids, always after adequate antimicrobial therapy has been initiated. She stressed the importance of maintaining a broad differential, especially in immunocompromised patients or those from high-risk populations, and the necessity of excluding infection before starting immunosuppression. The talk reinforced the principle that clinical vigilance, interdisciplinary collaboration, and a structured diagnostic approach are essential for optimal outcomes in infectious uveitis.

Shoaib Abbas Malik delivered an informative talk on the management of non-infectious uveitis, focusing on treatment strategies beyond corticosteroids. He emphasized that while steroids are effective in controlling acute inflammation, their long-term use is limited by significant side effects. The aim of treatment is to control inflammation, prevent structural complications, preserve vision, and reduce drug toxicity. Accurate diagnosis is essential, especially to rule out infectious etiologies and masquerade syndromes such as malignancy.

He outlined the indications for initiating immunomodulatory therapy (IMT), including persistent inflammation beyond four weeks, the need for prolonged steroid use exceeding 7.5 mg daily for more than three months, or in cases where side effects become problematic. IMT options include antimetabolites such as methotrexate and mycophenolate mofetil, and calcineurin inhibitors like cyclosporine. Methotrexate is typically initiated at 10 mg weekly with folic acid supplementation and regular monitoring of blood counts and liver and kidney function. Mycophenolate is usually given in two divided doses of 1 g each. Cyclosporine requires blood pressure monitoring due to its hypertensive effects.

For refractory cases, cyclophosphamide may be used under close supervision due to its higher toxicity. Biologic therapies, particularly TNF-alpha inhibitors like adalimumab and infliximab, have shown efficacy in certain uveitic syndromes. These are usually combined with methotrexate to prevent the development of anti-drug antibodies. Pre-treatment screening for infections and malignancy, along with updated vaccinations, is essential. He also discussed JAK inhibitors such as tofacitinib, which offer oral administration and a rapid onset of action but require close monitoring for metabolic and muscle-related side effects. Rheumatology collaboration is strongly recommended when using these agents.

Certain conditions such as juvenile idiopathic arthritis, Vogt-Koyanagi-Harada disease, multifocal choroiditis, and necrotizing scleritis often require early initiation of IMT, as steroids alone are not sufficient for long-term control. Malik highlighted practical aspects of therapy, including monthly lab monitoring during the initial six months, the typical treatment duration of 18 to 24 months before tapering, and individualized treatment plans based on disease characteristics. He shared a clinical anecdote of optic disc pallor due to demyelination as a complication of biologic therapy, underscoring the need for careful follow-up.

The presentation concluded with a discussion on complex cases, including one involving bilateral disc edema with a negative systemic workup, suggesting possible granulomatous disease. He stressed the importance of distinguishing true papilledema from bilateral optic disc swelling due to uveitis. The talk provided clear guidance and clinical insights for ophthalmologists managing non-infectious uveitis in diverse patient populations.

OCULOPLASTICS

Oculoplastics sessions in ophthalmic conferences are vital for broadening understanding of periocular conditions, surgical techniques, and multidisciplinary care. These sessions cover functional and aesthetic aspects of eyelid, lacrimal, and orbital disorders, which are often overlooked in general ophthalmology. They help clinicians recognize masquerading signs of systemic or neoplastic disease and improve surgical planning for trauma, tumors, and ptosis. Regular updates through such sessions ensure ophthalmologists stay equipped to manage complex oculoplastic cases or refer appropriately. There were six sessions on Oculoplastics each with its own importance.

SESSION 1: Video Symposium and Case Reports

This session was chaired by **Zahid Kamal Siddiqui**, co-chaired by **Shaukat Ali** and moderated by **Salman Hamza**.

Faisal Aziz presented on bladeless pterygium excision. He began the procedure with a local anesthetic injection into the body of the pterygium. The conjunctival fold was grasped and pulled upwards toward the apex, allowing it to be peeled off the corneal surface. Deep lamellar peeling was then performed to achieve a smooth corneal surface without violating Bowman's layer or requiring superficial keratectomy.

Fariha Sher Wali discussed a case involving the live maggots over the orbit, followed by a glaze of oil technique to remove hidden maggots. Postoperative care included intravenous antibiotics, oral steroids, oral anesthetics, and tablet ivermectin. She highlighted the challenges in managing orbital myiasis, particularly the difficulty in achieving complete removal of the maggots.

Abdul Basit presented on external dacryocystorhinostomy (DCR) performed under local anesthesia. He emphasized the high success rate of this technique due to direct visualization. The procedure involved a 10 mm straight incision placed 10 mm from the medial canthus, beginning 2 mm above it. The middle canthal tendon was identified, and the lacrimal sac was fully opened to prevent synechiae formation.

Murtaza Sameen introduced the endoscopic endonasal DCR using a nasal mucosal flap. He explained the benefits of preserving the nasal mucosa to reduce the risk of strictures or granulation tissue. The procedure included a U-shaped incision along the middle meatus, elevation with a periosteal elevator, full opening of the lacrimal sac, and silicone tube insertion to maintain patency.

Mohammed Idris described two novel techniques in punctoplasty: suture-assisted three-snip punctoplasty and canalicular triangular flip punctoplasty. The first technique involved three incisions (vertical, horizontal, and diagonal) with suture support for punctal positioning. The second technique utilized two incisions (vertical and horizontal) with mucosal stitching to the surrounding conjunctiva for structural stability.

Khalid Shoaib discussed four inferior oblique weakening procedures: myectomy, anterior nasal transposition, recession, and myopexy. Myectomy involved resection of 5–10 mm of the inferior oblique with cauterization. Anterior nasal transposition, which repositioned the muscle nasally to the inferior rectus, was described as more effective than myectomy.

Sumeya Khan spoke on the use of orbital dermis-fat grafts, harvested from the gluteal region, for orbital volume replacement. She noted the advantages of autologous tissue, minimal reactivity, and growth potential in pediatric patients. Reported complications included infection, bleeding, scarring, and fat resorption, with two patients requiring re-excision due to volume loss.

Ubaid Ullah Khan presented a technique for medial canthal tendon fixation using thermoplasty. He described creating a strong thermal scar with diathermy to guide healing direction. The procedure involved a 5 mm vertical stab incision lateral to the punctum, engagement of the inferior oblique on sutures, and nasal fixation to the inferior rectus to produce a stable scar.

Shahid Tarar discussed the management of orbital fat collapse. The procedure was performed under local anesthesia, with careful dissection to separate fat from surrounding tissues. Depending on the case, the fat was either repositioned or excised. He stressed the importance of gentle handling and the use of bipolar cautery to minimize bleeding.

Foha Ahmad presented a case of orbital cellulitis with intracranial complications. A 52-year-old male had a 20-day history of painful right eye, vision loss, and high-grade fever. Imaging revealed superior ophthalmic

vein thrombosis. She emphasized the value of early diagnosis and a multidisciplinary approach in managing such cases.

Farah Huma presented optic nerve sheath fenestration for vision loss secondary to idiopathic intracranial hypertension. She described making an incision 1 mm posterior to the optic nerve insertion and creating a window into the subdural space. The medial rectus was reinserted, and the conjunctiva was closed with vicryl sutures.

Zahid Kamal Siddiqui presented a case of orbital rhabdomyosarcoma in a child initially misdiagnosed as orbital cellulitis. Following resection, the diagnosis was confirmed, and the child achieved full recovery. He stressed the importance of early identification and treatment of rhabdomyosarcoma and advocated for standardized management guidelines.

SESSION 2: Orbital Diseases and Tumors

There was a separate session on Orbital diseases and tumors chaired by **Asad Aslam Khan**, co-chaired by **Muhammad Khalil** and moderated by **Sidra Latif**.

Asad Aslam Khan discussed the management of uveal melanoma, noting its rarity in the region and emphasizing the foundational role of mentorship from Professor Murli Laksa in advancing understanding of orbital diseases. He described uveal melanoma as a malignant tumor arising from melanocytes of the uveal tract, with a marked propensity for hepatic metastasis. Risk factors included fair skin, light-colored irides, and northern European ancestry. Clinical diagnosis was based on fundus examination, ultrasonography, and serial fundus photography. He explained the roles of autofluorescence and ultrasonography in tumor evaluation, particularly for determining size, thickness, and metastatic potential, while acknowledging the limitations of OCT. Management strategies ranged from observation to surgery, radiation, laser therapy, and systemic treatment. He recommended exenteration for orbital invasion. He elaborated on radiation options, including plaque brachytherapy, external beam radiotherapy, and transpupillary thermal therapy, and concluded by sharing insights from a 27-year institutional experience at Mayo Hospital.

Murtaza Sameen presented a rare pediatric case of undifferentiated sympathetic round cell carcinoma in a seven-month-old Afghan infant. He highlighted the aggressive nature of the tumor, which caused rapid-onset proptosis and bleeding. The child underwent exenteration under general anesthesia, and histopathology confirmed the diagnosis. Postoperative plans included induction chemotherapy. Sameen stressed the critical importance of early surgical intervention to preserve life and, when possible, visual function.

Shahid Tarar discussed the lateral orbitotomy technique, focusing on the essential anatomical knowledge and surgical skills required. He described the relationship between the lateral rectus muscle and the zygomatic bone and outlined each surgical step from incision to tumor removal. He emphasized careful postoperative monitoring, particularly for orbital hemorrhage. A representative case involving successful resection of a large orbital mass was used to illustrate the technique's effectiveness.

Sidra Latif compared primary exenteration with adjuvant therapy in the management of lacrimal gland adenocarcinoma. She reviewed current literature favoring eye-sparing surgery combined with adjuvant therapy for improved outcomes. Presenting data from her own study, she showed that primary exenteration yielded higher overall survival rates in advanced-stage tumors. She concluded that treatment strategies should be tailored to tumor stage and patient-specific factors.

Sadia Imtiaz presented findings from her study on the use of intralesional bleomycin for treating orbital and periocular vascular malformations, with a focus on high-flow lesions. She explained the cytotoxic and sclerosing properties of bleomycin and outlined her study’s design, including patient selection and procedural details. Results demonstrated significant tumor size reduction with minimal complications, leading her to advocate for bleomycin as a first-line treatment in suitable cases.

Abdul Basit reviewed the spectrum of orbital diseases encountered in a tertiary care hospital setting. He identified orbital cellulitis, thyroid eye disease, and trauma as the most common presentations. He underscored the importance of prompt diagnosis and timely management, noting that delayed presentations often have complicated outcomes. He also shared data on prevalence and gender distribution and emphasized the value of interdisciplinary collaboration for improved patient care.

Zahid Kamal Siddiqui addressed the management of sinonasal orbital diseases, advocating for integrated ENT and ophthalmology collaboration. He stressed the need for thorough baseline documentation prior to any

intervention. Through illustrative case studies, he reviewed the management of orbital cellulitis, mucormycosis, and various orbital tumors. He emphasized the necessity of early diagnosis and referral, concluding that coordinated, interdisciplinary care significantly enhances patient outcomes.

SESSION 3: Eyelids and Orbit Anomalies

Session on congenital eyelids and orbit anomalies was chaired by **Zafar ul Islam**, co-chaired by **Shahid Tarar** and moderated by **Fahad Kamal Akhtar**.

Farah Huma presented on dermolipoma, describing it as a congenital choristoma resulting from sequestration of ectoderm during embryogenesis. Typically, unilateral and located in the supratemporal fornix, dermal lipomas can occur in isolation or as part of syndromic conditions such as Goldenhar syndrome. Her presentation included diagnostic approaches, imaging modalities, treatment options such as surgical debulking, and the potential risks associated with intervention.

Sofia Iqbal provided a detailed overview of congenital eyelid anomalies, including cryptophthalmos, coloboma, epiblepharon, and telecanthus. She explained the classification of cryptophthalmos into complete, incomplete, and abortive types, each associated with distinct systemic findings. Coloboma management ranged from conservative measures to surgical interventions. Epiblepharon was treated with a stepwise approach including lubricants, hyaluronic gel injections, botulinum toxin, and surgery. Telecanthus management included shortening of the medial canthal tendon and the use of autologous facial slings for reconstruction.

Ibrar Hussain discussed the role of cancer registries in ophthalmology, highlighting their utility in public health planning and research. He outlined several types of registries including institutional, central, and special-purpose and traced their development globally and within Pakistan. He introduced the Cancer platform, which supports registration and follow-up of oncology patients while collecting demographic, clinical, and treatment data. He emphasized the importance of data accuracy for resource allocation and epidemiological surveillance.

Imran Akram Sahaf addressed the clinical features and management of eyelid colobomas. He explained the classification based on the extent of tissue absence and described the associated risks, including exposure keratopathy and amblyopia. Management strategies included initial ocular surface protection with lubricants and wet chambers, followed by surgical repair using techniques such as canalization, lid-sharing, and rotational flaps. He emphasized the importance of tissue alignment, vascularity, and surgical expertise in achieving optimal outcomes.

Tayyab Afghani presented on orbital rhabdomyosarcoma, a pediatric malignancy requiring urgent diagnosis and intervention. He outlined the clinical presentation, often mimicking conditions such as lymphangioma or orbital cellulitis. Management included a multimodal approach involving surgery, chemotherapy, and radiotherapy. He shared case studies highlighting the importance of early diagnosis in improving survival and visual outcomes. Future directions included research into oncolytic viral therapies and immunotherapeutic approaches.

Amer Yaqub introduced orbital granulomatous inflammatory diseases, discussing their etiologies, infectious, autoimmune, and idiopathic. He explained their pathogenesis, clinical presentation, and potential for serious ocular morbidity. Diagnosis involved clinical evaluation, imaging, and biopsy confirmation. Treatment included corticosteroids, immunosuppressants, and surgical excision in refractory cases. He emphasized the need for systemic evaluation and early intervention to prevent irreversible complications.

Shafqat Ali Shah presented a five-year audit on dermoid cyst surgeries in pediatric patients. The study included 47 cases (26 male, 21 female) with right-sided cysts in 27 patients. He described dermoid cysts as choristomas arising from ectodermal tissue, often located in the periorbital region. Surgical techniques aimed for complete excision with intact capsules to minimize recurrence. Postoperative complications included conjunctival rupture in 10 cases. He highlighted the importance of meticulous surgical technique and diligent postoperative care for optimal outcomes.

SESSION 4: Nasolacrimal System

Imran Akram Sahaf chaired a session on Nasolacrimal system with **Zeeshan Kamil** as co-chair and **Salman Hamza** as moderator. The symposium discussed various techniques and treatments for nasolacrimal duct obstruction (NLDO).

Murtaza Sameen presented a study that evaluated

the effectiveness of bi-canalicular intubation in managing acquired punctal stenosis in adults. The study included patients aged around 50 years who presented with intermittent epiphora, increased tear meniscus, and no prior history of trauma or surgery, while excluding those with dry eye, low tear meniscus, or chronic anti-glaucoma drug use. The procedure involved punctal dilation, irrigation, and insertion of stents upon confirming nasolacrimal patency. With a six-month follow-up, the study reported a 93.3% anatomical and functional success rate in 14 out of 15 patients, with one failure attributed to chronic drug use. Supporting literature from 2017 and a Chinese journal reinforced the feasibility and efficacy of office-based stent placement for punctal stenosis. The study concluded that such bi-canalicular intubation was a promising, minimally invasive option for treating proximal acquired punctal stenosis.

Richard Allen highlighted the nuanced and often overlooked causes of tearing, emphasizing the importance of a thorough diagnostic approach. He outlined three primary etiologies: ocular surface disease, eyelid malposition (such as entropion and ectropion), and lacrimal outflow obstruction. Reflex tearing of the ocular surface disease was noted to be subtle and easily missed without careful examination. He also discussed how conjunctivitis and anatomical variations like kissing puncta could obstruct tear drainage. Additionally, Allen introduced the concept of "toxic tears," underscoring the need for effective tear drainage to preserve ocular surface health. The session stressed individualized assessment to guide appropriate management.

Fahad Kamal Akhtar presented an innovative technique for canalicular repair using IV cannula Teflon tubes as an alternative when silicone stents were unavailable. These Teflon tubes were highlighted for their resistance to chemicals, temperature fluctuations, and bacterial colonization, making them suitable in emergency settings. The procedure involved medial canthus fixation and insertion of the Teflon tube, secured with a 6-0 Prolene suture. He illustrated the method with a case of a 15-year-old road traffic accident victim, in whom the technique was successfully applied. Akhtar emphasized the importance of respecting lacrimal anatomy and advocated for the use of this approach in urgent repair situations.

Khawaja Khalid Shoaib discussed the use of nasal endoscopy in performing endoscopic dacryocystorhinostomy (DCR), employing rigid endoscopes with 0°, 30°, and 70° angles. The surgical steps included nasal mucosal decongestion, incision, and bone removal using a Kerrison rongeur. He highlighted the advantages of endoscopic DCR, including reduced morbidity, no external scarring or orbital trauma, and faster recovery. However, he also noted limitations such as the high cost of equipment, a steep learning curve, and the need for general anesthesia. The indications for endoscopic DCR were similar to external DCR, including chronic epiphora, recurrent nasolacrimal duct obstruction, and acute dacryocystitis.

Imran Akram Sahaf elaborated on the meticulous planning and execution required for successful external DCR, emphasizing the importance of both surgical skills and thorough preparation. The procedure involved creating a fistula to connect the tear sac directly to the nasal cavity by incising through the lacrimal bone and nasal mucosa, thereby bypassing the obstructed nasolacrimal duct. Sahaf stressed the need for comprehensive preoperative evaluation, including systemic and ENT assessments, to identify and manage contributing conditions. He highlighted key intraoperative measures such as proper skin antisepsis, patient head elevation, nasal mucosal decongestion with adrenaline and cocaine, and effective nasal packing to reduce bleeding and enhance surgical field visibility.

Zahid Kamal Siddiqui discussed the clinical presentation and management of pyogenic granuloma, a benign yet highly vascular lesion associated with symptoms such as excessive tearing, hemolacria, and ocular discomfort. Typically pedunculated, these lesions could mimic more serious conditions like squamous cell carcinoma, making accurate differential diagnosis essential. Management strategies included the use of topical corticosteroids, antibiotics, and cautery, with a claw-shaped clamp used for effective hemostasis during surgical excision. Siddiqui emphasized the importance of meticulous surgical protocol, especially ensuring that all instruments and packing materials are accounted for. He illustrated this with a case of chronic postoperative infection due to a retained cotton gauze following DCR surgery, highlighting the grave consequences of such oversights.

Zeeshan Kamil presented a compelling case of a five-year-old child with progressive congenital proptosis and significant conjunctival chemosis. The clinical history included prior trauma, with the right eye limited to light perception and the left eye showing a mid-positioned, non-reactive pupil. Differential

diagnoses included orbital cellulitis, venous lymphatic malformation, arteriovenous malformation, and vascular hematoma. Imaging revealed posterior orbital fullness, suggesting a vascular lesion. A biopsy was recommended for definitive diagnosis. Treatment with intralesional adrenaline and oral prednisone resulted in marked clinical improvement, underscoring the importance of early diagnosis and intervention in pediatric orbital disorders.

Ubaid Ullah Yasin discussed the evolution of DCR techniques, including external, endoscopic, and transcanalicular diode laser approaches. He outlined common indications such as chronic epiphora and recurrent nasolacrimal duct obstruction, emphasizing that each method offers distinct advantages and limitations. To improve exposure and reduce bleeding during endoscopic DCR, he described using monopolar cautery for mucosal incision and elevation, followed by bony osteotomy creation. A procedural video demonstrated the technique. Yasin also highlighted the benefit of combining endoscopic and diode laser methods to address limitations like small osteotomy size and incomplete sac opening, ultimately enhancing surgical outcomes.

SESSION 5: Eyelids and Ptosis

Symposium on Eyelids and ptosis was chaired by **Amer Yaqub,** co-chaired by **Ibrar Hussain** and moderated by **Sadia Imtiaz**. The session included different case scenarios and valuable discussions on eyelid abnormalities.

