

HIGHLIGHTS

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Typhoon Talk and Trouble With Trabeculectomies



yphoons are among the most destructive forces the weather can throw at us, and our readers who live in the Asia-Pacific region will likely be aware of their tremendous power. Indeed, one Media MICE staff member lives in a part of the Philippines that is currently threatened by two storms, and the Vietnam-based team is all too familiar with their destructive power, as well. No surprise, therefore, that the (very) initial stages of one symposium during the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021) would begin with a discussion about typhoons.

But of course, fears about typhoons and high winds were soon allayed as the discussion moved toward the storm's counterpart in destruction in the ophthalmologic field: glaucoma. This disease is one of the most commonly encountered by clinicians, and its impact on vision and patients' quality of life is considerable all around the world. When we learned there would be an indepth scientific session on the issue we were, therefore, pretty excited.

APGS Symposium: Lasers and Surgeries for Angle Closure and Angle Closure Glaucoma brought together some of the finest minds on glaucoma treatment in the Asia-Pacific region. The symposium included the latest scientific indications, techniques, outcomes and complications of laser and surgical options for angle-closure glaucoma. If you want to learn more about laser peripheral iridotomy, laser peripheral iridoplasty, cyclophotocoagulation, lens extraction and more, then feast your eyes on this glorious glaucoma symposium (available on-demand).

All I wanted was KOLs with laser beams (attached to their heads)

When looking at lens extraction in particular, we recommend you view the presentation titled Exploring the Role of Lens Extraction in Angle Closure, given by Prof. Clement Tham, a professor of ophthalmology and visual sciences at the Chinese University of Hong Kong. Prof. Tham described his treatment diagrams for angle-closure treatment, outlining his differences when treating visually significant cataracts or those that are non-visual. Using the former as an example, he said he would consider extraction, then if persistent appositional angle-closure with plateau iris syndrome was present, he'd select argon laser peripheral iridoplasty (LPI).

Prof. Tham said that clinicians should look for what he described as the "Mount Fujiyama or volcano sign" in the shape of the lens. He then described his lens extraction criteria, stating that it may not be enough if glaucoma optic neuropathy is advanced with a low target intraocular pressure (IOP), or if the IOP is grossly uncontrolled. Also, when it comes to surgical decisions, Prof. Tham recommends that IOP reduction needs to be considered, as well as the patient's acceptance of surgical risk.

Trabeculectomies: This writer's favorite ophthalmology term

Trabeculectomies can be terribly tricky, but they are also one of the most common glaucoma treatments out there — and very much worthy of discussion. *Special Considerations in Trabeculectomy of Angle Closure Eyes* is the presentation for you if you want to tantalize yourself with more talk about trabeculectomies. Given by Dr. Norman A. Aquino, an ophthalmologist at the University of the Philippines in Quezon City, the presentation was particularly noteworthy for its information on angleclosure risk factors and indications for trabeculectomy.

Dr. Aquino said that uncontrolled IOP, progression of angle-closure, optic nerve damage or visual field defects, poor compliance, and economic barriers should be considered as trabeculectomy indicators. Speaking strongly in favor of the procedure, he said that trabeculectomy "still has an important and relevant role in decreasing the burden of angle-closure." He summarized by emphasizing preoperative preparation, intraoperative diligence, and postoperative vigilance.

But phacoemulsification is a close second

The final speaker, and certainly last but by no means least, was Prof. Prin Rojanapongpun, an ophthalmologist at Bumrungrad International Hospital in Bangkok, Thailand. His presentation, *New Surgical Options for Angle Closure Eyes*, provided some fascinating insight into, you guessed it, glaucoma surgery. In contrast to the previous report, Prof. Rojanapongpun spoke against trabeculectomies, instead making the case for phacoemulsification.

He said his position was explained by the fact that phacoemulsification offers better vision, lower complications, it's quicker and easier, and involves simple postoperative care. He also said that lens removal is notable for modifying angle configuration and reduces the patient's IOP, and that while trabeculectomies achieve the same result they also involve a higher risk of complications. The doctor went on to state that most glaucomarelated complications involve this technique.

