

Chapter 32

Scleral Suturing and Fixation of a Dislocated Intraocular Lens

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Abstract In the case of a symptomatic dislocated IOL secondary to trauma, poor capsule-zonular support, or zonulopathy, the surgeon is faced with choosing the appropriate strategy for visual rehabilitation. One of the techniques to improve visual acuity without the need for IOL explantation or exchange is scleral fixation of the dislocated IOL. This technique relies on the surgeon's ability to stabilize the IOL within the eye and provide a new fixation plane in lieu of the capsular support. When performed correctly, patients may experience excellent visual rehabilitation without the added risk of IOL explantation, large corneal incisions, or extended surgical time.

Keywords Dislocated IOL • Traumatic IOL dislocation • Scleral fixation of IOL • IOL subluxation • Zonulopathy • Pseudoexfoliation

Indications

Patients with poor capsulo-zonular support, corneal decompensation due to ACIOL, and IOL subluxation.

Essential Steps

1. Topical anesthetic
2. Placement of speculum
3. Paracentesis incisions
4. Viscoelastic injection into the AC
5. Iris retraction and visualization of IOL
6. Conjunctival peritomy at appropriate fixation sites
7. Scleral scratch incision
8. Docking needle entry in scleral scratch incision

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9. Passage of double-armed needle above and below haptic, docked and brought through sclera
10. Ab externo suture tying
11. Suture trimming and rotation into scleral groove
12. Miochol-E injection into the AC
13. Anterior vitrectomy
14. Stromal hydration

Complications

- Lens dislocation or decentration
- Hyphema
- Vitreous hemorrhage
- Corneal edema
- Elevated IOP
- Hypotony
- Uveitis
- Endophthalmitis
- Cystoid macular edema (CME)
- Suture exposure
- Retinal detachment
- Ptosis
- Choroidal detachment
- Scleral perforation
- Conjunctival/bleb fibrosis
- Suprachoroidal hemorrhage
- Dysphotopsias

Template Operative Dictation

Preoperative diagnosis: *Dislocated intraocular lens (OS/OD).*

Procedure: Scleral suturing and fixation of a dislocated intraocular lens (*OD/OS*).

Postoperative diagnosis: *Same.*

Indication: This is a ____-year-old *male/female* who had previously undergone cataract surgery approximately ____ (*weeks/months/years*) previously. Secondary to poor capsulo-zonular support and subsequent IOL subluxation, the patient was elected to undergo the procedure after a thorough discussion of options, risks, and benefits.

Description of the procedure: The patient was identified in the holding area, and the (*right/left*) eye was marked with a marking pen. The patient was brought into the OR on an eye stretcher in the supine position. 0.5% tetracaine was instilled into the

conjunctival fornices of the (*right/left*) eye. The (*right/left*) eye was prepped and draped in the usual sterile fashion and operating microscope centered over the (*right/left*) eye. The eyelid speculum was placed. A proper time-out was performed verifying correct patient, procedure, site, positioning, and special equipment prior to starting the case.

A 15° paracentesis blade was used to make two side port incisions, one superiorly temporally and one inferiorly temporally. The anterior chamber was then inflated with Viscoat and Provisc. A Kuglen hook was used to retract the iris and visualize the full extent of dislocation. The sites for fixation are then determined based on the location of the IOL and haptics. A conjunctival peritomy was then performed using Westcott scissors and Colibri forceps overlying the area(s) of anticipated suturing of the intraocular lens. Hemostasis was achieved using bipolar electrocautery. A 4 mm scleral scratch incision was then made using a guarded mini-diamond blade, approximately 1 mm posterior to the scleral spur in a circumferential fashion in the areas of anticipated suturing.

A bent 26-gauge hypodermic needle was used to enter the eye perpendicularly on one side of the scleral scratch incision and subsequently passed straight through the capsular bag and under the haptic. One end of a *double-armed 9-0 polypropylene* suture on two long needles was placed through the (*superior/inferior*) paracentesis wound and into the barrel of the hypodermic (docking) needle. The needle with suture was then retracted from the eye. A second pass 2 mm adjacent to the previous entry site was made, with care taken to pass the needle anterior to the haptic, guided using a Kuglen hook as necessary. The second arm of the suture was placed into the docking needle and removed from the eye, thus creating a loop around the haptic.

If IOL support needed: (*An intraocular microforceps was used to grasp the IOL/ Modified flexible iris retractors were placed at the haptic-optic junction or capsulorhexis edge*) in order to support the severely dislocated IOL during suture passage.

If multi-point fixations was needed: *The second haptic was fixated in an identical manner 180° from the first one, except that the suture pass under the haptic is passed on the opposite side of the scratch incision of the initial one. The externalized suture was then tied using a slipknot to adjust tension and centration within the eye.*

The sutures were tied externally once the tension and centration of the IOL were deemed appropriate. The knot was trimmed and rotated into the scleral groove. Miochol-E was injected into the anterior chamber to successfully achieve intraoperative miosis.

If anterior vitrectomy was performed: *The vitreous cutter was placed into the superior/inferior paracentesis incision while the irrigation cannula was placed into the inferior/superior incision. An anterior vitrectomy was performed until all vitreous was cleared from the anterior chamber and wounds. Intracameral triamcinolone was injected as necessary to stain any remaining vitreous.*

Stromal hydration of the paracentesis incisions was performed, and the incisions were noted to be watertight (*and, if necessary, 10-0 nylon simple interrupted sutures were placed*). Conjunctiva was then reapproximated using # interrupted 10-0 Vicryl (*This is what we use; others use 9-0, 8-0 or 7-0 sutures*). The intraocular lens was found to be centered in position. The pupil was round and the anterior chamber was formed. Eyelid speculum and drape were removed. Maxitrol eye ointment was placed in the inferior fornix and a shield was placed over the eye. The patient was transferred to the post anesthesia care unit in stable condition.