Zahir Shah presented a case-based overview of plexiform neurofibroma, a hallmark of Neurofibromatosis Type 1 (NF1), describing its typical presentation as soft, subcutaneous “bag of worms” masses involving long nerves or nerve plexuses. He emphasized clinical evaluation steps: observation, palpation, and systemic examination and highlighted imaging and biopsy for diagnosis. Differential diagnoses included sarcomas and vascular malformations. He discussed Selumetinib, an FDA-approved MEK inhibitor, for reducing lesion size. A case of a 15-year-old boy with mechanical ptosis due to upper eyelid involvement was shared, managed surgically with positive outcomes and low recurrence.

Zahid Kamal focused on choristomas, particularly dermolipomas, which are benign congenital lesions composed of adipose and adnexal tissue beneath conjunctival epithelium. Commonly affecting young females and associated with Goldenhar syndrome, these lesions often present with astigmatism or cosmetic concerns. He emphasized differentiation from orbital fat or lacrimal tissue. Management is mostly conservative unless vision is compromised or cosmesis is a concern, in which case meticulous surgical excision is performed to minimize complications such as dry eye or strabismus.

Ammarah Ashraf introduced a non-surgical alternative for managing painful blind eyes due to panophthalmitis. By using periocular injections of vancomycin and ceftazidime, significant pain relief was achieved in most patients, sparing them from evisceration. One illustrative case involved a diabetic male with post-cataract complications who responded well to the treatment. She emphasized that this conservative approach preserves the globe and patient’s psychological well-being while being effective in end-stage inflammation.

Ammarah Ashraf also presented a rare case of bilateral periocular xanthogranuloma misdiagnosed for eight years as xanthelasma. The patient developed progressive yellowish plaques, eventually diagnosed via biopsy showing Touton giant cells. Systemic involvement was revealed, including sellar mass and diabetes insipidus. Treatment was done with systemic steroids, lesion excision, and multidisciplinary referral. The case underscored the importance of biopsy in persistent periocular lesions.

Sumeya Ali Khan reported outcomes of congenital ptosis correction using silicone rods via the Fox procedure, favoring them over fascia lata due to ease of use, cost-effectiveness, and good outcomes. She presented varied cases including cutis laxa and CPEO, demonstrating reliable functional and cosmetic results. Complications were rare, and she advocated silicone slings especially in pediatric and resource-limited settings.

Amer Yaqub detailed the levator resection technique for ptosis, stressing careful preoperative evaluation including MRD and levator strength. He walked through each surgical step, including aponeurosis dissection, suturing, and contouring the lid with lateral support sutures. Emphasis was placed on preserving the levator pulley system and using absorbable sutures to prevent complications. His method tailored correction based on ptosis severity and minimized overcorrection and exposure risks.

Sadia Imtiaz discussed frontalis sling surgery for

poor levator function, highlighting the need for postoperative training to build a learned reflex for frontalis use. She stressed adjusting sling tension for symmetry in normal head posture and discouraged repeated tightening. Her approach prioritizes functional adaptation and aesthetic outcomes while minimizing exposure complications and enhancing patient confidence.

Khawaja Khalid Shoaib shared complications from his extensive ptosis surgery experience, particularly in levator resections. He discussed overcorrection, undercorrection, and exposure issues, emphasizing conservative resection in strong levator function cases. Proline slings also had manageable complications like cellulitis. His talk reinforced the importance of surgical precision and postoperative follow-up for optimal results.

Richard Allen presented on transconjunctival tucking for ptosis, a minimally invasive, reversible technique ideal for elderly patients on anticoagulants. It involves tucking the Muller-levator complex to the tarsus via a conjunctival incision. The procedure avoids visible scars and has low complication rates. He highlighted its effectiveness in involutional ptosis but advised against it in congenital or neurologic cases.

Richard Aaron provided a comprehensive approach to facial nerve palsy, balancing corneal protection with functional eyelid rehabilitation. His management includes both temporary and long-term interventions like platinum weights, tarsorrhaphy, and retractor recession with spacers. He underscored early diagnosis and tailored surgery to preserve vision and facial symmetry, especially in cases with poor Bell's phenomenon.

Abdul Rehman Akram advocated for the lateral tarsal strip (LTS) procedure as a vital skill in oculoplastics, useful in ectropion, floppy eyelid syndrome, and anophthalmic socket support. He emphasized its simplicity, adaptability, and suitability for inclusion in ophthalmology residency training. He also highlighted a charitable scholarship initiative supporting underprivileged medical students, linking clinical excellence with social responsibility.

SESSION 6: Evisceration/Enucleation

Evisceration and Enucleation is a specialized segment of ophthalmology, focusing on advanced surgical procedures involving the removal of the eye, typically done to relieve pain or manage severe eye diseases or trauma. This instructional course was led by a team of experienced professionals: **Khawaja Khalid Shoaib** served as the Chairperson, **Zahid Kamal Siddiqui** as the Co-Chair, and **Fahd Kamal Akhtar** as the Moderator, indicating a well-structured and carefully overseen discussion.

The session began with **Hafiza Sadia Imtiaz** presenting on the Evisceration Technique, which involves removing the contents of the eye while preserving the outer shell, often used to treat severe infections or damage. This is followed by **Fahd Kamal Akhtar**, who discussed the selection of Appropriate Size Evisceration Implant, a crucial step in achieving optimal cosmetic and functional outcomes post-surgery. **Khawaja Khalid Shoaib** then presented on Enucleation, a more extensive procedure involving the removal of the entire eyeball, often required in cases of tumors or trauma. Finally, **Zahid Kamal Siddiqui** shared insights on Sahaf Enucleation Implants, likely a specific type of implant designed to improve results and patient comfort following enucleation.

Overall, the session provided a comprehensive overview of both surgical techniques and implant choices, offering valuable knowledge for ophthalmic surgeons and professionals involved in ocular trauma and reconstruction.

SESSION 7: Management Strategies for Strabismus

This instructional course was a focused and informative segment of the conference, dedicated to exploring clinical approaches for diagnosing and treating strabismus. The session was led by **Imran Akram Sahaf** as the Chairperson and **M. Salman Hamza** as the Moderator, ensuring a structured and engaging flow of discussion.

The session commenced with **Farhan Ali,** who presented a detailed case study, offering participants a real-world example of how strabismus presents clinically, and the challenges involved in its management. This set the stage for **Imran Akram Sahaf,** who provided an in-depth lecture on Management Strategies for Strabismus, covering both surgical and non-surgical interventions, diagnostic tools, and patient-specific treatment planning. His talk emphasized evidence-based techniques and contemporary advancements in the field.

The session concluded with a Q&A segment conducted by **M Salman Hamza,** where attendees had

the opportunity to engage directly with the speakers. This interactive portion allowed for clarification of key points, exchange of experiences, and deeper insights into complex clinical scenarios. Overall, the session served as a valuable learning opportunity for ophthalmologists and eye care professionals aiming to enhance their expertise in managing strabismus.

COMMUNITY OPHTHALMOLOGY

Community ophthalmology is vital in Pakistan to address preventable blindness, especially in underserved rural areas. It promotes eye health through awareness, screenings, and affordable treatments. Strengthening this field helps reduce the national burden of visual impairment and supports equitable eye care access. There were two sessions on community ophthalmology at this conference.

SESSION 1

The first session was chaired by **Qamar Islam Lodhi** with **Suhail Sarwar** as co-chair and **Muhammad Shaheer** as moderator. The session featured presentations on various eye health initiatives in Pakistan. The session started with a presentation by **Rizwan** Younis. He discussed the CBM Peak Project, which screened 2.8 million people in Chakwal from 2022 to 2024, with 78% triage adherence. He introduced the CBM Peak Project, which was implemented in 2022 and achieved notable success in the district of Chakwal. The project encompassed 81 health facilities, including 63 Basic Health Units (BHUs), 13 Rural Health Centers (RHCs), three Tehsil Headquarter Hospitals (THQs), and one District Headquarter Hospital (DHQ), all interconnected through Peak technology. Its primary objective was to reduce the refractive burden on THQs and DHQs while enhancing the quality of life in the region. Key activities included kick-off meetings, health facility assessments, pilot phases, and the official launch of the live project on November 10, 2018.

During its implementation, the project screened approximately 2.8 million individuals in Chakwal. Of these, 825,000 were reached through door-to-door visits, and 1.8 million were screened by Lady Health Visitors (LHVs). Additionally, 48 school health and nutrition supervisors screened 157,000 children over the past three years. Among those referred, 78% attended consultations with optometrists, and 95% of LHV referrals were confirmed as true positives. The project also facilitated 68,222 refractions, resulting in the distribution of 28,000 distance spectacles and 12,000 free near glasses for children.

Hugh R Taylor discussed the global challenges in eye care, emphasizing unoperated cataract and uncorrected refractive error as the leading causes of vision loss worldwide. It was noted that cataract surgery rates in Pakistan had improved by over 200% since 2018. Despite this progress, effective cataract surgery coverage remained low, with only 17% of patients achieving a postoperative visual acuity of 6/12 or better. The presentation also highlighted the World Health Assembly's global initiative to increase effective coverage for both refractive error and cataract surgery, aiming to reduce the burden of avoidable vision impairment.

Shujah-ur-Rehman discussed epidemic keratoconjunctivitis, emphasizing the need for public health measures. He outlined its symptoms, causative organisms, and modes of transmission. He shared findings from a descriptive cross-sectional study conducted between November 2023 and January 2024, which aimed to assess clinical practices and preventive strategies. The study identified adenovirus as the causative agent in 89.4% of cases, with adults being the most affected group. Topical steroids were regarded as the most effective treatment modality, while public health measures played a vital role in the overall management and containment of the disease.

Shahid Sohail addressed barriers in rural eye care highlighting issues such as uncorrected refractive errors, a shortage of eye care professionals, and financial constraints faced by patients. To address these barriers, the project implemented several strategies, including the establishment of automated clinics, the deployment of optometrists, and the development of structured referral mechanisms. These interventions significantly improved access to eye care in rural communities and enhanced public awareness regarding the importance of ocular health. Key achievements included increased rates of eye examinations and refractions, better accessibility for people with disabilities, and the provision of subsidized spectacles to patients in need.

Mohammad Iqbal Javed focused on diabetic retinopathy awareness. He presented findings on awareness regarding diabetic retinopathy among the general adult population living in urban slum areas of Lahore. Diabetic retinopathy, a complication of diabetes mellitus, was highlighted as a significant cause of blindness if left unmanaged. A six-month cross-sectional observational study was conducted, involving 283 participants, 164 males and 111 females. The study revealed low levels of awareness about both diabetes

mellitus and diabetic retinopathy, with only 28% of participants reporting regular visits to ophthalmologists.

Zeenat Khan celebrated Pakistan's trachoma elimination. She presented the success story of trachoma elimination in Pakistan, emphasizing the collaborative efforts of the National Trachoma Task Force and multiple stakeholders. The initiative began in 2001 with rapid assessments conducted in 230 villages across the country. The SAFE strategy (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement) was implemented in high- to moderate-priority clusters, complemented by mass drug administration using azithromycin donated by Pfizer International. These sustained efforts culminated in a major milestone when the World Health Organization declared Pakistan trachoma-free in 2024, a significant achievement in the realm of global eye health.

Zubaida Sirang explained the screening and referral modalities employed in the PEAK Project, highlighting the integration of PEAK Capture software and targeted training for community health workers. The project initially focused on equipping health workers with the necessary skills before introducing them to the use of PEAK Capture. This tool enabled the capture and upload of retinal images, which were then pre-screened using artificial intelligence to flag potential cases requiring ophthalmologist review. The initiative significantly improved access to eye care in rural regions, reducing both patient travel time and associated financial burdens.

Ayesha Safraz highlighted disability prevalence in the National RAAB Survey. She presented findings from the National RAAP Survey 2022 on the prevalence of disabilities, utilizing the Washington Group Short Set on Functioning questionnaire. The survey covered 40,407 participants across 15 districts and reported an overall disability prevalence of 14.4%. The most common functional limitations were related to seeing, walking, self-care, and hearing. Among visual impairments, severe visual impairment was the most frequently reported, followed by moderate visual impairment.

Tayyaba Burhan compared ocular health in homeless and residential populations. She presented inclusive eye health and screening, focusing on a comparative study of ocular problems among residents of formal housing colonies and homeless communities in Lahore. The study revealed that homeless individuals bore a significantly higher burden of eye diseases, with a ten-fold greater likelihood of developing cataracts and over twenty times higher recurrence of lens changes compared to their housed counterparts. Based on these findings, the study recommended capacity building, inclusive health workshops, and targeted screening programs specifically designed for homeless populations. The presentation underscored the urgent need to enhance awareness and improve access to eye care services for marginalized and underserved communities.

Fatima Zara discussed artificial intelligence (AI) integration in teleophthalmology, utilizing a hub-and-spoke model to enhance eye care delivery in rural areas of Pakistan. In this model, a central hub staffed by ophthalmologists supported peripheral spokes where basic eye care services were delivered. AI was shown to play a pivotal role in reducing the burden on healthcare infrastructure, enhancing diagnostic accuracy, and enabling specialists to focus on high-risk or complex cases. The presentation highlighted practical applications of AI, including diabetic retinopathy screening and cataract detection, which contributed to earlier diagnosis and more efficient resource allocation.

SESSION 2

The second session on *Community Ophthalmology* was chaired by **Hugh R. Taylor** and co-chaired by **Sajid Ali Surhio**, with **Arif Hussain** serving as moderator. The session brought together distinguished speakers who shared diverse models and experiences of delivering eye care at the community level, with a focus on underserved populations, primary care integration, and sustainable service delivery.

Aslam Razzaq presented a successful community-based initiative from Punjab, Pakistan, highlighting the establishment of a remote ophthalmic care unit. Initially launched with minimal resources, the unit has expanded to serve over 200 patients per day, supported by visiting specialists and advanced equipment. Key components include school vision screening, diabetic retinopathy screening, and the training of local schoolteachers to conduct vision tests. The project has played a significant role in easing the patient burden on tertiary centers and delivering cost-effective care, including complex surgeries, within the community.

Hugh R. Taylor provided an overview of Australia's efforts to reduce vision loss in Aboriginal communities. Highlighting disparities in eye health, he

detailed the program's roadmap of 42 recommendations focused on community engagement, cultural safety, and health system integration. Taylor also gave a historical perspective on trachoma, its global burden, and the success of the WHO endorsed SAFE strategy (Surgery, Antibiotics, Facial cleanliness, Environmental improvement). He commended Pakistan's recent certification for eliminating blinding trachoma and emphasized the continued importance of public health measures to maintain progress.

Coner Ramsden discussed innovations in cataract surgery delivery within the UK. A pilot program removed traditional preoperative assessments through optometrist-led evaluations and digital pre-op tools, significantly reducing hospital visits, shortening referral-to-surgery time to 11 days, and saving £71,000 in eight months. He also introduced the *Peek Vision* screening system, a mobile-based tool that enables rapid vision screening and has been deployed in over one million screenings globally. The system has proven especially effective in mapping refractive errors and reducing barriers to access in low-resource settings.

Farooq Awan spoke on the *Continuous Quality Improvement (CQI)* training program led by the Fred Hollows Foundation. The program incorporates e-learning, live discussions, and action phases to strengthen data-informed decision-making and patient-centered practices. Key learnings included the importance of sustainability, adaptive leadership, and performance feedback. Awan outlined future goals such as improving cataract surgical coverage and exploring data systems and public-private partnerships for enhancing quality of eye care.

Zahid Awan emphasized the value of integrating optometry into primary health care. Working with CBM International, he has been involved in scaling optometry clinics in rural Pakistan. These clinics provide first-line triage and basic eye care, effectively reducing patient loads at higher-level facilities. He advocated for expanded governmental support to further scale these services, noting their potential to significantly lower blindness and visual impairment rates across rural populations.

Junaid Faisal Wazir presented data from the Second National Blindness Survey of Pakistan, focusing on individuals aged 50 years and older. The major causes of vision loss included cataract, refractive errors, and diabetic retinopathy. Despite the availability of services, effective cataract surgical coverage remains suboptimal. Wazir called for the strengthening of primary eye care, quality assurance in surgical services, and expansion of social health insurance coverage to include ophthalmic care.

Jalil Ahmad Rajper proposed developing intermediate-level rural health centers to provide advanced primary care services. These centers would function as referral hubs, offering specialized care and reducing strain on secondary and tertiary institutions. Rajper stressed the importance of government collaboration and stakeholder involvement to scale the model nationally and improve access to quality eye care in underserved areas.

Arif Hussain offered historical context and updates on Pakistan's integration of primary eye care into health systems since the launch of Vision 2020 in 1998. He discussed the *Integrated People-Centered Eye Care (IPCEC)* program, noting the establishment of 79 Rural Health Centers now equipped for advanced eye care. Data from the program indicates that 56% of patients only needed refraction, and 4% required ophthalmologist consultation. He emphasized the importance of refresher training for optometrists, monitoring by ophthalmologists, and administrative oversight to ensure sustainability. Hussain concluded with a call to further integrate primary eye care into broader health systems to meet the needs of rural populations.

The session concluded with an engaging discussion on future directions, the importance of integrating primary care with specialist services, and the necessity of stakeholder collaboration in sustaining and scaling community eye care models.

CORNEA

Discussions on corneal diseases in Pakistan are crucial for advancing knowledge on emerging diagnostics and treatments for corneal diseases. There were three symposia on cornea in this conference; Keratoplasty, DALK and endothelial keratoplasty and two instructional courses; corneal ulcers and DMEK.

SESSION 1: Keratoplasty

The session on Keratoplasty was chaired by **Abdul Hye,** co-chaired by **Abdul Moqeet** and moderated by **Teyyeb Azeem Janjua.**

In the first symposium on keratoplasty, **Numan Sarfaraz** started with a comprehensive overview of corneal cross-linking (CXL), focusing on accelerated protocols and techniques for managing thin corneas. He explained the rationale behind CXL in halting keratoconus progression and reviewed the historical evolution of the procedure. Sarfaraz described the traditional and modified (accelerated) protocols, including the epithelium-off technique, and highlighted the Kings College Hospital London protocol utilizing riboflavin and UVA irradiation. In addressing thin corneas, he adopted the Dresden protocol definition (<400 μm) and emphasized the need for precise pachymetry, noting limitations of older devices. He outlined the distilled water-assisted CXL technique to maintain corneal thickness during treatment and reviewed alternative approaches such as contact lens-assisted and epithelium-off CXL, comparing their relative effectiveness.

This was followed by **Harminder Dua** who shared foundational insights into corneal suturing, emphasizing thorough patient history, meticulous examination, and preparation. He explained the hinge concept in corneal lacerations, distinguishing between leaking and non-leaking wounds. His technique included the use of 10-0 monofilament nylon, starting sutures at anatomical landmarks, and ensuring perpendicular placement without burying knots. He continued by elaborating on suturing principles in corneal grafts, highlighting the critical role of the first suture in determining graft alignment and tension. Techniques involved the use of double-pronged needles and ensuring accurate tissue distribution. Dua also addressed the application of cyanoacrylate and fibrin glues for corneal melts and perforations, introducing the double drape technique to prevent iris adhesion during glue application. He contrasted the biological properties and surgical uses of cyanoacrylate versus fibrin glue, advocating for the latter in biologically sensitive cases such as amniotic membrane grafts and epithelial ingrowth.

Tanveer Chaudhary shared his clinical experience with complex corneal transplants, particularly in cases involving corneal melts, perforations, and severe infections. He emphasized the need for realistic counseling and multidisciplinary planning. His presentation distinguished between tectonic and therapeutic grafts and underscored that the priority should be preservation of the globe, with functional vision being a secondary goal in advanced disease. He highlighted the importance of involving family members in understanding prognosis and long-term care requirements.

Mustafa Kamal Junejo introduced his no-torque suture technique for corneal transplants, aimed at minimizing postoperative astigmatism. He explained the principles of continuous suturing with uniform bite depth and angulation, ensuring symmetrical centration of the donor graft. He presented postoperative results that showed a marked reduction in astigmatism compared to traditional suturing techniques, thereby reducing the need for rigid contact lenses and enhancing unaided visual outcomes.

