Suture-free PCL causes no intra-operative trauma.

Stefanie Petrou Binder MD in Potsdam

A SUTURE-FREE posterior chamber lens offers a stable hold in highly traumatised eyes, where conventional scleral-sutured IOLs would fail, according to Annette Kutschan MD, an eye surgeon at the Asklepios Klinik in Hamburg, Germany.

“This lens provides a viable option as a secondary implant and a recommendable alternative to suture-fixed posterior chamber lenses. It can be implanted in severely traumatic eyes without causing any additional intra-operative trauma and assumes a stable position in spite of aphakia,” she said.

Dr Kutschan reported on her experience with the Binderflex II sutureless PCL (IO LUTIO N, Itzeelho, Germany) at the 21st Congress of the DGII (German-Speaking Society for Intraocular Lens Implantation and Refractive Surgery).

Dr Kutschan implanted the Binderflex II one-piece, foldable, acrylic posterior chamber lens in 15 highly complicated eyes. All but one of the 15 eyes had multiple surgeries and most had at least one of the following: aphakia with congenital cataract, nystagmus and amblyopia; aphakia with multiple vitre-retinal surgery; endophthalmitis; explantation with oil; spontaneous luxation of scleral-sutured lenses; anterior chamber lens explantation with removal of lens and capsule remnants from the anterior and posterior eye segments; and posterior chamber lens removal from vitreous body.

She was able to implant the lens in 14 of 15 eyes. In one eye, retropupillary synechiae in a case with heavy trauma snagged the haptic anchor causing it to rip off. In another eye, although stably fixed at last, posterior synechiae kept the haptics from lodging properly in the ciliary sulcus. Thoroughly clearing away the retro-iridial area of fibrotic tissue, synechiae, and of lens and capsule remnants in eyes damaged by trauma is an important step in the surgical process with this lens, according to Helmut Binder MD, who invented and designed the Binderflex lens.

“Fibrotic tissue has to be meticulously sectioned and removed, with particular attention to debridement as far as the peripheral retro-iridal areas, where the iridotomies are placed and the haptic anchors buttoned-in. Fine debridement is a pre-requisite for the secondary implantation of this and any other device, whether, spontaneous, post-traumatic or PEX related,” said Dr Binder, who has implanted seven Binderflex lenses himself, also in severely traumatic, pre-operated eyes.

He added that filling the retro-iridial space with a viscoelastic substance such as Methocel helps create space for the implantation and allows the IOL to glide more easily.

Dr Kutschan used a clear corneal cut to implant the Binderflex lens (6.0mm optic diameter, 15.0mm long haptics). She explained that along with the benefits of minimally invasive surgery, the advantage of this lens was that it was stabilised in two different parts of the eye, by two specially designed IOL features. The extra-long haptics extend through and get supported in the ciliary sulcus, the haptic ends (anchors) button through peripheral iridotomies, fastening the device in place.

As a posterior chamber lens, this device causes no lontedonesis, Dr Kutschan noted. It can be implanted through a clear cornea incision, even in eyes with a scarred sclera and, unlike iris claw lenses, does not affect the pupil in any way. On the other hand, she noted that in four cases the IOL optic lay too far back in the retro-iridial space, which meant a slight additional visual correction for these patients.

Torsional handpiece proves safe and efficient complement to micro coaxial phaco

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that AquaLase and O.Z.l both underscored the trend towards gentler, more targeted energy being delivered into the eye.

As a new cataract removal modality on the Infini Vision System, O.Z.l incorporates a combination of handpiece, hardware and software enhancements. By using ultrasonic oscillations of an angled or curved needle, torsional phacoemulsification dramatically alters both the energy profile of the tip and the reaction of the lens material contacted by the vibrating needle. Unlike traditional ultrasound, there is no forward and backward movement of the tip with torsional ultrasound. In the torsional mode, the handpiece oscillates from side to side at about 32,000 times per second. These oscillations are much faster and because they happen at a lower frequency than longitudinal phaco, there are 20 per cent energy savings and less risk of thermal burn.

Low energy vs. hard cataracts

The side-to-side motion of the O.Z.l handpiece shears off nucleus pieces without repelling them, thereby eliminating ‘chatter’ or repulsion and improving followability. Even with dense nuclei, the low energy released into the eye enables the surgeon to maintain minimal turbulence in the anterior chamber, said Dr Weiser.

With O.Z.l there is greater control and safety of the entire phacoemulsification, with a stable anterior chamber, better retention of viscoelastic, and therefore greater protection of the endothelium, and better overall use of energy into the eye. We are able to use reduced aspiration rates and continuous mode without risk of corneal burn, he added.

Dr Weiser noted that using a Kelman mini-flared tip enables maximum cutting efficiency with torsional phaco. The reduced angulation of the tip allows for good visualisation during the surgery; and the geometry of the curved tip used in a side-to-side displacement generates more efficient cutting and reduced heat production at the incision site.

Looking to the future, Dr Weiser said he was convinced that there will be a continuous effort for further innovation in ultrasound and fluidics to deliver safe and non-distorted true sub 2.0mm incisions, resulting in surgery that is more atraumatic for the patient.

“Micro coaxial phaco with torsional ultrasound is extremely effective, very safe and is the perfect match for these micro-incisions. We will continue to see improvements in technology, with reduced need for BSS, less energy delivered into the eye and the evolution of new injector devices and D-cartridges for delivery of the new generation of implants coming on stream,” he said.

weisermann@bih.com