

Meeting Reporter

2017 ASCRS-ASOA Symposium & Congress
Los Angeles • May 5-9, 2017

VIDEO REPORTER

Reporting live from the 2017 ASCRS-ASOA Symposium & Congress • Los Angeles • May 5-9, 2017

- Boris Malyugin, MD, PhD, Moscow, Russia, discusses the development of tools and techniques to manage small pupils during cataract surgery
- Amar Agarwal, MD, Chennai, India, shows his technique of Single pass Four Throw (SFT) pupilloplasty
- Christopher Starr, MD, New York, discusses results of his study of advanced diagnostics for patients undergoing cataract surgery
- Zachary Zavodni, MD, Salt Lake City, discusses results of his study on outcomes of surgical and medical management of retained lens fragments



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Meeting Reporter

Reporting live from ASCRS Cornea Day, Refractive Day, and Glaucoma Day, in Los Angeles, Friday, May 5, 2017

Friday's programming featured several subspecialty days, highlighting glaucoma, cornea, and refractive topics.

Stephen A. Obstbaum lecturer describes the future of 24/7 IOP monitoring

A highlight of Friday's ASCRS Glaucoma Day was the 2017 **Stephen A. Obstbaum, MD**, Honored Lecture presented by **Marlene Moster, MD**, Philadelphia.

In his introduction, in addition to listing Dr. Moster's dozens of professional accolades, **Douglas Rhee, MD**, Cleveland, program chair of Glaucoma Day, described her as someone he saw as "courageous, fearless ... and just a touch of great crazy—and I said, I wanted to be just like her."

Dr. Moster focused her presentation on "the holy grail," that being 24/7 IOP monitoring. How much does IOP fluctuate over the course of the day? Does it follow a pattern? Does it fluctuate at night? The questions continue and, as Dr. Moster put it, there is a lot we don't know. Studies have shown, at least, that IOP is higher at night.

"Generations of ophthalmologists have been trained to rely on single IOP measurements for the development of treatment target goals and evaluation of treatment strategies. Measuring IOP just once every 3 months doesn't cut it," Dr. Moster said. "So, what do we need to do? We need to measure pressure all the time, but how are we going to do this?"

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Triggerfish (Sensimed AG, Lausanne, Switzerland) was the first 24-hour monitoring system worn by the patient as a contact lens with wireless transmission of data to an antenna worn by the patient. Triggerfish doesn't measure IOP directly, rather changes in volume of the eye and other ocular biomechanical properties of the cornea. Dr. Moster presented several studies that have received valuable information using Triggerfish, but is the system design and its measurements, good enough? "Probably not, but it is certainly a start," Dr. Moster said, answering her own question. Dr. Moster said what the field needs is a sensor that measures pressure directly and does so through an internal, continuous device. Implants Ophthalmic Products GmbH (Hannover, Germany) is developing the wireless intraocular pressure transducer (WIT), which is placed after phaco in the capsular bag. The incision to implant this device is large—5.5 mm—initial inflammation occurs, and in a small study, all patients experienced pupillary distortion.

"If we're going to have something in the eye, I think we all understand, it has to fit perfectly ... and be small enough so that it makes sense and doesn't cause any inflammation," Dr. Moster said.

This is where she introduced a sensor in development by Qura (Medway, Massachusetts). This device is designed to be implantable for 24/7 IOP monitoring. It is powered wirelessly by the patient walking in proximity of a salt shaker-size pod for a few minutes at least once every 48 hours. The data is downloaded during this time as well.

Dr. Moster said researchers and engineers are currently working with the sensor in mouse eyes, which she noted is 5 μ l, 1/10th the volume of a single drop, significantly less than the human eye.

Dr. Moster envisioned this sensor being attached, for example, to a capsular tension ring or even a MIGS implant. If the latter, not only could the procedure lower pressure but the physician could accurately know, via the sensor's measurements, what happens with IOP moving forward. Taking it a step further, what if a drug delivery system were added to the sensor? Dr. Moster asked.

"If these devices were able to be combined with a drug delivery system that was attached to the static [MIGS] device, the intraocular pressure, when elevated, would be able to be responded to in real time," she said.

In other words, communication between the sensor on the MIGS implant with a pump could release nanoparticles of medication when IOP is elevated.

"Sensors will change the way everyone in this room will practice within the next few years. We will better understand glaucoma and better understand how we treat patients," Dr. Moster said. Following Dr. Moster's lecture was "Surgical Glaucoma Spotlight—Making Sense of the MIGS Revolution: A Practical Guide to the Surgical Treatment of Glaucoma." Presenters discussed trabecular microbypass, supraciliary microbypass, gonioscopy-assisted transluminal trabeculotomy (GATT)/ab-interno trabeculectomy, ab-interno canaloplasty, 360-degree goniotomy and the trabecular meshwork excision blade, and subconjunctival filtration systems, followed by several relevant case discussions.

Editor's note: Dr. Moster has financial interests with Qura.

Steinert Refractive Lecture

Refractive Day included the first Steinert Refractive Lecture, which was delivered by **Douglas Koch, MD**, Houston, regarding the challenges of IOL calculations with postop and ectatic corneas.

