Suture-free PCL causes no intra-operative trauma

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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-fixated 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 (IOLUTION, Itzehoe, 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 vitreo-retinal surgery; endophthalmitis; explantation with oil surgery; 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 fixated at last, posterior synechiae kept the haptics from lodging properly in the ciliary sulcus.

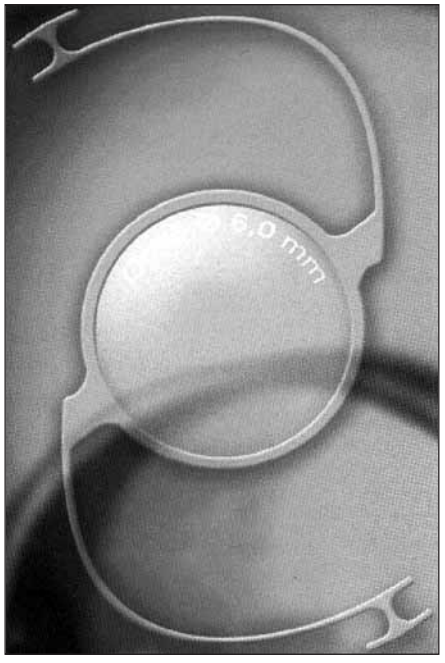
Thoroughly clearing away the retro-iridial area of fibrotic tissue, synechiae, and of lens and capsule remnants in eyes damaged by trauma is an important step in the surgical process with this lens, according to Helmut Binder MD, who invented and designed the Binderflex lens.

"Fibrotic tissue has to be meticulously sectioned and removed, with particular attention to debridement as far as the peripheral retro-iridial 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 Methocele 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. While 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 lentodonesis, 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 retropupillary space, which meant a slight additional visual correction for these patients.



BINDERflex PCL

While the haptic anchors were visible on the eye's surface and sure to be in place, Christopher Wirbelauer MD noted that using ultrasound biomicroscopy to check the haptic position within the sulcus would give certainty as to their position. Peter Rieck MD added that in some cases, the haptic does lose contact with the sulcus, due to the posterior position of the optic and the overall flexibility of the device. The lens company, IOLUTION, is working on making changes in haptic angulation and on strengthening the haptic-optic transition area, as a means of correcting the optic position, he said.

Dr Kutschan explained that although she had investigated the haptic position in one case with UBM, it was evident once the haptic anchors were buttoned into place that the haptic arms glided peripherally into position. She observed that other important surgical factors related to the learning curve for the special technique and making iridotomies that were not too large, so that the anchors do not slip out. Clearing out the retro-iridial area, while of utmost importance, plays a role in scleral-sutured lens surgery, too, and was therefore not particular to this technique only, she noted.

In her attempt to replace scleral suture IOL fixation with this new technique, Dr Kutschan was pleased to be able to avoid a number of frequent intra-operative complications, such as bleeding, trauma to the ciliary body due to transscleral puncture, long operation times, and a complicated operative technique, in particular in patients with previous IC surgery or multiple retinal/vitreous procedures. Eyes with multiple operations or trauma that require scleral tunnel surgery have problems because the sclera is often quite scarred, and a PMMA lens will frequently not fit through the tunnel, she explained. Also, postoperative complications such as hypotony due to insufficient scleral tunnel, vitreous bleeding, suture erosion, and spontaneous, late luxations are seen with scleral-sutured lenses.

She noted that iris fixation with iris claw lenses had special indications, but also went along with particular complications, like luxation into the vitreous body, interference with mydriasis, pupil distortion, lentodonesis, pigment distortions of the iris, and prostaglandin release (cystoid macular oedema). The Binderflex offered a very stable IOL with none of these complications, she said.

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