We wanted to highlight some of our favorite speakers during this symposium but it was a difficult decision as to whom to include, as all offered fascinating insights into angle-closure glaucoma and more. There was also a discussion session at the end of the symposium which would be worth your time viewing, and as we mentioned, terrific typhoon talk at the very beginning. Make sure you check out this session and more on the APAO's virtual platform.

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Go Beyond the Limits of Trifocals and Achieve Continuous Rangge of Vision

oday, there are numerous intraocular lenses (IOLs) on the market for correcting presbyopia. However, sometimes being spoiled for choice can make the decision of determining which IOL is best suited for a particular patient more challenging. Therefore, on Day 4 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), three worldrenowned experts shared their personal experience with the TECNIS Synergy IOL during a Johnson & Johnson Vision (Santa Ana, California, USA) industrysponsored symposium. Below, we cover the highlights.

Presbyopia correction, redefined

Intraocular lenses for presbyopia correction have certainly evolved over time: From older refractive technologies, to bifocal and diffractive, to extended range of vision lenses — and now Continuous-range-of-vision lenses. And it's these lenses, with a continuous range of vision, that address some of the needs with near and intermediate vision, began Dr. Ike Ahmed, from the University of Toronto, Canada.

So, what are some of these needs? A major one is the patient's expectations, which Dr. Ahmed admits can be a balancing act. "Whenever we manipulate light, there are always potential trade-offs and this can be related to range of vision, quality of life and dysphotopsias," he said. However, he believes that the TECNIS Synergy IOL is a unique, breakthrough innovation for two big reasons, which are continuous range of vision (with the best near focus) and superior image contrast sensitivity, both day and night.

Another important consideration is the lens' base material — and according to Dr. Ahmed, TECNIS IOLs are wellknown for their high quality, including their glistening-free profile, absence of significant biocompatibility issues and aberration correction. Further, the InteliLight System addresses some of the potential downsides of multifocal and diffractive technologies, namely dysphotopsias and improved image contrast, he explained.

He then presented some compelling comparative data on MTF curves at 3 and 5 mm, and shared that TECNIS Synergy performs amazingly well. "Even with a larger pupil, we can see the retained image contrast with MTF and this is quite unheard of with these technologies. TECNIS Synergy gives us a continuous range of vision, while still retaining good low light contrast both day and night, and varying pupil sizes," said Dr. Ahmed. Another perk? The TECNIS Synergy lens uses the same A-constant across the entire spectrum of TECNIS lenses.

"This has really been our go-to technology for the right patients that require spectacle freedom and pushes the limits when addressing dysphotopsias and contrast sensitivity," he said.

Patient experience in Asia

There are some specific challenges for Asian patients — not only for the challenges in reading characters in varying languages — but also generally, have closer reading distance due to Asian anatomy and being myopic because of increasing use of social media, smartphones and tablets.

"Our current cataract patient never wishes to wear glasses," added Prof. Prin Rojanapongpun from Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thailand.

He then shared his personal experience implanting the TECNIS Synergy in 60 eyes of 37 patients. "I did my first patient in December 2019 and I was brave enough to do bilateral implantation," said Prof. Rojanapongpun. This patient was a 77-year-old female with mild cataract and a slightly shallow anterior chamber (AC).

"With any new lens, it's always a challenge to pick the right power for the patient. The nice thing about the TECNIS family is that the A-constant is fixed at 119.30," he explained, in a shared consensus with Dr. Ahmed. "In general, you want to go with the first plus power in any multifocal lens. And in biometry, we have to make sure we compare between the two eyes in the axial length, the K readings and the anterior chamber depth."

"There are some specific challenges for Asian patients — not only for the challenges in reading characters in varying languages — but also generally, have closer reading distance due to Asian anatomy and being myopic because of increasing use of social media, smartphones and tablets."