Khalid Mahmood and Christopher Liu provided an in-depth discussion on artificial corneal devices, focusing on the Boston Keratoprosthesis (BKPro) and the Osteo-Odonto-Keratoprosthesis (OOKP or OKP). The discussion categorized keratoprostheses into three groups: alternatives to cadaveric transplants, devices that bypass the ocular surface, and temporary implants for intraocular surgery. Liu elaborated on the OOKP, describing its construction from a patient's canine tooth and its application in severe ocular surface disease, particularly in dry eyes. He highlighted surgical steps, challenges with optical quality and healing, and the need for careful patient selection, including psychological readiness. The BKPro type 1 was presented as suitable for wet eyes, using a donor corneal graft as a carrier, and now incorporates a titanium backplate for improved biocompatibility. Both prostheses were associated with complications such as keratolysis, retroprosthetic membrane formation, and glaucoma, necessitating long-term follow-up and

management by specialized centers. Anterior segment OCT was highlighted as a valuable tool for postoperative monitoring. A forthcoming book on the subject, expected in early 2025, was briefly mentioned.

The session concluded with expressions of gratitude to the faculty and participants and a reflection on the value of conferences in promoting knowledge sharing among both early-career and senior ophthalmologists.

SESSION 2: DALK

The second session was on DALK chaired by **Harminder Singh Dua**, co-chaired by **M Dawood Khan** and moderated by **Hassan Mansoor**.

Hamza presented on behalf of Khalid regarding the basics and evolution of Deep Anterior Lamellar Keratoplasty (DALK). He shared foundational and advanced insights on Deep Anterior Lamellar Keratoplasty (DALK), referencing its historical progression from Hellerman's early concept in 1959 to modern air and viscoelastic dissection techniques. Emphasizing the reduced risk of rejection and better long-term outcomes compared to penetrating keratoplasty (PK), he highlighted the importance of DALK in conditions such as keratoconus, Pellucid Marginal Degeneration, and anterior stromal scars.

Key procedural aspects included the classification of big bubbles (Type 1, Type 2, and mixed), the technique of air cannula insertion with a focus on achieving the correct cleavage plane, and intraoperative nuances such as stromal indentation and appropriate syringe use. He acknowledged the limitations in Pakistan, such as limited access to intraoperative OCT and femtosecond lasers, encouraging skill development in manual techniques.

Surgical pearls included donor-host suturing strategies to optimize wound integrity, tissue selection based on pachymetry, and managing complications like Descemet's Membrane (DM) perforations. Hamza concluded by encouraging persistence with a single technique for skill mastery and emphasized that although DALK is time-consuming, it offers superior outcomes when executed with precision.

Harminder Dua presented three techniques for performing deep anterior lamellar keratoplasty (DALK), with the primary goal of reaching the dissection plane just anterior to the pre-Descemet's layer (PDL), which provides the optimal surgical outcome. Among these, the big bubble technique is the most emphasized. It involves injecting air or viscoelastic into the corneal stroma to create a cleavage plane. The big bubble forms in a characteristic pattern: the air spreads circumferentially from the periphery, coalesces centrally into a larger bubble, and lifts the PDL, DM and endothelium as a single unit.

Two distinct types of big bubbles can form. A type 1 bubble develops between the deep stroma and PDL. It appears centrally confined (about 8.5 mm in diameter) and is associated with a white ring at the edge due to collagen stretch. This type is stable and ideal for continuing with manual dissection. Technique tips include using a 5 mL syringe with a luer lock to prevent needle expulsion, inserting the needle bevel-down, and optionally using viscoelastic like Helon to reduce air escape and aid visualization.

In contrast, a type 2 bubble forms between the PDL and DM. It extends to the peripheral cornea without forming a white ring. This bubble type is extremely fragile because the DM, now directly exposed, is pressurized and can rupture with minimal trauma. To prevent this, intraoperative pressure must be kept low by continually releasing aqueous humor, keeping the DM flaccid.

A mixed bubble may contain both type 1 and type 2 components. Contrary to earlier beliefs, these do not represent a split between the banded and non-banded zones of DM. Experimental work, including selective PTK ablation of the PDL, demonstrated that once the PDL is removed, a type 1 bubble cannot be re-created, affirming that the PDL is a distinct and essential barrier. The persistence of the big bubble after peeling off the DM confirmed the air-tight integrity of the PDL.

The surgical implications are significant. In cases where cataract is noted intraoperatively, cataract surgery can be performed under a type 1 bubble without rupturing the PDL. In fact, the technique referred to as the "DALK triple" combines DALK with cataract surgery and even anterior vitrectomy under the PDL, which is feasible due to the PDL's resistance to high pressures (up to ~700 mmHg). In contrast, the DM alone does not offer such resistance and can rupture easily if used as the posterior boundary during combined procedures.

Occasionally, a type 1 bubble may not reach the trephination margin due to residual stromal adhesions that must be carefully dissected. Surgeons should recognize the textural differences between the anterior

surface of the PDL and that of the DM to identify the correct dissection plane. The lessons from these bubble dynamics and structural characteristics of the cornea have greatly improved surgical safety and predictability in DALK procedures.

Teyyeb Azeem expressed appreciation to Harminder Dua and Hamza for their foundational work on DALK, which made developing this theoretical model easier. The presentation aimed to explain a conceptual approach to managing descemetocele cases using principles from DALK surgery. In a standard DALK, about 80% of the corneal stroma is dissected under visualization, using pneumatic dissection to create a big bubble that separates the stroma from the PDL, exposing the DM or PDL. This setup resembles a descemetocele, prompting the idea of applying a similar approach to actual descemetocele cases.

The hypothesis was evaluated by inserting a blunt instrument between the PDL and posterior stroma without prior dissection, addressing issues like tapered stromal margins, insufficient tissue thickness for suturing, and potential complications with conventional grafting. A new technique was proposed: carefully entering the interface with a blunt instrument and separating the DM or PDL without rupture, maintaining a partial-thickness defect. This allowed for a lamellar graft to be placed over the exposed membrane.

A case of a 39-year-old man with a descemetocele from post-keratitis corneal melt was presented. The defect resisted closure due to limbal stem cell deficiency, so lamellar dissection and a repurposed donor stroma were used, with anterior chamber pressure controlled by paracentesis and an air bubble. The cornea remained intact postoperatively, though visual acuity was limited. Another case involved a patient with graft melt after a PKP for trauma. Despite the lack of donor endothelium, the PDL was intact, so the same technique was used, preserving the globe and planning for a future PKP when tissue is available.

Although literature reports using viscoelastic substances for membrane separation, these cases relied solely on mechanical dissection, making the technique promising in resource-limited settings by using residual donor tissue effectively and preserving the eye for future intervention. The speaker emphasized the need for innovation and adaptability in areas with limited donor tissue and surgical resources.

Numan Sarfraz presented a detailed overview of DSEK, DMEK, and DWEK procedures, discussing their indications, techniques, and intraoperative considerations. The primary indications for endothelial keratoplasty include Fuchs endothelial dystrophy, pseudophakic bullous keratopathy, and other conditions affecting the corneal endothelium.

DSEK, first introduced by Melles in 2004, involves the transplantation of posterior lamellar corneal tissue approximately 100 microns thick. Sarfraz described a method for preparing donor tissue manually when precut tissue is unavailable or unaffordable. The technique begins with a partial thickness scleral incision using an 11-blade and crescent knife, followed by blunt dissection of the lamellae. After trephination, the layers are separated with a fluid jet, and the graft is stained for better visualization. Insertion into the anterior chamber is performed using the Tan EndoGlide with the handshake technique, ensuring correct endothelial orientation. A full air fill is used, and all paracenteses are sutured to enable intraocular pressure elevation up to 60 mmHg. This practice, although potentially controversial in glaucomatous eyes, is credited for achieving low graft detachment rates.

In cases where DSEK is performed behind a previous PK graft, Sarfraz emphasized that the host endothelium is left untouched. He described using a straight proline needle to efficiently position the graft when manipulation via tapping proves ineffective, ensuring minimal trauma by engaging only the stromal surface.

DMEK utilizes only the Descemet membrane and endothelium, around 10 microns in thickness. Donor preparation involves scoring from the stromal side, which allows simultaneous peeling and assessment for microtears. Quadrant-wise peeling is performed, and the central portion is left attached until trephination is complete. The graft is then marked with an F or S stamp for orientation. After loading into the Geuder cannula, the graft is inserted through a 2.6 mm incision. Chamber shallowing and tapping facilitate graft unfolding. Correct endothelial orientation is critical; if upside-down positioning is detected post-unfolding, the graft is rotated using a directed fluid jet. As with DSEK, intraoperative IOP is elevated to reduce detachment risk.

Sarfraz also discussed DWEK (also called DSO), which is reserved for patients with central corneal edema but healthy peripheral endothelium. This technique involves a central 4 mm descemetorhexis without transplantation. The rationale is based on peripheral endothelial cell migration and repopulation

of the central cornea. Success relies on maintaining peripheral cell density above 1000 cells/mm². He highlighted that gentle peeling rather than dragging of Descemet membrane is essential to avoid peripheral damage. The potential of adjunctive pharmacologic agents to promote migration is an area of ongoing interest.

He concluded by sharing case examples illustrating surgical challenges, such as upside-down DMEK grafts and endothelial keratoplasty in eyes with significant anterior chamber pathology.

Tanveer Chaudhary emphasized that as anterior segment surgeons, it is important to look beyond the cornea and pay attention to pigmented lesions of the ocular surface, including the conjunctiva and surrounding structures. These lesions are commonly encountered, either as referrals or incidental findings, and may be underdiagnosed. They can originate from melanocytes and are classified as congenital or acquired, primary or secondary. Familiar terms like complexion-associated melanosis (CAM) and primary acquired melanosis (PAM) were revisited.

For accurate assessment, onset age is crucial. Nevi are often congenital and benign, whereas PAM typically arises in middle age, particularly in fair-skinned individuals, and carries a higher risk of malignant transformation. Clinical features such as color, thickness, location, and progression must be carefully monitored. Lesions in hidden areas like the fornices or under the eyelids may be missed without thorough examination, and junior clinicians were reminded not to overlook lid eversion.

Imaging, particularly anterior segment OCT, is invaluable in differentiating benign cystic lesions like nevi from suspicious ones. Nevi often appear cystic and stable, though darkening during puberty or pregnancy can give a false impression of progression. Photography and patient counseling are essential; patients should be advised on signs to watch for and return for reassessment if changes occur.

CAM is typically benign, more common in darker-skinned individuals, and may require only observation with regular photo documentation. PAM, on the other hand, presents as unilateral, flat, feathery pigmentation and warrants closer scrutiny. If no cysts are seen on OCT and the lesion appears atypical, biopsy is advised. If dysplasia or carcinoma in situ is confirmed, excision with marked margins, cryotherapy, and adjunctive mitomycin C treatment are recommended. Close follow-up is essential.

Malignant melanoma of the conjunctiva, though rare, is a serious diagnosis, most often affecting older patients. It typically presents as a nodular lesion, often at the limbus but may also appear in the caruncle or tarsal conjunctiva. Early diagnosis is crucial, as melanoma is potentially fatal. The importance of examining the eyelids and fornices, and involving oncology specialists when needed, was stressed. An illustrative case was discussed in which a lesion misdiagnosed as a chalazion turned out to be melanoma.

Other entities mentioned included nevus of Ota and innocuous pigment deposits from mascara (referred to humorously as “muscaroma”), highlighting the importance of clinical judgment in distinguishing harmless findings from those warranting further action.

The talk concluded with a call to vigilance, emphasizing observation, photographic documentation, patient education, and timely biopsy of suspicious lesions underscoring that while many pigmented lesions are benign, missing a malignant one can have serious consequences.

Harminder Dua presented a detailed and scientific overview of endothelial keratoplasties, particularly focusing on DMEK and PDEK. He compared various techniques including DSAEK, UT-DSAEK, PDEK, and DMEK, highlighting the advantages and challenges of each. PDEK and DMEK offer superior visual outcomes but are technically more demanding due to tissue scrolling. He explained that scrolling behavior is governed by elastin distribution in DM and the PDL. Techniques to facilitate tissue managing and insertion were demonstrated, including novel graft preparation, marking, and unfolding strategies. A custom-designed clamp was introduced to reliably produce type 1 bubbles in PDEK, minimizing the risk of type 2 bubbles. The presentation emphasized the value of understanding the underlying science to improve surgical outcomes and innovation in technique.

Zaman Shah presented a case of a 14-year-old girl with advanced keratoconus underwent Bowman Layer Transplantation (BLT) in the left eye (2018) and Deep Anterior Lamellar Keratoplasty (DALK) in the right eye (2019). Initially, there were no signs of vernal keratoconjunctivitis (VKC), but acute VKC developed later in both eyes. This led to infected keratitis and graft dehiscence in the right eye, which was managed medically. Despite complications, the Dua layer, Descemet’s membrane, and endothelium remained

intact, maintaining reasonable vision (BCVA 6/18).

The case illustrates the structural resilience of the Dua layer and highlights that lamellar keratoplasty should be avoided during active VKC, with safer alternatives being BLT or Donut Refractive Lenticule Transplantation (DRLT). The patient remains stable, and the case is being prepared for international publication.

SESSION 3: Endothelial Keratoplasty

The third symposium on cornea was chaired by **Mehfooz Hussain**, co-chaired by **Teyyeb Azeem Janjua** and moderated by **Atif Mansoor.** At the start of session, **Asad Farooq** shared his experience with microkeratome-assisted DSAEK (Descemet Stripping Automated Endothelial Keratoplasty), a technique successfully practiced at AFIO over the past year for treating corneal endothelial dysfunction. The procedure involves replacing the diseased Descemet membrane and endothelium with a donor graft, prepared using the Moria ALTK system to achieve ultrathin or nanothin lenticules for better visual outcomes. Indications include pseudophakic bullous keratopathy, Fuchs' dystrophy, failed grafts, and post-glaucoma or traumatic endothelial failure. The technique is especially useful in complex eyes, offering surgical ease compared to DMEK. Key considerations include donor age ≥25 years, lenticule thickness <100 microns using single or double-pass microkeratome methods, and endothelial cell density >2200 cells/mm². Postoperatively, patients demonstrate early corneal clarity and well-apposed grafts, with minimal interface fluid. Microkeratome-assisted DSAEK provides smoother stromal cuts, predictable graft thickness, and enhanced safety, making it a valuable approach in modern lamellar corneal surgery.

Tayyeb Azeem presented on intraoperative OCT-assisted DMEK, highlighting its advantages in enhancing surgical precision and decision-making. He explained that variability in donor corneal thickness especially in fluid-preserved tissues requires careful intraoperative pachymetry and adjustment of keratome depth. He traced the history of intraoperative OCT from beam splitters to current microscope-integrated systems with real-time heads-up displays. While traditionally associated with vitreoretinal surgery, studies show OCT significantly impacts anterior segment procedures, altering surgical plans in over 40% of cases. At AFIO, their system enables live visualization without interrupting surgery, proving especially useful during key DMEK steps such as DM peeling, graft orientation, and interface fluid assessment. OCT helps identify peripheral tags, confirm graft orientation (e.g., avoiding inverted scrolls), and detect interface fluid post-injections. Azeem emphasized how live OCT facilitates accurate, efficient adjustments without repeated graft manipulations, ultimately improving surgical outcomes in DMEK.

Zaman Shah presented a novel surgical concept in refractive corneal surgery called Donut Refractive Lenticule Transplantation (DRLT), which utilizes the peripheral residual lenticule from SMILE procedures to treat advanced keratoconus, particularly in patients unsuitable for corneal cross-linking. The technique involves transplanting a circular, ring-shaped lenticule (with central tissue removed) into the area of the corneal cone to improve corneal biomechanics and reduce topographic astigmatism and keratometry readings. Performed under topical anesthesia without sutures, DRLT shows early promise in improving best-corrected visual acuity and reducing Kmax and coma, with minimal risk of rejection due to low keratocyte content. Compared to intracorneal ring segments like Keraring, DRLT provides 360° biomechanical support and is less cosmetically intrusive. Early OCT imaging demonstrates good lenticule integration, and cross-linking may be added a month later to enhance stabilization. Shah also introduced an upcoming variant, Allogeneic Ring Lenticule Transplantation (ARLT), as part of ongoing innovation in minimally invasive keratoconus treatment.

Khalid Mahmood shared his extensive nine-year experience with DMEK, highlighting its evolution, indications, and surgical nuances in the South Asian context. While Fuchs dystrophy remains the primary indication for DMEK in the West, pseudophakic and aphakic bullous keratopathy are more common in Pakistan. He emphasized the importance of patient selection, especially avoiding eyes with corneal scarring, vitrectomized eyes, or those lacking intraocular lens scaffolds. He advocated for preloaded DMEK grafts, pre-stripped, pre-stained, pre-punched, and pre-stamped with orientation markers, citing benefits like reduced surgical stress, shorter operative time, and enhanced safety. Through a series of surgical videos, including challenging cases with failed grafts or intraocular tubes, he illustrated key steps like Descemetorhexis, graft unscrolling, orientation verification, and gas tamponade, stressing the role of

inferior iridectomy to prevent pupillary block. Despite challenges such as graft detachment, upside-down implantation, and rebubbling needs, he concluded that preloaded tissues significantly improve outcomes, provided cost is not a barrier, and reaffirmed that DMEK remains a highly effective procedure when performed under optimal conditions.

SESSION 4: Instructional Course Corneal Ulcers

The instructional course on corneal ulcers was chaired by **Tanveer Chaudhary,** co-chaired by **Muhammad Hamza Khan** and moderated by **Zahir Shah.**

The session began with **Tanveer Chaudhary** providing an overview of corneal ulcers. **Muhammad Hamza Khan** then highlighted the role of OCT in the evaluation of corneal ulcers. **Khalid Mahmood** addressed strategies for managing infective corneal ulcers, followed by **Mahfooz Hussain**, who discussed non-infective (indolent) corneal ulcers. **Zahir Shah** presented on the use of Prokera in various ocular surface diseases. The session concluded with an interactive Q&A segment moderated by Zahir Shah.

SESSION 5: Instructional Course DMEK

The second instructional course was on DMEK by **Hamza Khan**. The discussion centered around the meticulous steps involved in a corneal tissue preparation procedure, likely for endothelial keratoplasty or a similar lamellar surgery. Muhammad Hamza Khan provided detailed instructions on the setup and execution, beginning with the proper use of a microscope to refine stromal bed depth to approximately 600 microns. He stressed the importance of scoring the tissue accurately, to create a clear cut and applying thumb pressure to ensure tissue adherence. A vacuum suction technique was described as essential for stabilization, followed by staining with Vision Blue dye to enhance visualization. The tissue was carefully lifted at a 45-degree angle and gently maneuvered toward the corneal center, emphasizing the need for slow, controlled movements. Although the technique was time-intensive at first, with practice it can be completed in around 10 to 12 minutes. A key procedural point was achieving a full 360-degree rotation of the tissue, ensuring even managing and preparation. The tissue was marked from the stromal side using a guarded punch, while the epithelial side was kept upside down to facilitate drying. Maintaining correct depth perception is critical to avoid excessive pressure and causing structural damage.

Under the microscope, the operator verified tissue dryness and readiness before proceeding. The preferred tissue diameter was typically 7.75 mm, though it may be adjusted slightly based on case requirements. The punch must achieve full-thickness penetration without completely cutting through the tissue, and a guarded punch was used to help maintain this precision. The critical role of the punch was re-iterated.

The session concluded with a reminder to follow all procedural feedback closely, ensuring every step was performed correctly to optimize surgical outcomes.

INDUSTRY SYMPOSIUM

SESSION1: Bayer Symposium

The Bayer symposium was chaired by **Khalid Waheed**, co-chaired by **Tariq Aziz** and moderated by **Aziz Jan Bashir.**

Aziz Jan Bashir opened the symposium by introducing the session's theme and its panel of esteemed retina specialists, including **Qasim Latif, Amer Awan, Tariq Khan, Tariq Khan Marwat, and Ali Afzal Bodla.** He initiated the discussion by inviting insights into the clinical experience of managing retinal diseases with aflibercept, highlighting the importance of collaborative learning in optimizing patient outcomes.