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Dr. Koch noted that current limitations have left surgeons making many assumptions about posterior corneal power. Surgeons can better factor in the posterior cornea by measuring it in very limited zones, extrapolating posterior corneal curvature using a population average of the posterior to the anterior, and using that to calculate total corneal cover.

However, there are atypical corneas—after refractive surgery, after keratoplasty, ectasia, and with toric IOLs—in which the extrapolation can cause larger errors.

Accurate measurement of the posterior cornea can be done with tomography—with Scheimpflug technology and with OCT devices—or directly with the Cassini LED topographer (i-Optics, The Hague, the Netherlands).

“The concept is you measure the posterior cornea on an elevation-based method, you add that to the anterior, and you get total corneal power,” Dr. Koch said.

Dr. Koch said as corneas get better—and less RK is used—then measures of the posterior cornea should improve.

Other continuing measurement challenges include patients with keratoconus, post-DSEK, and astigmatism.

“The steeper the front, the more the back counteracts it,” Dr. Koch said.

Editors’ note: Dr. Koch has financial interests with Alcon (Fort Worth, Texas), Johnson & Johnson Vision (Santa Ana, California), Bausch + Lomb (Bridgewater, New Jersey), Clarity (Pleasanton, California), and others.

Cornea Day features point-counterpoint discussions

Keith Walter, MD, Winston-Salem, North Carolina, and **Melissa Daluvoy, MD**, Durham, North Carolina, spoke on either side of “Fuchs’ Dystrophy and Cataract: Combined EK Triple vs. Staged Procedure.”

First, Dr. Walter argued for a combined procedure, which he said makes life easier for everyone.

Dr. Walter noted that when the cataract is done first, you make the patient’s vision worse either immediately or in the near future. You could also cause the patient unnecessary pain or an infection from ruptured bullae, he added.

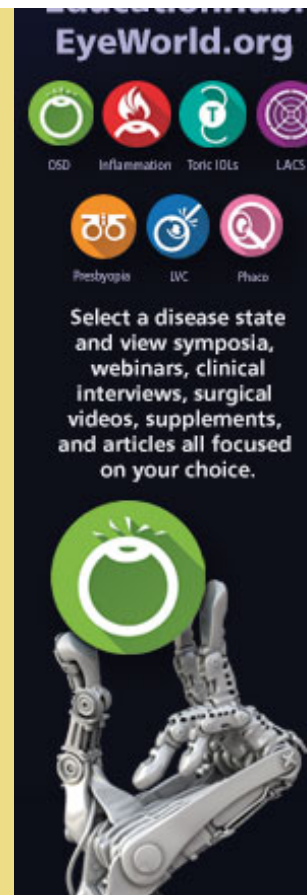
When Descemet’s stripping endothelial keratoplasty (DSEK) or Descemet’s membrane endothelial keratoplasty (DMEK) is done first, Dr. Walter said you aren’t doing the patient any favors with that either. This could still result in cataract formation and a risk for graft failure from the additional ultrasound trauma to the new graft.

However, Dr. Walter stressed that there are many advantages of combined procedures. Combining can save the patient and family an extra trip to the OR. There is also faster visual recovery with a combined procedure. Dr. Walter also noted that you can use the same incision for both procedures, you just have to slightly enlarge it. It’s easy to accomplish both procedures with minimal additional instrumentation or skill. It also saves OR time when combined versus two separate events, he added.

Dr. Walter then stressed a number of things to consider when combining procedures. First, he said it’s important to know how the view will be during surgery. Severe edema may obscure the view, he said. “You need to consider astigmatism management because the incision is a little larger,” he added. Accurate K’s and IOL selection are also important factors to consider. “You can keep the pupil dilated after the phaco,” Dr. Walter said, adding that the surgeon can easily plan for topical anesthesia for a combined procedure.

Meanwhile, Dr. Daluvoy argued that “less is more,” sharing her reasons for separate procedures. A staged procedure means less surgery time, less risk of IOL instability, less risk of DSEK/DMEK graft complications, less special positioning, and less risk of rejection, she said.

Maybe you just need cataract surgery, Dr. Daluvoy said, adding that it’s possible to perform an “endothelial-friendly” cataract surgery. With no EK needed, this would mean no risk of rebubbling and no risk of rejection, she said.



rebubbling and no risk of rejection, she said.

When you perform cataract surgery first, she said there are a number of advantages. Intraoperatively, you can perform the cataract in a normal fashion. The CCC sizing and capsular tears are less of an issue, and the IOL complex/AC is more stable. Postoperatively, Dr. Daluvoy said that there is no special positioning required and no risk of graft detachment. The patient may be happy with their vision as well, she said.

Meanwhile, some patients may only need an EK procedure. Intraoperatively, there is less pupil management required and less likelihood of leaky paracentesis incisions. Postoperatively, there is lower risk of graft dislocation and low risk for subsequent CE. Additionally, a clear cornea and known refractive error can help ensure more accurate IOL choices. Accommodation can also be preserved and there may be better quality of vision, Dr. Daluvoy said.

To conclude, she again stressed the "less is more."

Editors' note: Dr. Walter has financial interests with SightLife (Seattle). Dr. Daluvoy has no relevant financial interests.

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