It's also important to use the advanced formula for calculations. Prof. Rojanapongpun recommends the Barrett's and EVO formulas, which are available online for free. Now, back to his patient: How did her vision fare? Prof. Rojanapongpun shared that her defocus curve at three months post-op showed that her distance vision was almost 20/20 — and her near vision was outstanding, with a wide range of continuous intermediate to near vision.

"From my early experience and adaptation, I have [come to] the conclusion that the near and intermediate vision is going to be very good [with this IOL]," he shared.

Prof. Rojanapongpun also touched on how its optical design is different. TECNIS Synergy is a hybrid of multifocal and TECNIS Symfony EDOF diffractive optics that is able to correct both primary negative spherical aberration and chromatic aberration to provide a wider range of vision for intermediate to near, while maintaining the distance vision," he explained, adding that it's this combination that gives TECNIS Synergy its good continuous range of vision, and thus, a lead over most other IOLs.

Comparing TECNIS Synergy with other Trifocal IOLs

The final speaker was Dr. Han Bor Fam, from Tan Tock Seng Hospital, Singapore. He shared that in the beginning, he was a bit apprehensive about embarking on a study of this new presbyopia correcting IOL. But that's changed now: "This [Synergy] IOL is something different and that's why I'm so excited to share about this new, innovative IOL," said Dr. Fam.

"Most multifocals give us some near and some distance — but not really continuous vision. And it's at the expense of glare and halos, and in worst case scenarios — the loss of contrast as well," he explained. "But with this kind of continuous range of vision [from Synergy], it affords patients the freedom to see and work at their preferred personal distances without the need for glasses."

He then shared outcomes from a 3-month interim report comparing the TECNIS Synergy with Alcon's (Geneva, Switzerland) PanOptix trifocal IOL. This is a prospective, multicenter, randomized clinical study with bilateral implantation in 176 patients, where 116 patients received TECNIS Synergy and 62 had the PanOptix IOL.

When looking at binocular distance corrected visual acuity (BDCVA) across different distances, as well as the defocus curve of continuous vision, it was found that TECNIS Synergy outperforms the PanOptix IOL at every distance. "But when we approach near, that is where TECNIS Synergy really stands out, gaining almost an additional line (0.8) of near visual acuity over PanOptix — and the nearer, the better," said Dr. Fam.

In addition, when it comes to illumination, patients who received the TECNIS Synergy IOL also had better near and distance vision under mesopic and low-contrast conditions. Patient reported subjective outcomes also showed that TECNIS Synergy also had an edge over PanOptix.

"Among all the new IOLs, I find that TECNIS Synergy has the best near vision and the best contrast vision throughout. And because of this continuous vision, it offers a high level of binocular visual acuity all the way from far to near with very little need for mix and match. It does have a little bit of glare and halo, but usually these are not disruptive and most of my patients have no problems," he concluded.



Determining which IOL is best suited for a particular patient is more challenging.



he better tools you have to see, the better work you can do. That's true for humans in general, and ophthalmologists are no exception. Sure, we have fundus photography, OCT, tomography, topography and lots of other metrics — but there's plenty of room for more imaging options. At this party, the more, the merrier.

Today, Day 4 of 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), we'll look at two presentations that cover imaging systems and their relationship with eye health. The first deals with eye temperature and dry eye; the second evaluates imaging tools for glaucoma. Let's dive in.

Eye surface temperature and dry eye: What's the connection?

It hadn't yet occurred to this writer to connect ocular surface temperature (OST) and dry eye disease (DED) but now that Prof. Yuichi Hori, from Toho University in Tokyo, Japan, pointed it out, it makes perfect sense to explore the link between the two.

As Prof. Hori noted, infrared (IR) thermographic assessment became popular during the recent pandemic. Heat sensors have been used to determine all sorts of other human biometric conditions before, like alterations in skin in Zoster lesions and in vascular disorders in diabetic feet. So, why not look at how OST affects DED?

Indeed, OST measurements are non-invasive and quick, relying on thermography for the ocular surface. The procedure measures OST every second for 10 seconds. That's not much of a commitment to find potentially valuable links.