Tariq Khan Marwat shared his clinical shift from bevacizumab to aflibercept, citing its superior efficacy due to dual inhibition of VEGF and placental growth factors. He noted the rapid resolution of macular edema and visual improvement following aflibercept use, even in cases of CNV. Emphasizing long-term efficacy, he underscored aflibercept's cost-effectiveness and the need for patient compliance, particularly in diabetic patients where systemic disease control is crucial for therapeutic success.

Amer Awan elaborated on the pharmacologic advantages of aflibercept, including its ability to target multiple angiogenic pathways, such as VEGF and placental growth factors, as well as its potent blockade of angiopoietin-2. He discussed clinical studies supporting aflibercept's efficacy in both wet AMD and diabetic retinopathy, emphasizing extended treatment intervals and its role in reducing disease burden.

Ali Afzal Bodla highlighted the significance of real-world data in evaluating anti-VEGF therapies, noting a clinical preference for aflibercept due to its favorable outcomes in treatment-naïve patients. He shared findings from a comparative study showing better visual gains with aflibercept over faricimab in neovascular AMD, reinforcing the value of individualized treatment plans and extended dosing strategies based on patient response.

Qasim Latif presented his experience managing chronic diabetic macular edema (DME) with aflibercept, particularly in patients unresponsive to previous therapies. He emphasized the necessity of targeting multiple angiogenic factors and noted the clinical advantage of aflibercept's dual action in achieving favorable anatomical and visual outcomes in challenging DME cases.

Khalid Waheed addressed the economic and clinical aspects of aflibercept use, advocating for its cost-effectiveness, especially in the context of extended dosing regimens for wet AMD. He underscored the importance of sustained treatment to preserve vision and discussed the unique challenges posed by diabetic patients, stressing the importance of systemic metabolic control alongside intravitreal therapy. **Nasir Saeed** and **Rashid Qamar Rao** also shared their experiences and session concluded.

SESSION 2: MEDZNTECH Symposium

The second symposium was organized by MEDZNTECH and chaired by **Nadeem Riaz,** co-chaired by **Aqil Qazi** and moderated by **Hanan Qadir.**

The session began with introductions of guest speakers, including **Mazhar Ishaq, Nadeem Riaz**, and **Aqil Qazi**.

Sadia Humayun discussed the benefits of using topical tear substitutes and their clinical relevance in cataract and refractive surgery settings. She explained the significant impact of dry eye disease on quality of life, comparing its burden to that of other disabling conditions. She provided the DEWS II definition of dry eye disease, emphasizing its multifactorial nature and the significant role of ocular surface inflammation. Humayun described the inflammatory cascade involved in the disease process, leading to cellular stress, death, and chronic inflammation, and highlighted the therapeutic role of tear film-modifying (TFM) substitutes in breaking this cycle. She outlined consistent risk factors such as contact lens wear, prolonged screen time, and female gender, while also identifying refractive surgery and certain medications as probable contributors. She discussed the classification of dry eye disease into aqueous-deficient, evaporative, and mixed forms and highlighted the high prevalence of ocular surface dysfunction in patients undergoing cataract and refractive procedures, stressing the importance of preoperative dry eye management. In terms of treatment, she detailed various tear substitutes, including their components, viscosity enhancers, electrolytes, osmo-protectants, antioxidants, lipid layer replacements, aqueous elements, and mucin mimetics,

emphasizing the need for minimal preservatives and proper application sequencing. Humayun also compared different cysteine products: Cysteine Original, Ultra Gel, and Hydration, explaining their ingredients, particularly sodium hyaluronate, and their appropriate use in mild to severe dry eye disease. She concluded by underscoring the importance of post-operative dry eye management, recommending lubricants for two to three months following cataract surgery and up to six months after refractive surgery.

Sharif Hashmani discussed the evolution of refractive surgery, highlighting the shift from standardized approaches to personalized treatment strategies. He explained the limitations of conventional treatment protocols and introduced the advancement of wavefront-guided techniques designed to address individual visual aberrations. Hashmani introduced the concept of contoura vision, particularly its application in virgin eyes, emphasizing its advantages in achieving 20/20 vision and reducing night vision disturbances. He further elaborated on the unique features of the contoura vision software, noting its capacity to precisely plan and execute customized treatment profiles, thereby enhancing surgical outcomes and patient satisfaction.

Qasim Lateef Chaudhary introduced the ARGOS biometer, emphasizing its speed and accuracy in capturing biometric data for ophthalmic procedures. He compared the ARGOS biometer with other optical biometers, highlighting its superior ability to obtain precise measurements even in cases of dense cataracts. Chaudhary discussed the real-time guidance and enhanced retinal visualization features of the ARGOS biometer, noting how these capabilities improve surgical precision. He also highlighted the seamless integration of the ARGOS biometer with other Alcon devices, such as the Zeiss microscope, demonstrating how the combination of these technologies enhances the overall surgical experience.

Aamir Asrar discussed the use of Vivid IOL in post-refractive surgery patients, emphasizing its ability to provide extended focus and minimize glare and halos. He explained the mechanism of action of Vivid IOL, which uses wavefront shaping to create a continuous extended focal range, thereby enhancing visual clarity at multiple distances. Asrar compared the Vivid IOL to other multifocal and trifocal lenses, noting its distinct advantages, including reduced abrasions and improved visual comfort for patients. He shared patient experiences and outcomes, highlighting the high levels of satisfaction observed in those who received the Vivid IOL, underscoring its effectiveness in improving post-surgical visual quality.

Tanveer Chaudhary introduced the Clareon AutonoMe Injector System, highlighting its unique features and benefits in cataract surgery. He explained the material and design of the Clareon IOL, emphasizing its stability, low glistening effect, and excellent biocompatibility, making it a reliable choice for patients. Chaudhary discussed how the autonoMe injector system ensures smooth delivery of the lens while protecting wound safety, contributing to better surgical outcomes. He also shared user feedback and clinical outcomes, emphasizing the ease of use of the system and the improved patient satisfaction reported with its application.

Saeed Iqbal discussed the advanced features of the Legion Phaco System, focusing on its fluidics management system and intelligent phaco technology. He explained the advantages of the dual system segment Fluidics Management System design, which enhances efficiency, and highlighted the side-to-side oscillation of the phaco tip, which improves the effectiveness of the procedure. Iqbal emphasized the user-friendly interface and compact design of the system, making it accessible for surgeons. He also stressed the importance of chamber stability, surgical time efficiency, and ease of use in a phaco system, all of which contribute to better outcomes and enhanced surgical performance.

SESSION 3: Sante Symposium

The Sante Pharma symposium was chaired by **Sharif Hashmani,** co-chaired by **M Tariq Khan** and moderated by **Saeed Iqbal.** The meeting featured presentations on advanced imaging techniques in Ophthalmology, the synergistic effect of cyclosporine and Olopatadine in treating dry eye disease and allergic conjunctivitis, strategies for astigmatism management in cataract surgery, and the safety of Loteprednol versus Fluorometholone post-refractive surgery.

Nauman Hashmani explained the principles of OCT angiography and highlighted the importance of focusing on different retinal layers to optimize image interpretation. He discussed the limitations of automated segmentation, particularly in eyes with abnormal retinal morphology, where errors can lead to misdiagnosis. Through a series of case studies, he illustrated techniques for improving OCT imaging. One case involved a 74-year-old male with metamorphopsia

and decreased vision, demonstrating how OCT angiography settings influenced the detection of choroidal neovascularization (CNV). Another case featured a 62-year-old male whose OCT results were compromised by movement artifacts, prompting a discussion on the need to understand and modify algorithms to minimize such distortions. Hashmani provided a detailed analysis of CNV and retinal angiomatosis, explaining the clinical relevance of various CNV types. He presented a complex case of a patient with a retinal angiomatous proliferation (RAP) lesion, emphasizing the need for intensive treatment and patient counseling. He also underlined the importance of using custom slabs for accurate segmentation and CNV detection. Finally, he discussed a case of a 26-year-old female with diabetes, illustrating how OCT findings played a crucial role in surgical planning.

Hamza Khan presented on the synergistic effect of Cyclosporine and Olopatadine in managing ocular surface disease. Hamza began by outlining the underlying physiology of dry eye disease and allergic conjunctivitis, focusing on T cell activation, cytokine release, and reduced tear production as key contributors. He explained how cyclosporine suppresses T cell–mediated inflammation and how Olopatadine stabilizes mast cells while reducing inflammatory mediators, leading to improved tear film stability. Hamza elaborated on the dual mechanism of Olopatadine and discussed the global burden of dry eye disease and its impact on daily activities. He emphasized the immuno-inflammatory pathway as a critical therapeutic target and shared his clinical experience using the cyclosporine-Olopatadine combination, noting improved outcomes. In conclusion, he stressed the importance of appropriate drug concentration and treatment duration, addressed the safety profiles and potential side effects of both agents, and recommended adjunctive use of a mild steroid vehicle to enhance efficacy. Hamza concluded by highlighting the broad benefits of this combination therapy across various ocular surface conditions.

Amir Awan discussed strategies for effective astigmatism management in cataract surgery, emphasizing the critical role of astigmatism correction in achieving optimal patient satisfaction. He began by outlining essential preoperative considerations, such as accurate keratometry and corneal topography, to guide treatment planning. Awan explained various techniques for astigmatism correction, including the use of toric IOLs and limbal relaxing incisions (LRIs), detailing the benefits and cost considerations associated with toric lenses. He stressed the importance of precise preoperative marking and alignment of toric IOLs and introduced advanced tools and systems designed to enhance alignment and centration. Awan also addressed the challenges and limitations in astigmatism correction, such as corneal topography variability and the need for complete removal of viscoelastic to prevent postoperative lens rotation. He highlighted the role of image-guided systems in achieving precise outcomes and shared his clinical experience with toric lenses and LRIs, underscoring the importance of meticulous surgical planning to ensure consistent results.

Saeed Iqbal discussed the efficacy and safety of Loteprednol compared to Fluorometholone in the management of inflammation following refractive surgery. He began by outlining the standard post-operative protocol, which includes the use of antibiotics and anti-inflammatory agents, and emphasized the importance of ensuring patient comfort, achieving the best visual outcomes, and minimizing drug-related complications. Iqbal explained the treatment regimens for both Loteprednol and Fluoromethalone, including their respective dosages and follow-up schedules. He highlighted Loteprednol's strong anti-inflammatory effect and favorable safety profile, particularly its lower potential for IOP elevation. He detailed its mechanism of action and its ophthalmic specificity, noting that it was designed to reduce toxicity while maintaining efficacy. Iqbal shared clinical study results comparing both drugs, particularly in post-cataract surgery settings, reinforcing Loteprednol's advantages. In the concluding session, he emphasized Loteprednol's role in safely managing post-refractive surgery inflammation.

SESSION 4: Roche Symposium

The Roche symposium was chaired by **Shahzad Shafqat,** co-chaired by **Mazhar Ishaq** and moderated by **Shahzad Saeed**.

Shahzad Saeed opened the session on behalf of Roche, emphasizing the urgent need for more cost-effective and efficacious anti-VEGF agents due to the increasing burden of retinal diseases.

Muhammad Hassaan Ali delivered a detailed scientific exposition on the role of angiopoietin-2 (Ang-2) in retinal vascular pathology, explaining its synergistic role with VEGF-A in destabilizing

vasculature and promoting inflammation. He presented robust preclinical data supporting the dual inhibition of Ang-2 and VEGF-A, introducing Faricimab (Vabysmo) as the first bispecific molecule targeting both, with promising implications for managing AMD, RVO, and DME through vascular stabilization and cytokine suppression.

Shahzad Shafqat, a highly regarded clinician from the UK, presented real-world outcomes of Faricimab from the IRIS Registry, highlighting its effectiveness in stabilizing visual acuity and reducing central subfield thickness, particularly in treatment-naïve eyes, along with a significant decrease in injection frequency in the latter half of the year, suggesting reduced treatment burden with a reassuring safety profile.

Khalid Waheed expressed optimism about Faricimab's launch in Pakistan, underscoring its potential to lower injection frequency and improve treatment adherence in a cost-sensitive healthcare setting, particularly through the treat-and-extend regimen.

Mazhar Ishaq reflected on the historical evolution of anti-VEGF use in Pakistan and welcomed Faricimab as a major innovation, advocating adherence to international loading protocols, praising its benefits in reducing hospital burden, and urging local real-world validation through multicenter studies under the national retina society.

PS Mahar addressed the practical challenges of implementing evidence-based anti-VEGF retreatment protocols in real-world settings, stressing the need for accurate OCT interpretation, adherence to retreatment criteria, vigilance regarding endophthalmitis, and the importance of national collaboration and data registry development to support local research and optimize care delivery in both NHS and Pakistani contexts.

SESSION 5: Managing DME and nAMD With Faricimab

The symposium on managing DME and nAMD with Faricimab was chaired by **Sharif Hashmani, a**ccompanied by **Sana Ullah Jan** as co-chair and **Sidra Shakeel** as moderator.

Sidra Shakeel introduced herself as the Retina consultant from Karachi and welcomed everyone to the symposium organized by Roche, requested Sana Ullah Jan, head of department Hayatabad Medical Complex, to join the stage. She introduced the panelists: **Qasim Latif Chaudhary, Mohammad Amjad, Naveed Qureshi, Khurram Azam Mirza, and Amer Awan.**

The session began with a discussion on the dual inhibition of angiotensin II and VEGF-A and its relevance in retinal vascular diseases. It was noted that angiotensin II, discovered in the 1990s, plays a role in tumor biology and vascular homeostasis. Elevated levels of angiotensin II have been observed in patients with diabetic macular edema and other vascular disorders, contributing to oxidative stress and inflammation. Faricimab, a new therapeutic agent targeting these pathways, was introduced as a potential solution.

In a segment focusing on the importance of anti-VEGF quality over quantity, speakers highlighted that the efficacy of the molecule is more critical than its dosage. Evidence from the READ-3 trial and other studies demonstrated similar outcomes between different doses of aflibercept. Faricimab was presented as superior in terms of efficacy and injection burden.

The clinical impact of angiotensin II inhibition was explored through biomarker improvements. Faricimab was noted for its durability, speed of action, and ability to achieve significant visual improvements in fewer injections compared to aflibercept. One comparison showed a 50% visual gain at 48 weeks with Faricimab versus 88 weeks with aflibercept.

Real-world experience with Faricimab emphasized the importance of maintaining a dry macula to prevent fluctuating fluid levels and preserve vision. Data from the Hawk and Harrier trials supported its efficacy. Early fluid resolution was linked to better long-term outcomes.

Updates on new protocols for neovascular AMD included an initial three-month loading dose followed by OCT and OCTA-guided adjustments. Similar approaches were discussed for diabetic macular edema, combining anti-VEGF and steroid injections as needed.

The importance of loading doses was reiterated, particularly for diabetic macular edema, to achieve early drying of the retina and enable interval extension based on OCT findings.

A discussion on inflammation and injection techniques covered the use of intravitreal steroids, challenges with suprachoroidal injections, and the need for preservative-free solutions. Best practices for Faricimab administration, such as non-detachable needles and pre-warming, were shared.

The session concluded with acknowledgments to all

contributors and a group photograph. Emphasis was placed on the potential of Faricimab to improve compliance by reducing injection burden and prolonging treatment intervals.

MEDICAL EDUCATION

Medical education sessions at ophthalmology conferences are vital for advancing clinical knowledge, improving patient care, and fostering professional development. These sessions serve as a platform to disseminate the latest research findings, evidence-based practices, and emerging technologies to a broad audience, ensuring that participants remain current with advances in the field. They support skill enhancement through hands-on workshops and interactive discussions while also contributing to continuing medical education (CME) requirements. Importantly, they promote the standardization of care by encouraging the adoption of best practices, especially in regions with varying resources or training levels. For young ophthalmologists and trainees, these sessions provide mentorship opportunities, stimulate academic interest, and build research capacity. In a global context, they address regional challenges and facilitate collaboration across countries, ultimately helping to strengthen the quality and equity of eye care services worldwide.

There were four sessions on medical education in Lahore Ophthalmo.

SESSION 1: Workbased Assessment

The session on workbased assessment was chaired by **Zia-ul-Islam**, co-chaired by **Mazhar Ishaq** and moderated by **Hamid Mahmood butt.**

Zia-ul-Islam emphasized the multifaceted role of project directors in medical institutions, highlighting leadership, strategic planning, and execution as central responsibilities. He outlined key competencies such as stress management, problem-solving, interpersonal skills, and communication, noting that directors must align institutional goals with community needs. He also addressed foundational elements for establishing medical colleges, including academic infrastructure, curriculum planning, faculty retention, and long-term sustainability through proper monitoring and evaluation.

Hamid Mahmood Butt presented a strategic implementation plan for work-based assessments (WBA) in ophthalmology, developed jointly by the College of Physicians and Surgeons Pakistan (CPSP) and the Ophthalmological Society of Pakistan (OSP). The plan includes curriculum integration, E-log documentation, faculty development, and strategic rollout. He emphasized the importance of formative assessment tools: OCEX, DOPS, and OSCAR, implemented from January 2024. These tools foster a resident-driven approach, focused on feedback, coaching, and continuous improvement without relying on a pass/fail model.

Khawaja Khalid Shoaib elaborated on the OCEX (Ophthalmic Clinical Evaluation Exercise), which evaluates complete patient encounters, including history, examination, interpersonal skills, and case presentation. He highlighted its dual use in formative and summative settings, with structured rating scales and feedback mechanisms. The OCEX fosters comprehensive clinical skill development and is central to assessing patient-centered competencies in ophthalmology training.

Muhammad Moin explained the role of DOPS (Direct Observation of Procedural Skills), which assesses technical and procedural competencies in real-time clinical settings. The tool includes ten core competencies such as patient preparation, instrument handling, and intra-procedure management. DOPS requires a minimum of three annual assessments per trainee, using structured feedback to ensure safe and competent procedural performance.

Hamid Mahmood Butt, in a separate segment, introduced Oscar (Ophthalmic Surgical Competency Assessment Rubric), used to assess surgical performance in procedures like ECCE and phacoemulsification. The rubric includes 14 task-specific and six global indices, focusing on microsurgical precision, safety, and behavior. OSCAR supports progressive learning and is fully integrated into the E-log system to ensure accountability and skill mastery.

Mazhar Ishaq acknowledged the strong institutional partnership between CPSP and OSP in the successful implementation of WBA tools. He praised the faculty's contributions and emphasized that this structured assessment model enhances postgraduate ophthalmic training. He noted plans for future expansion into other subspecialties, reinforcing Pakistan's commitment to advancing medical education through quality-assured systems.

Hamid Mahmood Butt concluded by outlining forward-looking initiatives for ophthalmology training,

including the development of teaching videos, regional faculty meetings, and continual curriculum refinement. He stressed innovation, collaboration, and the long-term vision to create world-class ophthalmic education programs, anchored in consistent assessment and feedback practices.

SESSION 2: Innovations in Exams Assessment

The session on Innovations in Exams assessment was chaired by **Karl Golnik,** co-chaired by **Khawaja Khalid Shoaib** and moderated by **Sidra Riaz**.

Karl Golnik presented on project-based learning (PBL), distinguishing it from problem-based learning by emphasizing the creation of a tangible product and long-term student engagement. He defined PBL as a constructivist, student-centered approach that fosters collaboration, creativity, and critical thinking. Golnik illustrated the approach with a medical student empathy project, where students produced interview-based videos and reflected on their experiences resulting in improved empathy scores among initially low-scoring participants. He also referenced adult learning principles such as feedback, fairness, and relevance, and linked PBL to residency training via quality improvement projects. He concluded by stressing ownership, creativity, and structured reflection as hallmarks of effective PBL.

Hamid Mahmood Butt introduced competency assessment frameworks using Miller's pyramid (knows, knows how, shows how, does) as a foundation. He focused on the role of formative assessments in early training and highlighted work-based assessment (WBA) as a key tool. WBA involves frequent, small-scale evaluations with context-specific feedback. He discussed rating scales such as the global rating scale and DOPS, emphasizing their relevance in tracking clinical competence and ensuring progressive learning throughout postgraduate training.

