Location of intraocular lens sutures at optic–haptic junction in scleral fixation technique

Veritti et al. described a promising new technique for scleral fixation of the foldable intraocular lens (IOL) through a 1.80 mm corneal incision that provided excellent IOL stability.1

In their technique, they used the single-piece hydrophobic acrylic foldable IOL (enVista MX60, Bausch & Lomb, Inc.) of which the eyelets located at the junction of the optic and C-loop haptics can be used for suture placement, and inserted the IOL with an injector system through a 1.80 mm corneal incision.

The authors suggested the obvious advantage of this technique is that it can reduce astigmatism with less complication and greater IOL stability owing to small corneal incision. Another advantage of this technique is that the sutures are located on the IOL eyelets at the junction of the optic and haptics.

We have historically conducted scleral suture fixation of IOLs at one third of the end of each haptic (or premade hole in the haptic) and then insert it in the sulcus with or without optic capture.2 This technique, with a modification to the location of IOL sutures at the optic–haptic junction, make it possible to insert the IOL in the bag with the haptic sutured (with opposite ends of Prolene sutures fixated through the sclera) (Figure 1). In case of zonular deficiency, such as pseudoexfoliation syndrome, previous vitreoretinal surgery, a history of trauma, long axial length, and uveitis, this can help prevent late IOL–bag dislocation.3

The location of sutures on the IOL haptic nearer to the optic–haptic junction can facilitate easy insertion of the IOL into the bag. It is recommended to make the anterior continuous curvilinear capsulotomy larger than the optic size of a commercial IOL, which is usually 6.0 mm or less, so the fixation knot point on the haptic will be minimally affected by the capsulorhexis margin.

There are 2 additional advantages of this modification of suture location on the IOL eyelets at the optic–haptic junction. First, locating sutures close to the optic–haptic junction can add more geometric stability than the historical one third of haptic location.4 Second, using this haptic suture location with scleral fixation, we can insert the IOL easily in the bag. In cases of zonular deficiency, IOL insertion in the bag with haptic sutures can preserve anatomical stability of the IOL–capsular bag complex (both optic and haptics in the bag), which can prevent total capsular phimosis or bag shrinkage because of an absence of the IOL haptics in the bag.6 This improves IOL–capsular bag complex stability without additional endocapsular supporting devices, such as modified capsular tension rings and capsular anchoring devices.

Figure 1. The knot on the haptic is made nearer to the optic–haptic junction (eyelet), which allows the intraocular lens to locate into the bag through the large anterior continuous curvilinear capsulotomy.

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Disclosures: None of the authors has a financial or proprietary interest in any material or method mentioned.

Reply: We thank Cho et al. for their comments on our proposed technique for IOL scleral fixation through a small corneal incision. The aim of our study was to describe a new scleral fixation technique of a single-piece acrylic foldable intraocular lens (IOL) (enVista MX60, Bausch & Lomb, Inc.) through a 1.80 mm corneal incision, using the IOL eyelets as anchoring point.1 In the past, we have used a technique similar to that described by Cho et al. for implanting IOLs into an unstable capsular bag due to zonular laxity or dehiscence.2 Differing from these authors, we used to perform trans-saccular IOL scleral fixation by suturing the haptic and passing the suture needle through the bag equator. Alternatively, as cited by Cho et al., we used modified capsular tension rings and capsular anchoring devices as proposed by Cionni and Osher (Cionni ring for scleral fixation,
Morcher GmbH.3 We do agree that the proposed technique is simpler and might result in less intraoperative complications with a better stability of the IOL—capsular bag complex.

Recently, we have adopted the newly released Carlevale IOL (FIL-SSF) in most cases of scleral fixation with or without capsular bag instability. This specific foldable IOL can be inserted through a 2.2 mm corneal tunnel and is easily fixated to the sclera with excellent centration. The Carlevale IOL is a hydrophilic acrylic IOL with 4 points of scleral sulcus counterpressure and T-shaped harpoons protruding off the closed haptics to allow self-anchoring on the sclera without the need for sutures. This IOL is 13.2 mm long, and the optic plate is 6.5 mm wide. Our surgical series with Carlevale IOL consists of 18 patients. Indications for surgery were IOL dislocation (12 cases [67%]), IOL exchange due to IOL opacification (5 cases [28%]), and secondary implant due to complicated cataract surgery (1 case [5%]). The mean ± SD age of patients was 81.3 ± 4.1 years. The mean preoperative corrected distance visual acuity was 0.69 ± 0.51 logarithm of the minimum angle of resolution (logMAR). After a mean follow-up of 9.3 ± 6.9 months, the mean corrected distance visual acuity improved by 2.6 Early Treatment Diabetic Retinopathy Study lines to 0.43 ± 0.48 logMAR (P = .001). We recorded 1 case (5.5%) of transient intraoperative bleeding in the anterior chamber. An optimal centration and stability of the IOL were observed in all cases. No cases of scleral or conjunctival erosion were observed. One case (5.5%) of transient intraocular pressure increase developed postoperatively.

We believe that new developments in surgical techniques and IOL design offer the ophthalmic surgeon a plethora of options, allowing safe and stable lens positioning in the absence of viable capsule remnants even in more complicated cases.—Daniele Veritti, MD, Lisa Grego, MD, Francesco Samassa, MD, Valentina Sarao, MD, Paolo Lanzetta, MD

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Infusion misdirection syndrome: preventive and management strategies

The article by Anisimova et al. presents optical coherence tomography findings demonstrating the accumulation of infusion fluid between the posterior capsule (PC) and anterior hyaloid membrane during phacoemulsification.1 The authors proposed a “new classification of infusion misdirection syndrome to explain the intraoperative process.” Subsequently, there was an exchange in the letters to the editors section between Gryzbowski and Kanclerz and 2 of the authors of the original article concerning the appropriate terminology for the condition.2

Infusion misdirection syndrome (IMS) was first reported, described, and named by me in 1990.3 In addition, drawings depicting the flow of infusion fluid through the zonule and into the retrocapsular space were published in the JCRS in 1993.4 IMS was also the subject of my article of June 1991 Phaco Tips, published in Ocular Surgery News.5 In these publications, I also described the appearance of lens “emulsate” and the clinical similarities to subchoroidal hemorrhage (SCH).

It is extremely important to consider SCH when forward movement of the PC occurs in the presence of normal or elevated intraocular pressure during cataract surgery. SCH can be annular in nature; this can be visually occult and, thereby, not interfere with the red reflex. If injection of ophthalmic viscosurgical device (OVD) fails to enable posterior repositioning of the PC (this is the usual development in IMS because the infusion fluid is redirected through the zonule and returns to the anterior chamber (AC), then the presence of SCH must be considered. In this situation, the procedure should be discontinued and examination of the posterior segment by ophthalmoscopy and/or ultrasonography is indicated to rule out this possibility.

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Reply: We thank Mackool for bringing to our attention his 1990 publication that describes the presence of IMS during phacoemulsification in patients with intact PC, when the fluid passes through the lax or even sometimes seemingly intact zonular fibers into the retrolenticular space.1 Anecdotally, the author observed the microscopic-size lens particles located behind the PC.