For example, Dr. Hori noted that OST is correlated with body temperature and age: a higher body temperature correlates with a higher OST, and a higher age correlates with a lower OST. Since it's well known that DED affects older populations more than younger, perhaps there's something to this link.

Decreased OST in DED was caused by four mechanisms, according to Dr. Hori. These include:

- Evaporation of the tear fluid
- Convective heat transfer
- Emission of infrared radiation
- Heat conduction

As it turns out, OST shows a significant change in DED patients compared to normal patients. While patients in a non-dry eye group showed an average decrease of 0.27°C over 10 seconds, the DED group showed a decrease of .88°C. Similar effects can be seen with contact lenses: a contact lens wearing patient lost an average of .34°C before putting on lenses as opposed to a loss of 1.18°C after 15 minutes of wearing lenses.

Further research has shown that ocular surface wetness is regulated by TRPM-9 dependent cold thermoreceptors of the cornea.

Dr. Hori concluded that assessing OST is a useful method to evaluate the ocular surface, and research in OST can play a role in determining the pathophysiology of ocular surface diseases and developing new DED therapies.

How early can glaucoma be detected by imaging?

Prof. Jin Wook Jeoung led us down the glaucoma imaging rabbit hole — but this rabbit hole had clearly marked passages courtesy of Prof. Jeoung, and for that we're grateful.

Prof. Jeoung noted four different techniques by which glaucoma can be detected earlier, rather than later. Early detection of glaucoma is key to preventing long-lasting damage from the condition, so the more tools we have to detect it early the better.

The four different techniques Prof. Jeoung proposed were:

- Wide-field imaging in glaucoma
- A topographic scoring system
- Artificial intelligence in glaucoma
- Adaptive optics OCT in glaucoma

We'll follow his patterns, covering these point-by-point.

First, wide-field imaging can help a doctor determine where a retinal area is served by damaged axons. Such locations may not be visible in the original imaging range, so wider imaging with SS-OCT allows doctors to see a broader picture — both literally and metaphorically — to help determine a patient's condition.

Second, Prof. Jeoung suggested that a topographic scoring system be created for diagnostic signs of myopic glaucoma. As he explained, "The significance and the diagnostic weight of each sign or parameter is not fully understood. As one parameter alone cannot be used in actual clinical settings, the effective combination of multiple parameters could provide more comprehensive and useful information to clinicians." Prof. Jeoung ended up with 10 diagnostic signs, with a minimum of 0 and a maximum of 35 points, with a high likelihood of myopic glaucoma being north of 23 points. This can help a doctor differentiate real glaucomatous damage from myopic healthy eyes.

Third came AI. When it comes to artificial intelligence, Prof. Jeoung sees AI in three types: classic AI, which attempts to simulate human intelligence in machines; machine learning, in which algorithms improve automatically through experience and build a mathematical model on sample data; and deep learning, a class of machine learning algorithms based on neural networks that permit a network to train itself to perform a task. In this case, Prof. Jeoung and his team created a deep learning model that ended up being very accurate in its prediction and detection of structural glaucoma damage via images fed into the deep learning system.

Lastly, Prof. Jeoung discussed adaptive optics in OCT. Adaptive optics improve the performance of optical systems by reducing the effect of wavefront distortions. This technique is commonly used in astronomy and microscopy, for example, to help provide more accurate images of distant or very small objects. Unsurprisingly, it has found its way into retinal imaging systems as well.

Prof. Jeoung told us that adaptive optics can help identify the structure-function relationship in glaucoma, identify early glaucomatous damage at the cellular level, and monitor for progression.



Glaucoma Debates — Yay or Nay? by Sam McCommon

ay 4 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021) hosted a fun format for talks: a back-and-forth debate on contentious

topics in glaucoma. The format of this symposium was quite refreshing, as one speaker would present an argument for a treatment and the following speaker would present an argument against that same treatment.

This type of debate itself is one worth emulating in future conferences. The point-counterpoint structure was very effective at helping the listener understand both sides of an argument. Since poking holes in ideas is the very basis of the scientific method, it makes perfect sense to apply such a format to an ophthalmic conference.