Mian Shafique discussed the educational value of portfolios, describing them as structured collections of student work reflecting achievements and progress. He outlined two types: developmental (growth-oriented) and highlight portfolios. Portfolios help faculty assess complex learning outcomes, support curriculum evaluation, and encourage student reflection. Despite challenges such as time demands and software costs, he underscored their value in comprehensive assessment strategies.

Khawaja Khalid Shoaib introduced open book examinations (OBEs), explaining that these assessments allow students to consult materials during testing, promoting deeper understanding rather than rote memorization. He dispelled the misconception that OBEs are easier, emphasizing their demand for critical analysis and application of knowledge. He offered practical tips for students, including effective time management, preparation, and familiarity with resources to excel in OBE formats.

SESSION 3: Innovations in Classroom Teaching

Innovations in classroom teaching were chaired by **Karl Golnik,** co-chaired by **Mir Ali Shah** and moderated by **M Irfan Karamat**. It featured a series of brief, impactful presentations on innovative approaches to medical education.

Hamid Mahmood Butt opened the session with a talk on "Teaching & Learning as a Complex Adaptive System." This was followed by **Karl Golnik**, who delivered a presentation on the "Role of Artificial Intelligence and Electronic Devices in Education." **Mir Ali Shah** then discussed the "One Minute Preceptorship" method, highlighting its practical application in clinical teaching. **Karl Golnik** returned to present on the "Flipped Classroom" model. The session continued with **Soufia Farrukh,** who spoke on "Problem Based Learning," and concluded with **Zahid Kamal Siddiqui,** who shared insights on the use of "Infographics in Teaching." The session provided participants with a diverse range of modern educational strategies aimed at enhancing engagement and effectiveness in the classroom.

SESSION 4: Instructional Course on Medical Education

It was chaired by **Muhammad Sharjeel**, with **Ambreen Gul** serving as co-chair and **Abubakar Yousaf** as moderator. It included a diverse range of presentations centered on postgraduate ophthalmic education, clinical tools, and research innovations. **Ambreen Gul** began with a presentation on the establishment and reliability of the ICO-OCEX, a formative assessment tool designed for evaluating ophthalmology postgraduate residents. **Ayesha Kanwal** followed with a clinical perspective on the use of an orthoptic scoring system for managing orbital

floor blowout fractures. **Muhammad Sharjeel** then discussed key aspects of ophthalmology residency, offering insights into training and program development.

The session then shifted towards research and technology. **Abubakar Yousaf** presented a review on the use of artificial intelligence for telemedicine-based diabetic retinopathy screening, highlighting advancements and challenges in this evolving field. **Ayza Nayab** explored the impact of over-the-counter cosmetic contact lenses on young individuals, addressing both medical and social implications. **Faisal Rasheed** delivered a thought-provoking talk on the relationship between myopia and personality traits, opening avenues for interdisciplinary research. The session concluded with a **Q&A**, moderated by Abubakar Yousaf, allowing for audience engagement and discussion on broader ophthalmic issues.

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OPHTHALMIC RESEARCH AND EDUCATION FORUM (OREF)

OREF is a dedicated segment or initiative within Ophthalmological Society of Pakistan that focuses on enhancing ophthalmic research capacity in Pakistan, promoting medical education and training in ophthalmology, facilitating academic collaboration among trainees, educators, and institutions and organizing sessions, such as those in the OSP annual conferences, that address education, training, research methodology, software tools, and innovations in teaching. OREF sessions typically include talks and workshops on postgraduate training, mentoring, competency-based medical education, assessments, and research tools, reflecting OSP's broader commitment to strengthening academic ophthalmology in the region. There were multiple session related with OREF in this conference.

SESSION 1: OSP OREF Education

OSP OREF Education session was held under the leadership of **Chairperson Zia-ul-Islam**, **Co-Chair Karl Golnik**, and **Moderator Khawaja Khalid Shoaib**. The session focused on critical aspects of medical education and training within ophthalmology.

Shakaib Anwar opened the session with a discussion on the challenges and key considerations in postgraduate training for residents. **Mian M. Shafique** followed with an introduction to the role and importance of mentoring in the professional development of trainees. **Seemal Masood** presented the trainee's perspective on Workplace-Based Assessment (WBA), highlighting its relevance and impact on learning outcomes. **Sidrah Riaz** explored the growing role of online teaching, emphasizing its opportunities and practical implementation. **Abdul Sami Memon** provided insights into Competency-Based Medical Education (CBME), explaining its structure and benefits in modern training frameworks. The session concluded with **Mir Ali Shah**, who addressed best practices for constructing multiple-choice questions and the importance of rigorous review processes, particularly for those involved in supervising trainees. This session brought together diverse viewpoints and practical strategies aimed at enhancing the quality of education and training in ophthalmology.

SESSION 2: OREF OSP SOFTWARE

The session on OREF OSP Software was conducted under the guidance of Chairperson **Zia-ul-Islam,** with **Mahfooz Hussain** serving as the moderator and sole presenter. He introduced and explained three categories of software relevant to ophthalmology practice and research. The first part of the session covered OSP software, outlining its features and practical utility. This was followed by a detailed segment on scientific program software, where the structure and application of tools for organizing scientific activities were discussed. The final segment focused on research software, highlighting digital solutions that support data handling, analysis, and documentation in ophthalmic research. The session provided participants with a comprehensive understanding of key digital tools that enhance educational and research functions.

SESSION 3: OSP OREF Research

The session on OSP OREF Research was held with **Zia-ul-Islam** as Chairperson and **Yousaf Jamal Mahsood** as Co-Chair, and was moderated by **Sanaullah Jan**. It began with a presentation by **Sanaullah Jan** addressing common publication misconduct, providing insights into ethical pitfalls researchers should avoid. **Nadeem Hafeez Butt** followed with practical guidance on how to write a scientific paper, offering structured advice for ophthalmologists aiming to publish. **Yousaf Jamal Mahsood** highlighted the valuable contributions made by Pakistani ophthalmologists to quality research. **Tayyaba Gul Malik** presented an overview of publication trends in the Pakistan Journal of Ophthalmology over nearly three decades, reflecting the evolution of scholarly activity in the field. **Muhammad Hassaan Ali** then focused on how to avoid plagiarism, emphasizing integrity in scientific writing. The session concluded with a brief question-and-answer segment moderated by Sanaullah Jan, encouraging audience engagement and discussion on the topics presented.

DIAGNOSTIC OPHTHALMOLOGY

The Diagnostic Ophthalmology session played a vital role in enhancing clinical acumen through advanced imaging and diagnostic tools. It bridged the gap between early disease detection and timely intervention. Expert discussions highlighted innovations in OCT, corneal topography, Hess test and OCT angio. This session empowered clinicians to make more accurate, evidence-based decisions in patient care.

The session, chaired by **Suhail Sarwar** and co-chaired by **Kashif Jahangir,** was moderated by **Sidra Latif.** It targeted primarily at postgraduate residents and featured engaging discussions on the Hess test, corneal topography, dry eye assessment using OCT, and the role of artificial intelligence in ophthalmology.

Suhail Sarwar and **Sidra Latif** led a detailed presentation on the Hess test, explaining its utility in assessing extraocular muscle function by projecting three-dimensional actions onto a two-dimensional chart. Two methods Hess screen and Lee screen were described for conducting the test, with an emphasis on dissociating the eyes using red-green glasses or mirrors. The chart is interpreted based on size, shape, and displacement, helping to differentiate between restrictive and neurogenic pathologies. Clinical examples such as left lateral rectus palsy and Duane's retraction syndrome were discussed.

Suhail Sarwar also shared personal cases where Hess test results were misleading due to factors like intermittent symptoms or patient fixation behaviors. He stressed the importance of detailed clinical history and evaluating simultaneous macular perception.

Zia-ul-Mazhary explored the emerging role of **artificial intelligence (AI)** in ophthalmic diagnostics, particularly in angiography and OCT. He explained how AI can aid in visualizing retinal blood flow and capillary architecture, while also emphasizing its limitations and the irreplaceable value of clinical judgment. He provided insights into OCT technology, highlighting its layer-by-layer reconstruction of retinal vasculature and demonstrating cases such as macular neovascularization through example images.

In a second presentation, **Zia ul Mazhary** addressed **corneal topography**, explaining the difference between prolate and oblate corneal shapes, and the significance of parameters like the best fit sphere and Q value. He provided a step-by-step guide to interpreting topography reports and reiterated the critical role of clinical correlation.

Sidra Latif further elaborated on **corneal imaging technologies**, comparing Placido disc-based systems and Scheimpflug principle-based devices. A comparison between Galilei and PentaCam machines was presented, discussing their respective advantages and limitations. She emphasized the importance of machine selection based on clinical context and patient needs.

The session concluded with a lively Q&A, reinforcing the central theme that clinical history and examination remain foundational in interpreting diagnostic tests. The event ended with a group photograph of all participants and faculty.

COMPREHENSIVE OPHTHALMOLOGY FREE PAPER SESSION

Free paper session on comprehensive ophthalmology was chaired by **Arsalan Ahmad**, co-chaired by **Saeed Niazi** and moderated by **Rana Naveed Iqbal.**

Waleed Ahmed, from the Glaucoma Department, discussed the foundational principles of glaucoma diagnosis. He described glaucoma as chronic and progressive optic neuropathy, with clinical diagnosis primarily based on identifying a thinning of the retinal nerve fiber layer (RNFL) and a narrowing of the neuroretinal rim. Ahmed critically evaluated the traditional use of the cup-to-disc ratio in optic nerve assessment, outlining three major limitations: It failed to account for notching, or the absence of the neuroretinal rim, it overlooked variations in optic disc cup size between individuals, and it did not consider the location of the cup, which can influence interpretation. To address these limitations, concept of Damage Likelihood Scale (DDLS) was introduced by George Spaeth as a more reliable and anatomically grounded method. The DDLS places emphasis on the neuroretinal rim and incorporates the optic disc size into the assessment, offering a more individualized and consistent approach to diagnosing glaucoma.

He explained the DDLS methodology in detail, including measurement of disc size (categorized as small, average or large), assessment of the narrowest neuroretinal rim width or extent of rim loss, and staging of glaucoma severity based on rim characteristics.

Continuing his discussion on the challenges in glaucoma diagnosis and management, Ahmed elaborated on the application of the DDLS system, noting its ability to adjust staging based on disc size and its correlation with visual field damage, thereby enhancing diagnostic precision.

Ahmed emphasized that the DDLS system holds significant practical implications: it can be effectively utilized by optometrists, improving the accuracy of glaucoma referrals, it allows clinicians to monitor the rate of disease progression, offering a practical method to plot structural changes over time and it can be applied without the need for expensive imaging devices, making it especially valuable in resource-limited settings. In conclusion, Ahmed highlighted the DDLS as a cost-effective and reliable tool for improving both the diagnosis and longitudinal management of glaucoma, advocating for its broader adoption in clinical practice.

Hanif Malik delivered a video-based presentation featuring pediatric cataract surgery cases, focusing particularly on the surgical challenges in myopic patients and techniques to prevent posterior capsule rupture.

In the first case, Malik presented a myopic pediatric patient with whom a rent in the posterior capsule was encountered. He underscored the increased fragility of the posterior capsule in myopic eyes, emphasizing the need for enhanced intraoperative caution during nucleus and cortex management to avoid inadvertent rupture.

The second case involved the successful implantation of a multi-piece IOL into the posterior chamber. The technique allowed for posterior capsule staining, improving visualization and enhancing surgical safety. Malik highlighted this as a surgeon-friendly approach, especially in cases with compromised capsular support.

In the third case, the patient had a dense cataract adherent to the anterior capsule, necessitating meticulous aspiration to prevent traction and potential damage to the capsule. Malik demonstrated controlled aspiration techniques to carefully separate and remove the lens material while preserving capsular integrity.

Throughout the presentation, he emphasized the importance of maintaining anterior chamber depth using viscoelastics and appropriate fluidics. This, he noted, was critical in minimizing the risk of posterior capsule rupture, particularly in eyes with altered anatomical dynamics.

Aisha Fawad presented the preliminary results of Losartan eye drops in the management of corneal opacities, focusing on its mechanism of action through the inhibition of transforming growth factor-beta (TGF-β) and reduction of corneal scarring. She explained that Losartan, an angiotensin II receptor type 1 antagonist, has a well-established systemic safety profile and has shown promise in ocular applications. The rationale for its use in corneal scarring was supported by findings from both animal models and preliminary human studies, where it demonstrated antifibrotic properties by modulating the TGF-β pathway, a key mediator in corneal fibrosis.

The study, conducted at the Faisalabad Institute of Ophthalmology (FIO), employed a randomized

controlled trial (RCT) design involving 30 patients per group. The trial compared the effectiveness of Losartan eye drops versus standard therapy for patients with corneal opacities of diverse etiologies, including post-infectious and traumatic causes. While the results were promising, she also reported the occurrence of some side effects, which were being closely monitored and documented as part of the safety evaluation.

She emphasized the technical and logistical challenges of formulating Losartan drops, which required specialized training, pharmaceutical expertise, and a sterile compounding environment. These factors posed limitations for widespread clinical use at present but highlighted the potential for future commercial availability pending further validation.

In conclusion, Fawad underscored the therapeutic potential of Losartan as an adjunct in the treatment of corneal scarring and called for continued research, larger-scale studies, and regulatory pathways to facilitate broader access in clinical ophthalmology.

Zubaida Sirang presented findings from a systematic review and meta-analysis that compared manual small incision cataract surgery (MSICS), extracapsular cataract extraction (ECCE), and phacoemulsification (phaco) in the context of low- and middle-income countries (LMICs). The objective of the study was to generate evidence-based guidance on the most effective and accessible surgical approaches for managing age-related cataracts in resource-limited settings. Studies were selected that directly compared MSICS, ECCE, and phacoemulsification, ensuring relevant and comparable clinical contexts. Key outcomes included postoperative visual acuity at three months and one year, quality of life measures, and cost-effectiveness of each technique. These parameters were chosen to capture both the clinical and socioeconomic impact of the surgical interventions. Sirang emphasized the study's aim to identify the most effective and sustainable surgical technique by evaluating complication rates, visual outcomes, and resource implications. The goal was to inform policymakers, healthcare providers, and public health planners in LMICs, offering an evidence-based framework for optimizing cataract surgical services.

M. Saeed Khan delivered a comprehensive presentation on the importance of feedback in medical education, highlighting its critical role in enhancing the performance of residents and medical students. He emphasized that effective feedback fosters continuous learning, skill refinement, and professional development.

Khan outlined several types of feedback, including positive reinforcement, corrective feedback, and feedback targeting specific clinical skills or behaviors. He stressed that the timing of feedback is essential, recommending that it be initiated early in the training period to promptly identify and address learning gaps.

He recommended the "sandwich technique" for structuring feedback, where constructive criticism is framed between positive remarks, thereby reducing defensiveness and enhancing receptiveness among learners. This technique was presented as a strategic tool to maintain motivation while guiding improvement. In addition, Khan emphasized the need for a supportive learning environment, where teamwork among residents and open communication are prioritized.

A role-play session was conducted demonstrating the practical application of feedback methods in a real-time teaching scenario. The feedback included commending the learner's patient interaction, inspection skills, and systematic approach. This was followed by constructive feedback, pointing out missed components such as ascites assessment and renal palpation, accompanied by clear and supportive guidance on how to perform these maneuvers correctly.

The demonstration reinforced the importance of a structured and thorough clinical examination, showing how feedback could be delivered in a non-threatening, educational manner to enhance clinical competence. The talk concluded with a reflective discussion on the impact of effective feedback on learner performance, underscoring its role in cultivating clinical excellence and professional confidence.

RESIDENT FREE PAPERS

Resident free paper sessions in ophthalmology conferences play a vital role in nurturing the next generation of clinician-scientists. These presentations provide residents with an opportunity to highlight their research, clinical innovations, and case experiences on a professional platform, fostering academic growth and critical thinking. Participation encourages the development of scientific communication skills, boosts confidence, and cultivates a research-oriented mindset early in training. It also promotes peer learning, facilitates mentorship, and offers valuable feedback from experienced ophthalmologists. Moreover, these sessions contribute to the academic diversity of conferences and help identify emerging talent and innovative approaches in ophthalmic care, ultimately strengthening the future of the specialty.

There were four resident free paper sessions chaired by **Tariq Shakoor**, co-chaired by **Arshad Mahmood** and moderated by **Raza Ali Shah**. Brief description of these papers is given below.

The first session started with a presentation by **Ahmad Fauzan** who compared post-operative visual acuity and anterior chamber inflammation in patients undergoing phacoemulsification combined with silicone oil removal, with and without the intraocular injection of Enoxaparin Sodium (40 mg/0.04 ml). Group A received intraocular Enoxaparin at the end of surgery, while Group B did not. On postoperative day one, 83% of Group A patients had only mild or occasional anterior chamber reaction, and by day seven, 100% were inflammation-free. In contrast, 93% of Group B patients exhibited grade 3 anterior chamber cells on day one, requiring topical steroids. By day seven, 96% of Group B showed reduction to mild or occasional inflammation. Visual acuity at three months was comparable in both groups, suggesting that Enoxaparin did not affect long-term visual outcomes. However, its use significantly reduced early post-operative inflammation. The study concluded that intraocular Enoxaparin, despite being primarily an anticoagulant, has beneficial anti-inflammatory effects when used during complex procedures such as combined phacoemulsification and silicone oil removal.

Anika Kanwal, presented a case of a 38-year-old female with sudden, painless vision loss in the left eye, suspected to be central retinal artery occlusion (CRAO). The patient had a history of dyspnea on exertion and was found to have rheumatic heart disease with moderate aortic and mitral regurgitation, a rare cause of CRAO in younger individuals. Despite normal systemic blood investigations and neuroimaging, the condition was linked to increased risk of systemic embolism due to left atrial clot formation from atrial fibrillation associated with rheumatic heart disease. This case highlights the uncommon yet significant connection between CRAO and rheumatic heart disease, especially in younger patients, and emphasizes the importance of systemic evaluation in diagnosing underlying causes of ocular emergencies to prevent life-threatening complications. The presentation concluded with a reminder that the eye can serve as a window to systemic health, urging early diagnosis and management to protect both vision and life.

Ayeza Nadeem Butt presented a case of a 5-year-old male from Shahdara with a history of progressively worsening vision in both eyes, more severe in the right eye, and associated with on-and-off redness for the past 1.5 years. The patient also had occasional joint pain, backache, and rashes, and was born to consanguineous parents. Ocular examination revealed poor visual acuity, band-shaped keratopathy in both eyes, and vitreous echoes suggestive of vitritis. Bilateral chelation with 2% EDTA was performed to remove the calcium deposits and improve visual acuity. Post-procedure, the patient showed improved visual acuity, but developed uveitis with cataracts and vitreous haze, suggesting chronic uveitis of unknown etiology. Systemic investigations revealed elevated ESR, and further tests are being conducted to determine the underlying cause of uveitis. The case emphasizes the importance of addressing underlying causes of uveitis to prevent recurrence and restore vision. The take-home message is that even eyes that appear quiet may harbor underlying issues requiring further investigation and management.

Abdul Fatir presented a retrospective case series evaluating the outcomes of balloon endovascular embolization in carotid-cavernous fistula (CCF), conducted from 2019 to 2022. CCF is an abnormal connection between the internal carotid artery and the cavernous sinus, leading to increased venous pressure and ocular manifestations such as proptosis and dilated conjunctival vessels. The study included 18 patients,

mostly young males (mean age 27) with a history of trauma, and utilized digital subtraction angiography as the diagnostic gold standard. Fifteen patients underwent successful embolization via the femoral artery approach; one developed an epidural hematoma managed surgically. Visual acuity remained largely unchanged post-procedure, but radiological closure of the fistula was achieved in the majority. The study highlights the effectiveness of balloon embolization in managing CCF, despite limitations including small sample size and short follow-up. Further controlled trials are recommended to evaluate long-term outcomes and compare treatment modalities.