We'll cover more of these debates in future articles, but for now we'll focus on one argument that's been making the rounds at conferences for some time: the practice of clear lens extraction as a glaucoma treatment.

In support of clear lens extraction for PACG

We've heard Prof. David Friedman, co-director of the Glaucoma Center of Excellence at Massachusetts Eye and Ear, USA, speak about clear lens extraction for primary angle-closure glaucoma (PACG) before, and we were happy to see him here again. As he noted, the lens plays a huge role in causing angle-closure. That's hard to argue against. As he demonstrated, clear lens extraction (CLE) via phacoemulsification opens the angle, thus reducing IOP and helping a patient manage their glaucoma.

Compared to a laser peripheral iridotomy (LPI) group, a CLE group experienced a much lower rate of failure — with failure defined as an IOP of >21 off medications. For this study, Dr. Friedman included patients with PACG with IOP \geq 21 or PAC with IOP \geq 30 mmHG, with at least 180 degrees of angle-closure, newly diagnosed (up to 6 months) and older than 50.

Exclusion criteria included patients with severe glaucoma, a symptomatic cataract in either eye, an axial length ≤19 mm, previous surgery, or previously diagnosed acute angle-closure attack.

In the data Prof. Friedman presented, quality of life and IOP improved in the phaco group relative to the LPI group. Additionally, 60% of the phaco group was on no medications at all at 36 months, compared to 21% in the LPI group. On top of that, very few of the phaco patients required extra surgery compared to the LPI group. This is all good news, right? Prof. Friedman argued so, saying, "Lenses will come out sooner or later, and sooner results in better outcomes."

The counterargument against clear lens phaco

The rebuttal came from Dr. Shan C. Lin, co-research director at the Glaucoma Center of San Francisco in California, USA.

Dr. Lin pointed out that the benefits of CLE as noted in the EAGLE study* may not be clinically significant. Additionally, there are surgical risks, potential refractive surprises postoperatively, and a general loss of accommodation. The EAGLE study, he pointed out, had its limitations: a mix of PAC and PACG, older population, and a lack of longer-term follow-up past 36 months.

While the outcomes from the CLE group were indeed better, in many cases they were only marginally so.

More importantly, however, he had a simple question: Would you do CLE if you were the patient? If he were the patient, he said, he would start with LPI and wait until a cataract progressed before moving to lens extraction.

Dr. Lin recommends thinking hard before doing CLE in PACG. It has a higher surgical risk, experience with procedures like LPI count, and doctors need to prepare for complications and minimize refractive surprises.

^{*} Azuara-Blanco A, Burr J, Ramsay C, et al; EAGLE study group. Effectiveness of early lens extraction for the treatment of primary angle-closure glaucoma (EAGLE): a randomised controlled trial. Lancet. 2016;388(10052):1389-1397.

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ay 5 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021) continued with more important information on all things ocular. One such symposium covered updates in orbital and oculoplastic surgery, where currently, the universe of knowledge is currently expanding. Below, we look at highlights from several experts who shared their latest practices and tools in this subspecialization.

On orbital implants

After enucleation, orbital implants are commonly used to fill the eye socket. Two main types of orbital implants are available, these include the category of porous orbital implants derived from aluminium oxide, hydroxyapatite, and non-porous orbital implants made from acrylic or silicone. For Prof. Reynaldo

Javate from the University of Santo Tomas in the Philippines, the Ezypor Orbital Implant (FCI, France) is outstanding. He expounded on the advantages of using the high density polyethylene implant with a patented smooth anterior suturing platform. It is made of ultra high molecular weight polyethylene (UHMWPE) and has a porosity of between 40-50% for optimum colonization of fibrovascular tissue.

"It is structurally strong, easy to work with, and less expensive than the Bio-Eye or porous polyethylene Medpor implant," said Prof. Javate, adding that he also prefers to use the Ezypor due to the reduction in cost and time of surgery as it does not need wrapping material.

On eyelid reconstruction

A/Prof. Dongmei Li, from Beijing Tongren

Hospital in China, discussed her approach toward eyelid reconstruction in patients with periorbital plexiform neurofibroma, a rare form of neurofibromatosis. She noted that the timing of when to perform the surgery is tricky to determine.

"We look at functional and appearance concerns. For instance, the growth rate of the tumor is faster in pediatric patients and has more risks of recurrence. So we will consider areas like vision loss, strabismus, proptosis, ptosis, amblyopia or glaucoma before deciding when to operate on them," said A/Prof. Li. For adults, however, they may consider a more aggressive and definitive approach. For surgical management, they utilize multiple procedures like soft-tissue debulking, performing eyelid reconstruction, ptosis correction and canthoplasty. Bone-sphenoid bone defect repair is also used.

On thyroid disease

For the area of managing thyroid disease, Prof. Timothy Sullivan, from the Eyelid, Lacrimal and Orbital Clinic at the University of Queensland, Australia, presented his current practices in terms of assessment, investigations and management. Besides using the VISA (vision, inflammation, strabismus and appearance) classification, he also likes to find out about the patient's thyroid function test, and thyroid stimulating globulin.

Treatment-wise, he prefers the usage of peri-levator triamcinolone as one of the medical treatments for upper eyelid retraction. "We would love to use teprotumumab but it's not yet available in Australia, and we're still using the IL-6 tocilizumab." In terms of surgery, he has incorporated stereotactic navigation to aid lateral wall as well as medial retrocaruncular decompressions. He also demonstrated his new modified technique of lid retraction surgery via titrated blepharotomy.

On apical lesions

"Schwannoma with the endoscopic intracapsular technique while small cavernous venous malformation impacted in the apex can be treated with non-surgical options like multisession gamma knife surgery."

— Prof. Kyung In Woo, Sungkyunkwan University School of Medicine, Korea

In the cases of different apical lesions, Prof. Kyung In Woo from the Sungkyunkwan University School of Medicine in Seoul, Korea, said the endoscopic technique can give a magnified view and visualization of poorly accessible lesions. One could also approach "schwannoma with the endoscopic intracapsular technique while small cavernous venous malformation impacted in the apex can be treated with non-surgical options like multisession gamma knife surgery." During the Q&A, she added that the endoscopic intercapsular approach can also be done on intraorbital tumors as well.

On periocular aesthetics

When it comes to concealing and contouring lower lid bags which occur as a result of fat herniation and the other effects of aging on skin, perfection is something to aim for, particularly in the area of periocular aesthetics. In her practice as head of the Department Of Orbit, Ophthalmic Plastic and **Reconstructive Surgeries and Oculofacial** Aesthetics and Cataract and Refractive Surgery at Sri Sankaradeva Nethralaya, India, Dr. Kasturi Bhattacharjee used to inject lower lid eye bags and tear trough defects with dermal filler using needles. Currently, she has switched to using a 25-gauge cannula.

"The advantage is it has very good tissue integration, instantaneous results and it injects superficially which takes care of the tear trough defects very well.

On imaging orbitofacial trauma

The use of cone beam CT (CBCT) scans in orbitofacial trauma is far more advantageous compared to other machines like for instance, the multidetector CT (MDCT), according to Dr. Gangadhara Sundar from the National University Health System (NUHS) in Singapore. He explained that it is 50-90% lower in radiation, compact, mobile and less expensive, with a shorter image acquisition period. "It can be added on to C-arm which is used in most hospitals and the volumetric data can be analysed. Plus, it is great for bony pathology." The machine is currently already in use in dentistry, ENT, orthopedics, interventional radiology, image guided radiotherapy and mammography.

On the other hand, its disadvantages include its resolution, which may not be great where soft tissues and non-metallic implants are concerned. Minimal or non-displaced fractures may be missed and artefacts may be present. "However, these can be overcome by various algorithms," he said.

Dr. Sundar then showed examples of how the CBCT scans added value to the diagnosis and management of blowout fractures and panfacial fractures among other applications. It can also be optimized for instrumental in preoperative diagnosis, intraoperative navigation and post-op confirmation. He credits his introduction to CBCT to Dr. Toru Suzuki (Japan) and Dr. Li Zhen Lim from the Faculty of Dentistry at the National University Centre for Oral Health, Singapore (NUCOHS).