Ayesha Arif presented a case series on managing high post-penetrating keratoplasty (PKP) astigmatism using limbal relaxing incisions (LRI) with a diamond knife. The study involved patients with significant astigmatism after PKP, evaluated with BCVA, auto-refraction, and corneal topography. Under topical anesthesia, arcuate incisions were made at the steep axis, one millimeter inside the graft-host junction, at a depth of around 400 microns (70–80% of corneal thickness). Three representative cases showed 1–2 Snellen lines improvement in vision, reduction in astigmatism by up to 2 diopters, and significant flattening of the steep meridian on topography. The technique preserved the corneal epithelium and offered rapid recovery. LRI was concluded to be a safe, simple, and effective option for correcting regular astigmatism up to 2.5D post-PKP, with limitations in cases of very thin or irregular corneas.

Shaheed Ullah presented a study on the surgical outcomes of frontalis sling surgery for severe ptosis with poor levator function, using a DCR silicone tube combined with a silicone sleeve. This quasi-experimental interventional study was conducted over 12 months at the Institute of Ophthalmology, Unit II, Mayo Hospital, and included 30 eyes of 28 patients selected through purposive sampling. Patients included had severe ptosis and poor levator function; those with Marcus Gunn jaw-winking, previous failed ptosis surgeries, or poor Bell's phenomenon were excluded. The surgical technique involved a conventional box pentagon sling, where the DCR silicone tube was secured to the tarsal plate and routed through the forehead, with the silicone sleeve minimizing slippage. The mean patient age was 25 years. Ptosis was unilateral in most cases, with congenital etiology predominating. Significant improvement was observed: mean preoperative MRD1 of –0.9 mm improved to 3.4 mm postoperatively, and palpebral fissure height increased from 4.7 mm to 8.1 mm. Anatomical success was 90%, and functional success ranged from 88–89%. Complications included 6.6% undercorrection, 30% lagophthalmos, and 6.6% suture site infections. The study concluded that the use of DCR silicone tubes with sleeves in frontalis sling surgery is a safe and effective technique for managing severe ptosis with poor levator function, with favorable functional and anatomical outcomes and a low complication rate.

Rehema Shanze presented a case highlighting the impact and risks of ptosis surgery in a child with monocular elevation deficiency (MED). A 7-year-old boy presented with congenital left ptosis and elevation deficit, with poor levator function and Bells phenomenon, and significant amblyopia. Initial management involved amblyopia therapy through eyelid taping, patching, and spectacles, but poor follow-up led to premature surgical intervention by a left Knapp procedure followed by frontalis sling performed elsewhere. The patient later developed exposure keratopathy due to lagophthalmos and poor Bell's phenomenon. Treatment included topical antibiotics, lubricants, and nocturnal taping, resulting in gradual healing. The case emphasized the need for thorough pre-operative assessment, careful consideration of surgical timing in children with poor protective mechanisms, and the critical role of early amblyopia management. Shanze concluded that in pediatric ptosis, knowing when not to operate is as crucial as knowing how to operate.

Mohammad Muslim presented a study on the distribution of ocular biometry and intraocular lens (IOL) power among patients undergoing cataract surgery in an eye camp in Gilgit, a high-altitude region of northern Pakistan. The study aimed to generate normative biometric data for this unique population, where environmental factors such as high UV exposure and hypobaric conditions may influence ocular characteristics. Using contact, A-scan ultrasonography and keratometry, data were collected from 110 patients out of 2,500 screened. The mean axial length was 22.13 ± 1.25 mm, mean keratometry readings were K1 43.28 ± 1.83D and K2 44.26 ± 1.67D, and the average IOL power required was 24.78 ± 3.43D. Notably, corneal curvature was steeper in males, though axial length and IOL power showed no significant gender difference. About 70% of patients required IOLs with powers near 24.7D, reflecting shorter axial lengths and higher corneal power common in this population.

Muslim concluded that environmental and anatomical adaptations at high altitude likely contribute to these findings and emphasized the need for region-specific biometric data to improve surgical outcomes.

Sajeela Saman presented a study on the effect of intravitreal ranibizumab in retinopathy of prematurity (ROP), focusing on the incidence of reactivation following initial regression. Conducted at Lahore General Hospital with 38 infants (28 with aggressive ROP and 10 with type 1 ROP), the study used 0.25 mg intravitreal ranibizumab injections. Reactivation was defined as worsening signs such as new ridge formation or neovascularization after initial improvement. All aggressive ROP cases (100%) required rescue laser therapy within 3–4 weeks, while 60% of type 1 ROP cases also needed rescue treatment, highlighting the limited durability of a single anti-VEGF injection. The study emphasized that while ranibizumab is effective for initial disease control, long-term monitoring is crucial due to the high risk of reactivation. Limitations included small sample size, single-center design, and lack of comparison with other treatments. The presentation also touched on the economic barriers to repeat anti-VEGF therapy, which led to the use of laser as the preferred rescue modality.

Salman Nasir's presentation on regenerative therapy for retinal dystrophies highlighted promising results in treating retinitis pigmentosa (RP) through stem cell therapies. In a study involving 200 patients, regenerative treatments (using stem cells from sources like adipose tissue and umbilical cord blood) were administered via intravitreal, subretinal, and subtenon injections. The results showed significant improvements in visual acuity, macular thickness, and visual fields, with subtenon injections emerging as the safest and most effective delivery route. Despite the positive findings, the need for long-term follow-up and addressing complications related to delivery methods remains crucial. This approach provides a new avenue for patients suffering from retinal degenerations, offering them a potential chance for visual improvement and a better quality of life.

Najam ul Saqib Malik presented a case report on a 35-year-old female patient diagnosed with pseudoxanthoma elasticum (PXE) complicated by angioid streaks and central serous chorioretinopathy (CSCR). The patient presented with sudden, painless, and non-progressive vision loss, predominantly affecting central vision and causing distortion of objects. She had a long history of yellowish skin lesions and abdominal pigmentation, suggesting systemic involvement. Clinical examination revealed bilateral angioid streaks and macular serous elevation in the right eye, with subretinal hemorrhage. Investigations, including OCT and skin biopsy, confirmed the diagnosis of PXE, characterized by clumping of elastin fibers and bilateral calcinosis. The treatment plan involved dermatological interventions for skin lesions, ocular management with spironolactone and acetazolamide for CSR, and regular follow-ups to monitor the macular condition. The case underscores the importance of considering CSR in patients with angioid streaks and emphasizes a multidisciplinary approach in managing such complex conditions.

Farah Zafar presented a study on the visual acuity threshold for cataract surgery at Lahore General Hospital (LGH). The study aimed to determine the visual acuity at which patients sought cataract surgery at a tertiary care hospital in Punjab, highlighting the significant gap in cataract surgery rates between affluent and developing countries like Pakistan. The study included patients aged 28 to 80 who presented for cataract surgery and excluded those with other intraocular pathologies. The results showed that most patients fell into the severe visual impairment category, with a mean age of 54 years, and 52% had both hypertension and diabetes. Zafar emphasized the need for national screening programs and public awareness campaigns to address cataract-related visual impairment. The study's limitations included being single-centered and based on convenient sampling, suggesting that broader, national-level research is needed. The discussion also touched on the definition of visual impairment, with some questions raised regarding the age range and the classification of visual impairment according to WHO guidelines.

Abdullah presented a study investigating the influence of surgeon hand dominance on surgically induced astigmatism (SIA) in phacoemulsification surgery. The study aimed to compare SIA outcomes when the surgeon used their dominant hand (right hand for the right eye) and non-dominant hand (left hand for the left eye) for surgery. The study involved 200 patients, with SIA calculated using the ASCRS SIA calculator. The results showed no significant difference in post-operative SIA between the right and left-hand surgeries, with a p-value of 0.251. Abdullah emphasized the importance of training with both hands, highlighting that using the non-dominant hand can reduce pre-existing errors and prevent new ones.

Temporal corneal incisions were used for all surgeries, which were easier to perform, especially in patients with deep-set eyes. The presentation also addressed the limitations of temporal incisions, such as the risk of endophthalmitis due to proximity to the temporal limbus. Abdullah concluded by recommending that surgeons train their non-dominant hand to enhance surgical proficiency, and he emphasized the role of SIA calculators in evaluating surgical outcomes.

Daniyal Monis presented an interventional study assessing immediate IOP changes following first-time intravitreal injection of bevacizumab in patients without glaucoma. The study included 191 eyes of 147 patients with a mean age of 54.5 years and a male-to-female ratio of 1.7 to 1. Patients with personal or family history of glaucoma, baseline IOP above 20 mmHg, or prior intravitreal injections were excluded. Under topical anesthesia in an aseptic operating room setting, a standardized 1.25 mg/0.05 ml dose of bevacizumab was injected using a 29-gauge needle at 3.5 mm from the limbus. A sterile cotton swab was applied to the injection site to prevent reflux. All patients had baseline IOP below 21 mmHg, with the highest mean baseline IOP seen in vitreous hemorrhage cases at 13.5 mmHg. At five minutes post-injection, IOP increased significantly in the majority of eyes, with a peak mean IOP of 30.45 mmHg and the highest readings in vitreous hemorrhage cases exceeding 36 mmHg. At this timepoint, 169 eyes had IOP greater than 21 mmHg. By two hours, elevated IOP persisted in 16 eyes, and normalization to baseline occurred by six hours post-injection. All findings were statistically significant with p-values ≤ 0.05.

Hamna Danyal presented a case of an 8-year-old boy with progressive bilateral visual decline and fundus findings suggestive of an inherited retinal dystrophy. Clinical features included hyperopia, shallow anterior chambers, macular flecks, and a positive family history of early-onset blindness. Multimodal imaging and electrophysiological testing supported the diagnosis of autosomal recessive bestrophinopathy (ARB), later confirmed by genetic testing identifying a pathogenic BEST1 mutation. The child underwent peripheral iridectomy to prevent angle closure glaucoma and was given appropriate optical correction. The case highlighted the importance of early diagnosis, genetic evaluation, and preventive management in ARB, with the added observation of a possible regional clustering of such cases.

Asna Tahir presented a rare case of probable Vogt-Koyanagi-Harada (VKH) syndrome in a 48-year-old Pakistani male. The patient presented with bilateral, painless blurring of vision, floaters, and red eyes for five days, without systemic symptoms or prior ocular trauma. Examination revealed reduced vision, mild anterior chamber inflammation, and multiple bilateral serous retinal detachments on OCT. All systemic and infectious workups were unremarkable. Based on the revised diagnostic criteria, a diagnosis of probable VKH was made. The patient was managed with high-dose intravenous methylprednisolone followed by oral steroids and immunosuppressants, leading to rapid improvement in vision. VKH is a rare autoimmune condition in males and even more uncommon in the South Asian population. Tahir emphasized the importance of early recognition, aggressive steroid therapy, and close follow-up to prevent recurrence and long-term complications.

Shafiq Tanveer presented a rare case of a 33-year-old hypertensive male diagnosed clinically with neurofibromatosis type 1 (NF1) based on café-au-lait spots, subcutaneous nodules, and a positive family history. Referring to routine ophthalmic evaluation, the patient had no ocular complaints but was found to have bilateral decreased vision (20/200). Anterior segment exam revealed Lisch nodules, and fundus examination surprisingly showed bilateral rhegmatogenous retinal detachments (RRD), a macula-off RRD with proliferative vitreoretinopathy (PVR) in the right eye, and a longstanding RRD with ora serrata dialysis and retinal cysts in the left eye. Notably, the patient had no trauma, prior surgery, or ocular risk factors. He was planned for pars plana vitrectomy with silicone oil tamponade, scleral buckling, and a 360° band in the left eye. This case is exceptional as previous literature documents only unilateral RRD in NF1, making this the first reported case of bilateral RRD in such a patient. The presumed pathophysiology involves abnormal fibroblastic function and collagen dysgenesis associated with NF1. Tanveer concluded by emphasizing the importance of routine ophthalmic screening in NF1 patients for early detection and management of rare but vision-threatening complications.

Maria presented a compelling case report on the role of topical insulin therapy in neurotrophic keratitis (NK). The case involved a 64-year-old male with a history of recurrent herpes simplex keratitis, who presented with painless, progressive visual deterioration over three months. Examination revealed

reduced corneal sensation in both eyes, a large corneal opacity in the right eye, and a fluorescein-staining inferior corneal ulcer with rolled edges in the left eye. Based on these findings, a diagnosis of bilateral neurotrophic keratitis was made.

The patient was started on a novel topical insulin formulation (1 IU/mL regular insulin in 10 mL of PVA-based artificial tears) administered six times daily, in addition to oral and topical acyclovir. Follow-up after one month showed notable visual and anatomical improvement, with further resolution at two months—eventually resulting in complete healing of the ulcer and no fluorescein staining. Maria highlighted that while literature on topical insulin for NK remains limited, existing reports (e.g., Wong et al., Tong et al.) support its efficacy and safety. She concluded that topical insulin is a low-cost, accessible, and promising option for managing HSV-related neurotrophic keratitis, though larger studies are warranted to validate its routine use.

Taimoor Shah presented a study on the role of ophthalmic surgical simulation in enhancing phacoemulsification training. He addressed the steep learning curve in cataract surgery and the limitations of traditional apprenticeship models. His quasi-experimental study at the Armed Forces Institute compared two groups of residents—one trained with a phacoemulsification simulator and one without. Simulator-trained residents showed significantly fewer intraoperative complications, including lower rates of corneal edema, posterior capsule rupture, and vitreous prolapse. Shah concluded that simulation-based training improves surgical safety and skill acquisition, advocating for its integration into ophthalmology residency programs while underscoring the continued importance of expert supervision and validated assessment tools.

Muhammad Bilal, presented a prospective cross-sectional study on enhancing adherence to diabetic retinopathy (DR) care in Pakistan. Conducted from June to August 2024 at the Institute of Ophthalmology, Lahore, the study enrolled 102 diabetic patients using the WHO-designed TED Patient Survey Tool to assess treatment adherence and barriers to DR care. Findings revealed a DR prevalence of 55.4%, with 82% of referred patients attending follow-ups, but only 41.5% completing treatment. Key interventions included counseling (76.3%), anti-VEGF therapy (40.2%), and PRP (34%). Major barriers to adherence included lack of awareness (76%), absence of symptoms, logistical issues (36%), and financial constraints. The study concluded that while DR adherence is currently suboptimal in Pakistan, it can be improved through public awareness campaigns, financial support mechanisms, and integration of AI tools for screening. Limitations included reliance on self-reported data and restricted geographic representation, which may impact generalizability.

Asgar Rajani presented a case of a 42-year-old female with a pigmented lesion on the optic disc, ultimately diagnosed as optic disc melanocytoma through multimodal imaging, including OCT, B-scan, and MRI. The case highlighted the importance of differentiating such lesions from malignant conditions like choroidal melanoma, with reassurance and regular follow-up being key in management.

Ahmad Bilal, in a comparative study on squint surgery, evaluated ocular alignment outcomes between the conventional recession technique and the hang back method in 60 pediatric patients with esotropia. The findings showed no significant difference in alignment results; however, the hang back method offered a safety advantage by reducing the risk of scleral perforation. Both presentations emphasized the importance of accurate diagnosis and technique selection in achieving optimal patient outcomes in ophthalmic care.

GRAND CLINICAL MEETING

The OSP Lahore Centre stands out for its commitment to fostering growth among ophthalmology residents by promoting healthy academic competition. Throughout the year, clinical meetings are organized in ophthalmology departments across various institutions. Winners from these sessions earn the opportunity to compete at the prestigious *Lahore Ophthalmo* event. This year's meeting was chaired by **Muhammad Ramzan,** with judging duties conducted by **Muhammad Ramzan**, **Shamshad Ali,** and **Najam Iqbal**.

The first presenter was **Taha Farooq** who presented the case of an 11-year-old boy from Lahore with a longstanding, painless supratemporal subconjunctival mass in the left eye, recently causing irritation and watering. Though initially suspected as a dermolipoma based on ultrasound findings, CT imaging revealed a metallic-appearing foreign body, which turned out to be plastic on surgical removal and histopathology. The case underscored the diagnostic challenge of occult ocular foreign bodies in children, especially when history is unreliable, and highlighted the importance of thorough imaging and surgical exploration.

Noor-ul-Ain discussed a 24-year-old woman with bilateral blurred vision and placoid fundus lesions, initially mismanaged with anti-VEGF therapy based solely on OCT findings. Detailed clinical examination, angiography, and systemic workup confirmed the diagnosis of acute posterior multifocal placoid pigment epitheliopathy (APMPPE). The case emphasized the need for clinical correlation in imaging interpretation and highlighted the typically self-limiting nature of APMPPE, which requires conservative management and patient counseling rather than invasive intervention.

Awais Tahir presented a young female with progressive right eye visual decline and severe photophobia, along with a history and cutaneous findings suggestive of xeroderma pigmentosum (XP). Ocular exam revealed significant corneal scarring, limbal stem cell deficiency, and conjunctival pigmentation. The diagnosis of XP, an autosomal recessive DNA repair disorder with ocular and cutaneous UV-induced manifestations, was supported by consanguineous family history and similar symptoms in a sibling. The case highlighted the importance of early recognition and comprehensive preventive management to preserve vision and prevent malignancy.

Naila Hanif reported a 30-year-old woman with chronic headaches and progressive visual loss, ultimately found to have bitemporal hemianopia and a pituitary macroadenoma on MRI. Her systemic features pointed to Cushing's syndrome, confirmed by hormonal studies. Surgical management with Gamma Knife therapy led to significant visual recovery. The case emphasized the role of neuro-ophthalmic evaluation in detecting compressive optic neuropathies and the importance of systemic assessment in patients with suggestive endocrine or constitutional features.

Muallah highlighted the diagnostic journey of a 30-year-old male with sudden visual distortion in the right eye due to a circumscribed choroidal hemangioma (CCH), presenting as a reddish-orange elevated lesion with macular edema. Imaging supported the diagnosis, and anti-VEGF therapy was initiated. The case emphasized the often-underappreciated role of the choroid in visual function and highlighted key differentiating features of CCH from other choroidal masses, as well as the importance of multidisciplinary care in such presentations.

LEADERSHIP DEVELOPMENT PROGRAM

The leadership development programs (LDP) are essential in ophthalmology as they equip clinicians with the skills needed to navigate complex healthcare environments, lead multidisciplinary teams, and drive improvements in patient care, education, and research. These programs cultivate strategic thinking, communication, and decision-making abilities, enabling ophthalmologists to take on leadership roles within institutions, professional societies, and public health initiatives. Particularly in developing countries, such training is vital for strengthening health systems, addressing workforce challenges, and ensuring the sustainability of eye care services. By fostering capable and visionary leaders, these programs ultimately contribute to better outcomes for both patients and the profession. There were two sessions on LDP.

SESSION 1

The first session was chaired by **Tariq Shakoor**, co-chaired by **Irfan Qayyum,** and moderated by **Hamid Mahmood Butt**.

Irfan Qayyum emphasized the importance of effective communication in clinical practice, particularly the need for careful planning of meetings, addressing patients respectfully by name and title, and maintaining appropriate eye contact and body language. He underscored that cooperation and collaboration among healthcare professionals are essential and that communication strategies should be intentional and empathetic.

Mian M. Shafique focused on guidelines for effective PowerPoint presentations in academic and clinical settings. He advised using simple, clear language to avoid cognitive overload, keeping slides concise, and presenting only one idea per slide. He also highlighted the use of structured headings, essential points, and proper citations to enhance clarity and impact during presentations.

Irfan Karamat spoke on the importance of active listening in medical consultations, noting that physicians often interrupt patients within the first 11 seconds of conversation. He detailed the cognitive, emotional, and behavioral dimensions of active listening, emphasizing its critical role in building trust and improving patient satisfaction and outcomes.

Sara Riaz addressed common barriers to effective communication, such as physical distractions, language and cultural differences, and psychological obstacles. She stressed the value of using simple, jargon-free language and the role of non-verbal cues like eye contact and body language. She also advocated for active listening and constructive feedback to overcome these barriers and foster clearer communication.

Tariq Shakoor discussed the sensitive task of breaking bad news in clinical practice, recommending the SPIKES protocol (setting, perception, invitation, knowledge, emotion, strategy and summary) as a structured and empathetic approach. He defined bad news as any information that significantly alters a patient's expectations about their future and emphasized the importance of empathy, preparation, and collaboration in delivering such news. The session concluded with a strong recommendation to integrate ethics into communication training for healthcare professionals.

SESSION 2

The second session was “Negotiations as a Team" which was chaired by **Karl Golnik**, co-chaired by **Nazli Gul**, and moderated by **Abdul Hannan Qadir**. The session featured a series of concise presentations by six speakers, each addressing a key aspect of team-based negotiation. It began with **Muhammad Moin**, who spoke on “Team Building,” followed by **Karl Golnik**, who presented “Key Tactics for Successful Negotiation.” **Abdul Hannan Qadir** discussed “Understanding Others,” and **Irfan Qayyum** followed with a talk on the “Art of Influence.” **Nasir Chaudhry** then presented on “Plan Your Negotiation Strategy,” and the session concluded with **Nazli Gul**, who gave a reflective presentation titled “Focusing Inward; How are you tracking?” The session provided attendees with practical insights and strategies to enhance effectiveness in team negotiations.

EDITOR'S CHOICE
by Pakistan Journal of Ophthalmology

This session was a part of dedicated session for Pakistan Journal of Ophthalmology. It was the second year of this session and was a specially curated segment highlighting notable research and innovations in ophthalmology. The session was chaired by **Zia-ul-Islam**, with **Abdul Qayyum** as Co-Chair and **Tayyaba Gul Malik** as the Moderator, ensuring a well-coordinated and insightful series of presentations.

The session opened with **Yousaf Jamal Mahsood**, who discussed the Early and Late Complications of Ahmed Glaucoma Valve Implant in a Real-World Situation, providing valuable clinical insights into the long-term outcomes of this surgical intervention.

Abdul Basit presented a comparative study on the Mean Surgically Induced Astigmatism in Manual Small Incision Cataract Surgery Using Frown Vs techniques, shedding light on surgical methods that minimize post-operative astigmatism.

This was followed by **Arifa Farooq Ghazipura**, who presented on the Role of Optical Coherence Tomography Angiography in Predicting Risk of Progression of Diabetic Retinopathy, emphasizing the importance of imaging in early detection and risk assessment of diabetic eye disease.

Zoomar Muzammil presented a study on the Thinnest Point of the Cornea Compared with the Central Corneal Thickness of Myopic Eyes, using the Pentacam Scheimpflug System to assess corneal measurements, an important aspect in refractive surgery and myopia management.

Hafsa Bibi followed with a talk on the Spectrum of Ocular Tuberculosis in Tertiary Care Hospitals of Khyber Pakhtunkhwa Peshawar, highlighting patterns and clinical findings of ocular TB in a high-burden region.

Jalpa Bai shared findings from a Molecular Analysis of OCA1 and OCA2 Genes in Sindhi Inbred Families, contributing to the understanding of genetic mutations linked to oculocutaneous albinism in a specific population. Each presentation brought valuable insights into both clinical and genetic aspects of eye health and disease. Overall, the session brought together diverse topics that reflected innovation, clinical relevance, and technological advancement in ophthalmology, making it a highlight of the scientific program.

MEDICAL RESEARCH AND WRITING

The session on **AI in Medical Research and Writing** brought together experts and participants to explore how artificial intelligence is reshaping the landscape of scientific inquiry and scholarly communication. Chaired by **M. Hammad Ayub**, with **Uzma Hamza** as co-chair and **Samreen Jamal** as moderator, the session aimed to provide both foundational knowledge and practical guidance on the use of AI in academic medicine.

Muhammad Hassaan Ali delivered all the presentations in the session, beginning with an accessible introduction to generative AI, outlining how tools like large language models can produce human-like text and assisting in various research-related tasks. He then delved into the potential benefits of AI in research and scientific writing, highlighting applications such as literature summarization, drafting manuscripts, hypothesis generation, and refining academic language, demonstrating how these tools can improve efficiency and accessibility for researchers.

The session also featured an introduction to Research Kick, a novel AI-supported approach for identifying and refining research questions. This was followed by a presentation on the emerging concept of literature mapping, where AI is used to visualize existing research gaps and clusters within a given domain, helping scholars better position their work.

In addition to the advantages, the session critically addressed the limitations and ethical concerns surrounding AI in research. **Muhammad Hassaan Ali** emphasized the need for transparency, validation of AI-generated content, and awareness of potential biases in AI outputs. The discussion also covered common pitfalls, such as overreliance on AI and the risk of academic misconduct if AI tools are misused. An important practical component focused on the construction of effective AI prompts, demonstrating how well-structured inputs can lead to more accurate and relevant outputs from generative models.

The session concluded with an engaging Q&A session, moderated by **Samreen Jamal**, where participants raised questions about real-world implementation, authorship, accountability, and integration of AI into research workflows. This session served as a comprehensive and timely resource for medical researchers seeking to responsibly harness the power of AI in their academic endeavors.

VIDEO COMPETITION

The ophthalmic video competition is a highly valuable component of ophthalmic conferences, serving as a dynamic platform for education, innovation, and peer-to-peer learning. It allows surgeons to share real-life surgical experiences, highlight unique techniques, and demonstrate the management of complex or rare cases through high-quality visual presentations. Unlike traditional lectures, video presentations offer the advantage of visual clarity, allowing attendees to observe fine surgical maneuvers, instrument handling, and intraoperative decision-making in real time.

For young ophthalmologists and trainees, the competition encourages creativity, critical analysis, and reflection on surgical outcomes, while also providing visibility and recognition within the professional community. It fosters healthy academic competition and inspires a culture of excellence in surgical practice. Additionally, it highlights emerging trends, novel approaches, and regionally relevant innovations, contributing to the global exchange of ideas. Ultimately, video competitions not only enhance surgical education but also promote continuous improvement, patient safety, and collaboration across all levels of ophthalmic practice.

This Video Symposium on Challenging Cases featured several presentations on complex ophthalmic surgical techniques. The session opened with a presentation on a post-auricular skin graft procedure by **Ibrar Hussain.** This was followed by a video in which the posterior capsule was removed using a cutter, followed by aspiration of lens matter located behind the anterior capsule. A multi-piece intraocular lens (IOL) from Alcon was implanted. Iris repair was performed using 9-0 and 10-0 Prolene sutures, and the importance of closing all ports, especially in field surgeries, was emphasized.

An advanced haptic fixation technique was then demonstrated by **Faisal Iqbal** for a case of traumatic IOL subluxation. The approach involved the use of a trocar for infusion and fixation points for the IOL, with biometry adjusted for sulcus fixation. A 5 mm main wound allowed for the removal of the subluxated IOL. Four ends of Gore-Tex suture were threaded through the IOL eyelets and anchored to the sclera. The IOL was inserted into the anterior chamber, and suture tension was carefully adjusted to ensure centration, leading to improved visual outcomes.

Bilal Khan discussed a macular hole surgery technique involving internal limiting membrane (ILM) Rhexis with a finesse loop. An inverted flap of ILM was created to allow controlled removal. This method provided a clean, bloodless surgical field and minimized postoperative complications. The technique demonstrated excellent visual and anatomical results, with no residual bleeding observed.

The topical anesthesia technique for Chalazion surgery was described by **Sharjeel**, highlighting the application of anesthetic drops to the skin side of the lower eyelid to avoid injection-related cyst formation. A vertical incision was preferred to avoid injuring blood vessels, and accumulated meibomian gland secretions were effectively removed. The approach was shown to enhance patient comfort and satisfaction.

A challenging soft cataract case was discussed by **Rehan Naqaish**, detailing complications arising from a small Capsulorhexis and difficulty in lens manipulation. Techniques such as hydro-delineation and hydro-dissection were employed to separate the epinucleus from the endonucleus, enabling safer emulsification. The surgeon provided a comprehensive explanation of the adaptations necessary for successful management of soft cataracts.

An innovative approach to inducing posterior vitreous detachment (PVD) was presented by **Omer Ilyas,** particularly useful in cases where conventional methods had failed. The technique involved peeling the ILM to initiate separation of the posterior vitreous. Applied successfully in 15 patients, it served as a valuable alternative. Intraoperative images were shown to illustrate ILM staining and the mechanics of vitreous detachment.

The lateral tarsal strip technique was presented by **Sofia Iqbal** as an effective solution for correcting eyelid malposition and laxity, addressing both entropion and ectropion. Preoperative assessment included evaluation of canthal tendon laxity and lid tension tests. A horizontal incision extended to the lateral canthal region allowed repositioning of the lid, with careful attention paid to preserving conjunctival integrity to prevent postoperative cysts.

Warda Ali presented a deep anterior lamellar keratoplasty technique, offering visual rehabilitation while avoiding full-thickness corneal transplantation.

The host cornea was trephined to two-thirds depth, followed by air injection into the posterior stroma. Stromal debulking was performed using a crescent blade. The donor cornea, prepared by stripping the Descemet's membrane, was sutured in place for stable graft integration.

Finally, the technique of harvesting fascia lata using a fascia lata stripper was demonstrated by **Faizan Tahir.** The incision site was marked between the greater trochanter and the anterior superior iliac spine. Following skin incision and fat dissection, the superficial fascia was opened to reveal the deep fascia. A flap of fascia lata was isolated, introduced into the Mosley fascia lata stripper, and harvested. The leg wound was closed in two layers to ensure proper healing.

Atif Chohan highlighted a technique of capsular decompression for swollen white cataracts. **Ejaz Latif** covered tricky situations during IOL insertion. **Adila Anwar** presented surgical management of monocular elevation deficit. **Hamid Mahmood Butt** discussed work-based assessment tools. The session ended with a vote of thanks and group photograph.

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WOMEN IN OPHTHALMOLOGY PAKISTAN (WIOP)

The Women in Ophthalmology Pakistan (WIOP) symposium holds significant importance in the context of ophthalmology conferences in Pakistan, where gender disparities in medical leadership and representation remain evident. This dedicated platform serves to recognize, celebrate, and empower the contributions of female ophthalmologists in clinical care, research, education, and leadership. By highlighting the achievements and challenges faced by women in the field, the symposium fosters dialogue around mentorship, career development, work-life balance, and equitable opportunities in academic and surgical roles. It also provides a much-needed space for networking and collaboration among female professionals across various subspecialties. Importantly, such sessions encourage younger female trainees and medical students to pursue ophthalmology with confidence, knowing that there is support for their professional growth. In the broader context of healthcare in Pakistan, the WIOP symposium promotes inclusivity, diversity, and a more balanced representation in ophthalmic decision-making, ultimately contributing to a stronger and more equitable eye care system**.**

WIOP at the Pakistani conference highlighted a dynamic and thought-provoking session that emphasized collaborative learning and clinical excellence under the theme *"What goes wrong can come right."* **Huma Kiyani** introduced a distinguished panel comprising **Soufia Farrukh, Zubaida Sirang, Tehmina Jahangir**, **Sara Riaz**, **Irum Riaz,** and **Sadia Humayun.** The session centered on the management of complex ophthalmic cases, fostering in-depth discussions on clinical decision-making, surgical strategies, and patient counseling.

One notable case involved a 34-year-old woman with central corneal opacity, where the panel recommended penetrating keratoplasty with careful attention to preoperative biometry, cataract assessment, and consideration for a triple procedure. Key elements discussed included anesthesia selection, corneal endothelial cell count in donor tissue, IOL choice based on availability and cost, and strategies to prevent graft rejection.

In another case involving retained cortical lens matter, the panel advised anterior vitrectomy, elaborating on techniques such as the use of a fragmatome or heavy liquid to mobilize lens remnants from retina, with IOL selection tailored to capsular support. A particularly challenging case of an 18-year-old trauma patient with a retained intraocular foreign body (IOFB) emphasized the need for thorough evaluation with dilated fundus examination and B-scan, followed by para plana vitrectomy using fine instruments, and appropriate counseling regarding prognosis of functional vision. Pediatric ocular trauma was also addressed, with a case of visual distortion where uniocular diplopia and photophobia were considered. Surgical management included pars plana vitrectomy, IOL implantation with absorbable sutures, and close postoperative monitoring.

A critical neonatal case involving a preterm infant with retinopathy of prematurity (ROP) highlighted the importance of prompt screening within 48–72 hours, timely laser photocoagulation, parental counseling, and long-term surveillance for refractive errors and strabismus. Multiple trauma-related cataract cases were also reviewed, focusing on the judicious use of capsular tension rings, alternative IOL options, and techniques for IOFB removal. For advanced cases with corneal opacity, keratoprosthesis was proposed as a viable solution. The session concluded by acknowledging the collective expertise of the panelists, reinforcing the importance of continuous learning, multidisciplinary collaboration, and staying updated with evolving surgical innovations in ophthalmology.

INSTRUCTIONAL COURSE:
HOW TO ACE FRCOPHTH IN PAKISTAN

The instructional course titled "How to ACE FRC Ophth in Pakistan" was moderated by **Ahsan Mehmood,** the session featured presentations focused on guiding ophthalmology trainees in Pakistan through the FRC Ophthalmology examination process. Ahsan Mehmood and **Amash Aqil** both shared their insights and strategies on exam preparation, covering essential resources, effective study techniques, and personal experiences. The session served as a valuable resource for aspiring candidates, aiming to demystify the exam and support academic success.

The FRC Ophth exam is recognized as a critical professional milestone and a prestigious qualification internationally, serving as a benchmark for clinical competence and academic excellence among Pakistani ophthalmologists seeking advanced career opportunities. The session provided guidance tailored to the specific challenges faced by candidates in Pakistan, including limited access to study resources, clinical exposure, and understanding of exam patterns. This localized advice made the preparation more relevant and practical. By sharing effective study strategies and exam techniques, the course helped improve success rates, which was vital for increasing the number of qualified ophthalmologists in the country and strengthening the national eye care workforce.

Furthermore, the session encouraged continuous professional development, motivating trainees to pursue higher qualifications and align their skills with global standards. It also fostered a supportive learning community by connecting candidates with trainers and experts, which was particularly valuable in a developing country where formal coaching options are limited. Ultimately, the course contributed to improving patient care by preparing ophthalmologists who are better equipped to make sound clinical decisions and contribute to research and education within Pakistan's ophthalmology field.

PAKISTAN SOCIETY OF YOUNG OPHTHALMOLOGISTS (PSYO)

The Pakistan Society of Young Ophthalmologists (PSYO) holds significant importance in the professional and academic development of early-career ophthalmologists across the country. As a dedicated platform for young eye specialists, PSYO fosters peer-to-peer learning, mentorship, and networking opportunities. It plays a pivotal role in bridging the gap between residency training and independent clinical practice by organizing workshops, hands-on surgical training, and academic sessions tailored to the needs of junior ophthalmologists. The society also encourages involvement in research and innovation, helping members contribute meaningfully to national and international ophthalmology. By advocating for the interests of young ophthalmologists and promoting excellence in education and patient care, PSYO contributes to strengthening the future leadership and quality of ophthalmic services in Pakistan.

The meeting discussed the challenges and opportunities for ophthalmologists seeking careers in the UK, emphasizing the importance of GMC registration routes, OST training structure, and the MSRA examination.

The session was chaired by **Aziz Jan Bashir**, co-chaired by **Abdul Hannan Qadir** and moderated by **Nauman Hashmani**. The participants of this meeting were **Aslam Razzaq, Huzaifa Farooq, Saad Sohail, Waleed Ahmad, Fizza Shaheen, Bilal Zaida and Salman Sohail**. The session began with an overview of the challenges faced by ophthalmologists seeking to practice in the UK. Topics included the various GMC registration routes, entry levels for ophthalmology, and the structure of Ophthalmic Specialty Training (OST). Attendees were briefed on the requirements for GMC registration, such as passing the PLAB test, English language proficiency, and obtaining sponsorship from approved institutions. Eligibility for the specialist register through the portfolio pathway was also explained, with emphasis on the importance of recognized qualifications such as FRCS, DMEB, and FRCS Ed.

The role of the Multi-Specialty Recruitment Assessment (MSRA) and the competitive nature of securing ophthalmology positions were discussed. Career opportunities in the NHS were outlined, including roles such as trust doctors and specialist grade positions. The financial benefits of these positions were highlighted, with some roles offering salaries exceeding £110,000 annually. The session also covered the 2024 curriculum updates, which now include competencies in patient management, health promotion, leadership, and patient safety. For international graduates, having two subspecialty interest areas was described as an important expectation.

Expectations for international medical graduates were reviewed, particularly the need for comprehensive, evidence-based portfolios. GMC guidelines on good medical practice, appraisal, and revalidation were discussed, along with the importance of triangulated evidence, such as job plans, surgical logs, and anonymized patient data. Understanding both college and trust-level protocols was considered essential for successful integration into UK ophthalmology practice.

The session also addressed the importance of audits and tracking complication rates. The national ophthalmology dataset was presented as a tool for maintaining clinical standards. Real-life experiences in managing complications were shared, stressing the value of honesty, accurate reporting, and continuous learning in developing surgical competency.

Preparation strategies for the FRCS Ed Part 1 examination were discussed, including the exam format, key subjects, required documentation, and recommended study resources such as iDocs, EFRC, and iNotes. The importance of a solid grasp of clinical optics and ophthalmology was emphasized. For the FRCS Ed Part 2 refraction certificate exam, the session covered practical requirements, station structure, and marking criteria. Candidates were advised to complete at least 50 retinoscopies and 20–30 subjective refractions, and to adopt time management and group study strategies.

Challenges in non-learning environments were addressed, with a focus on professionalism, punctuality, active learning, and respectful interaction with supervisors. Attendees were encouraged to maintain a positive attitude, engage in self-reflection, and prioritize continuous learning. Various strategies for staying current in ophthalmology were presented, including subscribing to journals, attending conferences, using podcasts, and setting up digital alerts for research updates. Social media was acknowledged

as a valuable tool for staying informed about new developments.

The CPSP-HSE pathway to Ireland was introduced as a scholarship opportunity for international medical graduates, detailing the application process, required exams (IELTS, OET, IMM), and program benefits such as training in evidence-based practice, communication, and research. Limitations, including reduced surgical exposure and cultural adaptation challenges, were also discussed.

Finally, the session explored ways to enhance personal surgical skills through observation, structured practice, mentorship, and mental well-being. Emphasis was placed on practical experience, including participation in wet labs and complex procedures, along with the value of recording and reviewing surgical cases for self-improvement.

OPTOMETRY

There were three optometry free paper sessions and two instructional courses in optometry.

SESSION 1: Free Papers

The first session was chaired by **Imran Ahmed**, cochaired by **Irfan Karamat** and moderated by **Arif Hussain.**

Agha Saad presented a comparative cross-sectional study evaluating the effect of filter versus non-filter lenses on stereopsis in high myopic patients. The study aimed to determine whether filter lenses enhance stereopsis and to identify the most effective filter color. Conducted on 66 individuals aged 18 to 26, it assessed visual acuity using a logMAR chart and measured myopia with a trial box. Participants were evaluated using red, green, yellow, and blue filter lenses. Results, analyzed via paired t-test, showed a statistically significant improvement in stereopsis with blue filters, a slight but non-significant improvement with yellow filters, and no meaningful enhancement with red or green filters. The study concluded that blue filters are beneficial for improving stereopsis in high myopic patients and recommended their clinical application.

Ayesha Saleem introduced the concept of establishing a clinical skill lab for optometry students, emphasizing its critical role in enhancing practical training, particularly in private universities that often lack such infrastructure. The skill lab serves as a bridge between theoretical knowledge and hands-on clinical experience, allowing students to develop essential competencies in procedures such as history taking, visual acuity assessment, diagnosis, and patient management. She outlined the necessary components of an effective lab, including refractive and diagnostic instruments, dedicated examination stations, lecture areas, and clinical simulators, to ensure comprehensive optometric training.

Aimen Munir presented an analytical observational study conducted at the University of Lahore optometry lab, investigating whether smartphone resolution influences visual acuity measurements using the Peek Acuity application. The study included 199 patients (398 eyes) who met the criteria of having no ocular pathology and a visual acuity of at least 6/60. The objective was to assess the reliability of Peek Acuity across various smartphone displays. The results demonstrated no significant difference in recorded visual acuity based on smartphone resolution, concluding that the Peek Acuity app provides results comparable to the standard Snellen chart, regardless of the device used.