Ocular Troubles with (Teddy) Bears by Andrew Sweeney

f you go down to the woods today, " you're sure of a big surprise. If you go down to the woods today, you'd better go in disguise. For every bear that ever there was will gather there for certain, because today's the day the teddy bears have their picnic." (Or so goes the song by Jimmy Kennedy.)

Unfortunately for one patient featured in this article, the surprise was not a pleasant picnic and was, in fact, severe ocular trauma.

The APOTS Symposium: COVID-19 and **Ophthalmic Trauma: Lessons Learned** and the Way Forward featured this rather unfortunate man from India, and as you can imagine, the session was full of terrific talk about trauma. The primary purpose of this event was to examine how COVID-19 has affected ophthalmic trauma, and the ways in which ophthalmologists have pushed back to maintain care and medical education during the pandemic. However, it also threw up some fascinating

details about rare cases of ocular trauma that have occurred over the last 18 months.

Dr. Rajendra Maurya, an associate professor and head of the oncology and trauma unit at Banaras Hindu University (Varanasi, India), was the doctor who reported on the "teddy bear" trauma. His presentation, Unusual Trauma Patterns in the COVID Period, highlighted some of the more unusual cases he

encountered during the pandemic. This included the aforementioned bear attack, which involved extensive, bone-deep laceration of the scalp and oculofacial region, and multiple displaced orbital plates.

As people were less likely to venture into the woods, or anywhere else for that matter, during the COVID-19 pandemic, Dr. Maurya noted a distinct change in ocular trauma incidents at his unit. One case involved a small child who, no doubt bored stiff by the lockdowns, had taken to playing his mobile games constantly, until the point where the device exploded (!!!). This caused a loss of vision in the right eye, burns, traumatic amputation of the hand, and

lacerations of the upper eyelid and cornea.

Other unusual injuries that occurred included: a girl who had a fish hook inserted into her right eye (which was removed with no ocular damage); an elderly man who was kicked in the eye by a cow; and a 10-year-old boy who fell from a roof and impaled himself in the left eye - he survived, but the eye required removal. Dr. Maurya's take-home message from his presentation was to emphasize that delayed reporting and late treatment significantly diminished patient outcomes in all the cases he encountered. He also said that trauma causes are much more likely to be domestic in nature, involving livestock, household accidents, domestic abuse and physical assaults.

Dr. Maurya's presentation is absolutely fascinating, and if you want to learn more about ocular trauma, it deserves your time. As do the other presentations in this symposium, which will be available to view on-demand. In the meantime, if you go down to the woods today, make a lot of noise — it scares the bears away.

The Wild West of Glaucoma Treatments

ith the rise of minimally invasive glaucoma surgery (MIGS), the landscape of glaucoma treatment is rapidly changing. Although trabeculectomy is still considered the gold standard, surgeons now have more options than ever before to help increase aqueous outflow, decrease intraocular pressure (IOP) and preserve vision in the safest and most efficacious manner possible.

During a World Glaucoma Association (WGA) symposium on Day 5 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), renowned glaucoma experts shared their insights on trabeculectomy, as well as the different MIGS devices and procedures currently available.

Holding strong with trabeculectomy

According to the WGA consensus statement, trabeculectomy is the incisional procedure of choice in previously unoperated eyes and it has better and more sustained IOP-lowering effect than non-penetrating procedures.

However, it is a high risk and high maintenance surgery, according to Dr.

Tanuj Dada, from the All India Institute of Medical Sciences (AIIMS), New Delhi. "The problem with trabeculectomy or any glaucoma surgery is that there is an inherent paradox because you are injuring the eye," he said. "The critical issue in trabeculectomy is to modulate wound healing and early recognition and treatment of complications."