Amina Khalid presented a study assessing the accommodative response in children engaged in near vision activities, aiming to better understand visual function in this age group. Conducted on 66 children aged 7 to 14 years at the New Hospital, the study evaluated both distance and near visual acuity. Dynamic retinoscopy was employed to measure accommodative amplitude and lag. The results revealed a higher proportion of female participants and identified exophoria as the most prevalent binocular vision anomaly. Notably, children with exophoria exhibited a reduced binocular accommodative response, suggesting a link between binocular alignment and accommodative performance.

Ulfat Anjum presented a review exploring the use of platelet-rich plasma (PRP) therapy for retinitis pigmentosa (RP), a progressive and genetically heterogeneous retinal disorder with currently no definitive treatment. PRP therapy involves the use of autologous plasma enriched with growth factors to promote retinal cell health and function. The review analyzed six studies of varying designs and treatment protocols. Despite methodological differences, the overall findings indicated promising outcomes with PRP therapy in terms of visual function improvement. However, the review emphasized the need for more standardized, large-scale, and long-term studies to validate its efficacy and safety in RP management.

Rabia Gulnaz presented a study evaluating the efficacy of low vision devices and the influence of user training on their effectiveness. The study involved 38 participants divided into two groups: one receiving low vision aids without training and the other with structured training. Visual functions were assessed before and after intervention. Results demonstrated a significant improvement in visual performance among participants who received training, highlighting the critical role of proper instruction. The study concluded that training is essential to maximize the utility and functional benefits of low vision devices in individuals with visual impairment.

Muhammad Iqbal Javaid presented a study on the prevalence and symptoms of computer vision syndrome (CVS) among undergraduate students at Punjab University, Lahore. The study included 283 participants, predominantly female, with a mean age of 23 years. It aimed to identify the extent of CVS and its associated symptoms, which commonly included dry eyes, blurred vision, focusing difficulties, headaches, and ocular discomfort. The findings highlighted that CVS is a growing public health concern among students due to prolonged screen time. The study emphasized the importance of awareness and implementation of preventive strategies, particularly the 20-20-20 rule, to mitigate symptoms and protect visual health.

Malaika Majeed presented a study comparing intraocular pressure (IOP) and cup-to-disc ratio among high myopes, high hyperopes, and emmetropes to explore the relationship between refractive error and glaucoma-related parameters. The study evaluated 90 eyes from 45 participants, categorized into the three refractive groups. While a significant variation in IOP was observed among the overall groups, no statistically significant difference was found specifically between high myopes and high hyperopes. However, the cup-to-disc ratio was notably higher in high myopes, suggesting a potential increased risk of glaucomatous optic nerve changes in this group. The study underscores the importance of vigilant optic nerve assessment in highly myopic patients.

Nabila Zulfiqar presented a study assessing the efficacy of longer wavelength laser therapy in managing amblyopia in children. The study involved 50 eyes of patients aged 5 to 10 years and aimed to evaluate improvements in visual acuity following treatment. Low-level laser therapy was administered using a 650-nanometer wavelength laser with power under 5 milliwatts. Visual acuity was measured before and after the intervention, with follow-up assessments. Results showed that 80% of participants experienced improvement in visual acuity, with some demonstrating continued progress over a two-month period. The study concluded that longer wavelength laser therapy may offer a promising non-invasive approach in amblyopia management.

Zuha Navid presented a study investigating the frequency of pregnancy-induced, vision-threatening diabetic retinopathy in women with type 2 diabetes. The study included 58 pregnant women, with an average age of 29 years and varying durations of diabetes, ranging from less than 5 years to more than 15 years. The findings revealed that only two participants had mild, nonproliferative diabetic retinopathy, with no significant correlation found between the gestational week and the development of diabetic retinopathy. The study concluded that the occurrence of diabetic retinopathy in pregnant women with type 2 diabetes is low and that it is not significantly influenced by the stage of pregnancy.

SESSION 2: Free Papers

The second free paper session on optometry was again chaired by **Imran Ahmed,** co-chaired by **Irfan Karamat** and moderated by **Arif Hussain.**

Asma Sultan introduced a study focused on determining the optimum hyperparameters in diagnosing strabismus using an AI model, specifically the Teachable Machine (TM platform). The study utilized 523 images of ocular deviations categorized into esotropic, exotropic, and orthotropic types. By testing different batch sizes and learning rates using the grid search method, the study identified the optimal hyperparameters, 200 epochs, 256 batch size, and a 0.005 learning rate, resulting in an overall test accuracy of 0.87. The study concluded that these parameters were most effective in diagnosing strabismus accurately.

Rizwan Hassan discussed the use of OCT angiography in evaluating choroidal neovascularization (CNV) without invasive procedures. The study involved a patient with high myopia and cylindrical numbers, where OCT angiography revealed a hyper-reflective branching pattern at the outer retinal and choroidal levels, indicating CNV. The study highlighted the ability of OCT angiography to reveal detailed retinal and choroidal vasculature, which is crucial in managing CNV effectively without the need for invasive methods.

M. Zubair Nazar presented a study comparing the clinical impact of trans PRK and Femto LASIK in myopic and astigmatic patients. Conducted over a one-year period, the study showed that trans PRK provided superior results in terms of visual acuity, contrast sensitivity, and higher-order aberrations compared to Femto LASIK. The study recommended choosing the procedure based on the patient's corneal thickness and condition, providing tailored treatment options for better outcomes.

Sehrish Shahid presented a study on the correlation between corneal epithelium thickness, tear film height, and meibomian gland morphology in dry

eye patients using optical coherence tomography (OCT). The study revealed a negative correlation between corneal epithelium thickness and both tear film height and meibomian gland morphology. Additionally, there was a moderate positive correlation between tear film height and meibomian gland morphology, suggesting that these factors interact in dry eye pathophysiology.

Fatima Sadiq presented a study investigating the difference in real acuity and contrast sensitivity before and after the use of cyclopentolate in school-age children. The study involved 216 eyes of children aged 5 to 13 years and showed significant differences in near and distance real acuity and contrast sensitivity in children with low myopia and hyperopia. The findings indicated that cyclopentolate significantly affected visual acuity and contrast sensitivity, particularly in children with refractive errors.

Ghazala Arif presented a study exploring the relationship between refractive status, newborn birth weight, and gestational age. The study found moderate correlations between the mean spherical equivalent of refractive error and both gestational age and birth weight. The study concluded that as gestational age and birth weight decrease, the risk of myopia increases, emphasizing the importance of early screening for visual impairment in preterm and low birth weight infants.

Labina Amrat presented a study on the knowledge and attitudes regarding cousin marriages and their impact on eye health in rural and urban areas of Chakwal. The study revealed that 90.1% of the respondents were married, with 61.3% unaware of the effects of cousin marriages on eye health. The study concluded that there was a strong association between knowledge and attitudes toward cousin marriages, with rural areas demonstrating slightly more awareness than urban areas regarding eye health risks associated with cousin marriages.

Shajeea Jabeen presented a study on the effect of ergonomic practices on computer vision syndrome (CVS) among undergraduate and postgraduate students. The study found a significant association between eye strain and the time spent on computers, with students using computers for less than one to four hours reporting fewer symptoms like eye watering and reduced blinking. The study emphasized the importance of ergonomic practices and taking regular breaks to reduce the severity of CVS.

Sana Tariq presented a study on the role of IGF-1 polymorphism in causing high myopia in the Pakistani population. The study, which involved patients with high myopia and controls from the same region, found no significant difference in the IGF-1 gene characteristics between high myopic individuals and controls. The study concluded that the T allele of IGF-1 might have a protective effect against high myopia in this population, suggesting genetic factors may influence refractive errors differently across populations.

SESSION 3: Free Papers

The third session consisted of a series of scientific presentations which were delivered covering a diverse range of ophthalmic research topics. The presentations reflected growing interest in pediatric visual function, refractive challenges, ocular health, and early retinal changes in systemic diseases.

Ishmam Murtaza presented a comparative study on visual functions and ocular health between children with delayed visual motor integration (VMI) and those with normal development. Visual motor integration, defined as the coordination of visual perception with motor execution, was assessed using ten parameters: five for visual function (including acuity and contrast sensitivity) and five for ocular health (including strabismus and amblyopia). The study revealed that visual acuity was most impacted in children with delayed VMI, and a higher prevalence of ocular abnormalities was observed in this group.

Sarah Sonam shared findings from her study on the comparative effectiveness of various therapies for convergence insufficiency, a condition involving poor neuromuscular coordination of eye movements leading to asthenopic symptoms. Among the four therapies evaluated, Brock string, jump convergence, dot and pencil, and push-up exercises. Brock string therapy proved most effective in achieving results within the shortest duration.

Shabnam Pari Bhutto discussed the clinical relevance of cycloplegic refraction in patients with near vision symptoms despite normal visual acuity. Conducted at SIUT, the study demonstrated that cycloplegic refraction was essential for uncovering latent refractive errors and significantly improved patient-reported symptoms following accurate refractive correction.

Hira Sundas presented her research on the link between simple myopic astigmatism and near vision

difficulty. Among 320 patients studied, a notable inverse relationship was found those with higher magnitudes of astigmatism reported fewer near vision complaints. The study suggested that simple myopic astigmatism does influence near work performance, although the mechanism remains unclear and warrants further research.

Fizza Ahmed evaluated tear film parameters in regular versus occasional contact lens users. The study included 106 participants and employed clinical tests along with a self-designed questionnaire. Results showed significantly reduced tear film stability and volume in regular users. Recommendations were made for thorough pre-prescription assessments and user education on contact lens-related ocular surface risks.

Urooj Yasmeen investigated societal barriers preventing children with visual impairment from attending mainstream schools. Through a cross-sectional survey of parents, the study identified discrimination, lack of assistive resources, and societal attitudes as the primary obstacles. Despite parental willingness, these barriers hindered inclusive educational integration.

M. Hasan Awais presented a study on the effect of full-day occupational exposure on the refractive status of goldsmiths and watchmakers. Conducted using handheld auto refractometers, the study showed a significant shift towards transient myopia by the end of the workday. The findings support preventive strategies, including optimal lighting, protective eyewear, and ocular lubrication.

Athar Habib evaluated macular retinal sensitivity as an early indicator of retinal dysfunction in diabetic patients with normal visual acuity. Using the Humphrey macular threshold test in 60 subjects, the study found significantly lower retinal sensitivity in diabetic patients compared to non-diabetics, underscoring the importance of functional testing in early diabetic retinal changes.

Aleena Nadeem presented data on anterior chamber depth (ACD) changes following phacoemulsification with IOL implantation. Among 75 patients studied, ACD significantly increased postoperatively and remained elevated at one-week and one-month follow-up. The study highlighted the surgical relevance of ACD changes in planning and optimizing modern refractive procedures.

SESSION 4: Contact Lenses

This session was an instructional course on contact lenses. **Beenish Latif** highlighted several types and classifications of contact lenses. Contact lenses are artificial devices designed to correct refractive errors, change eye color, or serve therapeutic purposes. They are classified based on anatomical position, material, water content, wearing modality, and color.

Anatomically, contact lenses are categorized into corneal, semi-corneal, and scleral types, with scleral lenses being the largest. Lenses are further divided into soft lenses, which are the most used, and rigid gas permeable (RGP) lenses, effective for astigmatism correction. Soft lenses are larger than the cornea, comfortable, and easy to adapt to, while RGP lenses are smaller and provide sharp vision, particularly for astigmatism. Contact lenses are also classified by water content into four FDA groups, and according to wearing modality, they can be daily wear, flexible wear, extended wear, or continuous wear, with daily wear being the most common. Other types include disposable lenses, such as daily or monthly disposables, which require various levels of cleaning and care.

Lenses can also be classified by their color (cosmetic or transparent) and refractive correction, including spherical, toric, and multifocal options. Multifocal lenses are designed to correct both near and far vision. Additionally, specialty lenses are available for specific purposes like myopia control. In conclusion, there is a wide variety of contact lenses available for different refractive needs, patient preferences, and medical purposes.

Ayesha Saleem The presentation on contact lens materials discusses the key properties and physical characteristics that make up an ideal contact lens. Contact lenses are thin, curved lenses placed on the surface of the eye for cosmetic, therapeutic, and treatment purposes. An ideal lens should be oxygen-permeable, optically transparent, and exhibit good wettability.

Two critical physical properties are wettability and oxygen permeability. Wettability refers to the ability of tears to form a complete film over the lens surface, providing hydration, while oxygen permeability, or Dk value, ensures sufficient oxygen reaches the cornea. Contact lenses should also be flexible, optically homogeneous, and transparent, and they must be biocompatible to avoid causing inflammation or infection. Contact lenses are made from various

materials, including soft hydrogels, silicone hydrogel lenses, and rigid gas permeable plastics. Hydrogels, composed of water-containing gel-like materials, have oxygen permeability and a water content of 38% to 75%. Silicone hydrogel lenses, which incorporate silicone, offer higher oxygen permeability and improved comfort. Rigid gas permeable lenses, made from plastics that allow oxygen flow, initially offer less comfort but provide optimal vision once the patient adapts. The presentation emphasizes the importance of material properties in ensuring contact lenses' comfort, functionality, and safety.

Anwar Awan, a senior optometrist and contact lens specialist, discussed the preliminary assessment required before prescribing contact lenses. The routine assessment involves several important steps to ensure the lenses are appropriate for the patient. The first step is determining whether contact lenses are indicated or contraindicated, considering any ocular pathology and the patient's specific needs.

A thorough history is essential, including previous contact lens use, any issues experienced with past lenses, and systemic conditions like diabetes, pregnancy, or allergies. This helps in understanding the patient's needs and determining the right type of contact lens, whether it is daily disposable or extended wear, depending on the patient's condition.

The examination should include a full ocular assessment, particularly the cornea's health, as well as testing visual functions. Key parameters like corneal curvature, diameter, and pupil size should be measured to ensure proper fitting. Additionally, fluorescein staining is used to assess corneal health and check for any signs of irritation or staining.

Overall, the preliminary contact lens assessment should be thorough to minimize complications and ensure the right lens type and fit for the patient.

Anwar Awan elaborated on the various indications and types of contact lenses beyond their common cosmetic and refractive correction uses. Contact lenses are broadly categorized into three main types: rigid gas permeable (RGP) lenses, soft lenses, and scleral or hybrid lenses. RGP lenses are smaller than the cornea and are typically used for corneal irregularities and ocular surface diseases. Soft lenses, being larger and more adaptable to corneal shape, are primarily used to correct spherical and astigmatic refractive errors. Scleral lenses, which rest on the sclera and vault the cornea, are used for advanced ocular surface disorders, including keratoconus, post-graft conditions, and severe dry eye.

Statistically, most contact lens wearers use soft lenses mostly silicone hydrogel (42%) and hydrogel lenses while specialized lenses such as RGP and hybrid lenses account for 10–15% of cases. Specialty lenses include toric lenses for astigmatism, multifocal lenses for presbyopia, and orthokeratology lenses primarily used for myopia control. Toric lenses, especially front surface Torics, are common in Pakistan and require stabilization features to prevent visual distortion from lens rotation. Multifocal contact lenses often follow a center-distance or center-near design, depending on the visual needs and dominance of the eye. These lenses are increasingly accepted by patients due to improved fitting techniques and enhanced comfort.

Beenish Latif discussed advanced therapeutic and cosmetic indications for contact lenses, emphasizing their growing role in managing complex ocular surface conditions. While contact lenses are commonly used for cosmetic purposes to improve appearance in cases of disfigurement or scarring, their therapeutic applications are far more impactful, especially with the use of bandage contact lenses. These are essential postoperatively (e.g., after refractive surgery or corneal abrasions) and for corneal healing, including ulcers and epithelial defects. In cases of early keratoconus, rigid lenses and scleral lenses are particularly beneficial, as they improve vision and comfort by masking corneal irregularities.

Scleral lenses, which vault over the cornea and are filled with a tear reservoir, provide a smooth optical surface and are highly effective in managing a wide range of ocular surface disorders, such as keratoconus, pellucid marginal degeneration, post-keratoplasty irregularities, high astigmatism, and severe dry eye. Their role is particularly crucial in patients with corneal ectasias, including keratoglobus, and in pediatric and diabetic patients with irregular corneas.

The discussion also highlighted the technical aspects of fitting scleral lenses, emphasizing the need for precise corneal topography and profiling to guide lens diameter selection—often ranging from 7 to 18 mm depending on the severity of corneal pathology. The speaker concluded by stressing that state-of-the-art corneal imaging is critical for optimal contact lens fitting in complex cases of ocular surface disease.

SESSION 5: Vertical Squint

Vertical squint is a challenge. The session provided a comprehensive overview of vertical strabismus, highlighting its causes, classifications, and management strategies. Vertical misalignment of the visual axis often presents with minimal sensory adaptation, leading to diplopia or blurred vision even with small deviations. The condition involves four key extraocular muscles two obliques and two recti with competent types being rare and incomitant strabismus more common. Causes range from neurogenic and myogenic to anatomical restrictions, including cranial nerve palsies, thyroid orbitopathy, Duane syndrome, and monocular elevation deficiency. Assessment techniques such as the cover test, prism cover test, and three-step test are essential for diagnosis, while head posture may serve as a compensatory mechanism in acquired cases. The session also emphasized the need to distinguish paralytic forms, particularly skew deviation related to brainstem pathology, and highlighted the diagnostic role of intraocular pressure in identifying restrictive strabismus. Amblyopia, occurring in 1–5% of children, was addressed with a focus on early detection and classification using logMAR. Management includes optical correction, patching, and prism therapy, supported by sensory tests like Babinski glasses, Worth four dot test, afterimage test, and synoptophore. Motor assessment through versions, ductions, and convergence measures aids in diagnosis and treatment planning. Both non-surgical and surgical interventions are used depending on the type and severity, with an emphasis on early intervention to preserve visual function.

SESSION 6: Low Vision

In her session on low vision, **Ayesha Saleem** introduced the concept of visual impairment and the critical importance of low vision assessment and rehabilitation. Emphasizing the global burden where one person goes blind every five seconds, she highlighted that low vision is characterized by irreversible, bilateral vision loss, typically defined as visual acuity worse than 6/18 in the better eye or a visual field less than 20 degrees from fixation. The assessment begins with a thorough patient history, with particular attention to the patient's occupation and daily functional needs, as this guides rehabilitation goals.

Key clinical components include refraction (to rule out reversible causes), assessment of residual vision, and evaluation of functional vision. Unlike general ophthalmic care, low vision rehabilitation focuses on maximizing the remaining visual function rather than restoring lost vision. Magnification plays a significant role, and determining the required magnification is guided by formulas using actual and desired visual acuities.

She reviewed a wide range of low vision aids: optical devices (e.g., handheld magnifiers, telescopes, spectacle-mounted lenses), non-optical aids (e.g., high-contrast writing guides, black background materials), and electronic devices such as CCTVs and smartphone-based technologies. She stressed that effective low vision care depends on understanding the patient's visual goals and tailoring interventions to enhance quality of life through residual vision enhancement.

A compelling success story of a young girl in third grade who experienced significant visual impairment due to a macular disease. Despite initial denial by the parents and no improvement reported in previous medical examinations, she was referred for low vision rehabilitation. With proper counseling, the family accepted the diagnosis, and a tailored rehabilitation plan was initiated using magnification devices and visual therapy techniques. Through stimulation of the *preferred retinal locus* (PRL) and eccentric fixation training, the patient's residual vision was optimized, leading to functional improvement to the level of 6/18 – 6/24. She was able to resume mainstream education and daily activities, with only minor color vision deficits.

The speaker emphasized the importance of early intervention, parental support, and the role of devices, such as telescopes, stand magnifiers, and electronic aids in maximizing residual visual function. The case highlighted how consistent use of magnification and sensory stimulation can develop a new functional locus on the retina. Visual rehabilitation not only improved contrast sensitivity and functional vision but also helped reintegrate the child socially and academically. The session concluded by stressing that low vision rehabilitation requires a combination of medical guidance, assistive technology, and community acceptance to reduce stigma and enhance quality of life. This was followed by hands on practice.

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