To avoid complications, Dr. Dada suggests the following: avoid high risk situations; prescribe preoperative topical steroids; avoid superior rectus traction suture; do not give a subconjunctival injection in the proposed bleb area; always make an anterior ostium; use an anterior chamber maintainer, releasable or adjustable sutures, and potentially inject sodium hyaluronate (10bmg/ml); make a deep scleral pocket; and use low-dose MMC (0.1-0.2 mg/ml for 2-3 minutes).

Move over for MIGS

As the specialist who coined the term "MIGS", when Dr. Ike Ahmed talks about these minimally invasive procedures, we tend to listen. He opened his presentation by asking the simple, yet poignant question: Why do people (still) go blind from glaucoma? "One of the reasons glaucoma still causes blindness (among many reasons) is that we still treat glaucoma improperly. This can be due to difficulty in assessment, difficulty in addressing adherence and underdiagnosis," shared Dr. Ahmed.

He noted that although topical eye drops are still the mainstay, they pose both adherence and quality of life issues. "Surgery, while the gold standard, is a reasonable option but it's not something that most glaucoma specialists or ophthalmologists are willing to expose their patients to in all spectrums of glaucoma," he said. "And I think doing things the way we've always been doing things and developing standards that are perhaps older thinking, are things we need to reconsider."

Therefore, Dr. Ahmed suggests that "we need to think about glaucoma populations differently."

He continued: "If the only surgery you do is trabeculectomy, I will submit my hypothesis that in 2021, I would think again. If you're not doing some MIGS, then you're missing out on an important option for some patients — not for every patient." Dr. Ahmed explained that interventional glaucoma is predicated on safer options, addressing adherence, doing things earlier, and balancing safety and efficacy — and this is where MIGS was developed. "However, most MIGS procedures were not designed to replace trabeculectomy and any such comparison is inappropriate because that is not the role of most MIGS procedures."

MIGS outflow targets

Schlemm's Canal or Trabecular Meshwork MIGS

"The rationale for using trabecular bypass is that in open-angle glaucoma, the primary site of aqueous outflow is at the trabecular level," began Dr. Ricardo Guedes, from the Paletta Guedes Eye Institute in Brazil.

With these procedures, he noted that better results (medication-free outcomes) are achieved when it's used as a replacement therapy for medications, rather than after a medical therapy failure, and in more mild cases.

"Results confirm their safety and efficacy

even in more severe cases, taking into consideration that we are offering a procedure that gives a better quality of life that will lower the IOP," said Dr. Guedes.

Subconjunctival

In recent years, new subconjunctival MIGS devices have emerged, including the XEN implant (Allergan, an AbbVie company, Dublin, Ireland) and Preserflo (Santen, Osaka, Japan) microshunt both of which are only approved for POAG, said A/Prof. Chelvin Sng, from the National University of Singapore.

"Subconjuntival MIGS devices are potentially capable of achieving lower IOP compared with trabecular bypass procedures — and though subconjunctival MIGS devices are associated with fewer complications compared with trabeculectomy, blebrelated infection is still a potential concern," she concluded.

Superciliary

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"The superciliary approach is one of the last frontiers that is not fully utilized in glaucoma surgery, at least not up to now," began Prof. Tarek Shaarawy, from Geneva University Hospitals, Switzerland, adding that it's become a bit like the Wild West — not only in general glaucoma surgery, but also in the superciliary and suprachoroidal approach.

He then shared the devices associated with both ab externo and ab interno approaches. "We had an ab interno approach that seemed to be very effective with the CyPass ... but now, we're looking at the iStent Supra (Glaukos, California, USA) and the MINIject (iStar Medical, Wavre, Belgium)," said Prof. Shaarawy, later explaining that the CyPass was pulled by Alcon (Geneva, Switzerland) due to endothelial cell loss.

Now, he says, a lot of hope relies on the iStent Supra. However, the question remains: Why would the nightmare of CyPass not be repeated with the iStent Supra? "Well, we don't know and we hope this will be different ... we still want to know what is going to happen. If you look at clinicaltrials.gov there is an ongoing trial that started in October 2011 and we eagerly wait for those results," he concluded.

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