



**SESSION: Techniques on Secondary IOL implantation/IOL Dislocations**

**DATE: September 1, 2023**

**HALL: HALL 1**

**TIME: 10.30-12.00**

**Moderators: Matteo Forlini, Levent Karabaş**

### **Lasso and other techniques for management of dislocated IOLs**

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IOLs dislocate in a bimodal fashion either early or late. Early dislocation following the surgery occurs due to posterior capsular dehiscence whereas a zonular dehiscence leads to a late dislocation often following trauma or chronic uveitis. Dislocated IOLs can pose unique challenges. This presentation focuses on several such unique situations. Several techniques are illustrated using videos. Lasso technique is shown where a completely internal refixation of the IOL is done without externalizing the IOL. A 10-0 prolene suture is fashioned into lasso loops which are passed around the haptics of the IOL in the vitreous cavity using bimanual technique. A cow-hitch technique using Gore Tex suture is also shown for dislocated IOLs. In the bag dislocation where the entire IOL -capsular bag complex dislocates requires a different approach. Here the needle of the prolene suture can be passed through the capsular bag and the entire complex can be refixed without externalizing or dissecting. A dislocated scleral fixated IOL with eyelets on the haptics can be refixed using Gore Tex suture in a 4 point fixation. All these techniques are shown in videos.

## Visual and refractive outcomes of an opacified multifocal intraocular lens exchange. Can the bag be trusted?

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### Purpose:

To assess the visual, refractive and safety outcomes of an opacified multifocal intraocular lens (IOL) exchange using two different secondary IOL implant techniques.

### Methods:

Consecutive retrospective series of 88 eyes (82 patients) with opacified multifocal IOL underwent IOL exchange between March 2017 and April 2022 carried out by a single surgeon in two centres. Outcome measures included are mean postoperative best corrected visual acuity (BCVA), refractive accuracy, intraoperative and postoperative complications. All patients received monofocal IOL either implanted in the capsular bag or using scleral haptic fixation (SHF) lens using Modified Yamane Technique in case of capsular bag instability.

### Results:

88 eyes in 82 patients underwent explant of an opacified Lentis Mplus multifocal IOL. The mean interval after the primary surgery was 8 years. 59 eyes (67%) went on to have SHF lens whilst 29 eyes (33%) had their secondary IOL implanted in the bag. All patients in the SHF group had combined pars plana vitrectomy done. The mean BCVA postoperatively in the SHF group was 76 ±12 ETDRS letters and 78 ±6 ETDRS Letters in the capsular bag implanted IOL group. The mean predicted refractive error for the SHF group was 0.56D ±0.9D and -0.008D ±0.7D in the capsular bag implanted IOL group. Mean follow up duration was 10 months in the SHF group and 4.8 months in the capsular bag group.

The most common encountered post-operative complication was CMO 11/59 18% in the SHF group. No other significant differences in complication rates between both groups.

### Conclusion:

The secondary IOL choice in cases of opacified multifocal IOL largely determined by the integrity of the capsular bag. Where the capsular bag is compromised, SHF lens represent an effective and safe method. Both groups achieved improvement in their visual activity with low intraoperative and postoperative complication rates.

## **Scleral Bridge IOL: A novel technique for IOL fixation in aphakia without capsular support**

Hany Hamza

Kasr Elainy School of Medicine Cairo University Egypt

This novel technique presents a cutting-edge approach to implanting a three-piece IOL, utilizing the sclera as a bridge to support the haptics. By externalizing the haptic through one sclerotomy and reintroducing it through another, with the sclera acting as a supportive bridge for the lens, this technique offers a host of benefits. It boasts simplicity and ease of learning, as well as the unique ability to adjust lens position post-implantation, setting it apart from other techniques. Furthermore, this technique could serve as an alternative solution for correcting aphakia, complementing the Yamani technique and Carlavale lens, which may not be universally available.

## **Intravitreal needle technique for intrascleral haptic fixation of posteriorly dislocated three-piece intraocular lenses**

Tansu Erakgun

Kaşkaloğlu Göz Hastanesi, İzmir

### **Purpose:**

Double-needle intrascleral haptic fixation (Yamane) technique is a minimally invasive method for posterior chamber intraocular lens (IOL) fixation in the setting of absent or inadequate capsule support. A modified intravitreal needle technique is herein described for the management of three piece IOLs which are dislocated into the vitreous cavity.

### **Methods:**

In this technique, after completing pars plana vitrectomy, under the noncontact ophthalmomicroscope, the haptic of the dislocated IOL is docked directly in the vitreous cavity into a 27-G needle which is inserted through a transconjunctival tunneled scleral incision 2 mm. from the corneal limbus, and externalized from the conjunctiva and fixated sclerally.

### **Results:**

The technique is described with a case series of 12 patients. No preoperative or postoperative complication was seen.

### **Conclusion:**

In this technique, the dislocated IOL is not taken in the anterior segment before the scleral fixation. The haptics are threaded into the 27-G needle directly in the vitreous cavity during the vitrectomy. This is a short cut Yamane technique for posteriorly dislocated three-piece IOLs. This technique may shorten the surgical time and minimize surgical trauma in cases with posteriorly dislocated three-piece IOL.

## **Retropupillary Iris-Claw lens Implantation in Aphakic eyes: Technique and Tips**

Wael Ahmed Ewais

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I will describe – step by step- the surgical technique for retropupillary iris claw lens implantation in Aphakic eyes:

- Insertion of infusion tube
- Main clear corneal keratome incision
- Side ports
- Intraocular lens (IOL) check and insertion
- Enclavation of the IOL
- Closure of main incision

I will demonstrate indications for Iris-Claw lens Implantation in Aphakic eyes

I will demonstrate possibilities of further surgeries (if needed) with an implanted IOL

## **IOL exchange using Iris-Claw IOLs**

Matteo Forlini

Matteo Forlini, Department of Ophthalmology, San Marino State Hospital, Republic of San Marino

In this presentation I'm showing how to manage complex cases of IOL exchange using Artisan Iris-Claw IOL implantation. Most of cases present IOL subluxation in posterior chamber, or complete IOL luxation in vitreous chamber, as well as IOL opacification: all these different scenarios can require IOL removal with a secondary IOL implantation. In our experience, secondary IOL implantation with Iris-Claw IOL represents a safe and fast procedure, with low risks of complication, and good functional results.

## **Gore-Tex scleral fixed intraocular lenses refractive results**

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Background: Although visual and safety results of scleral IOL fixation with Gore-Tex suture are favourable, little is known about the refractive results. For scleral fixated IOLs, the following has been assumed: a position inside the lens bag to calculate its power. But there is no evidence that supports this.

These surgeries represent a challenge due to a unique anatomical position, determined by the location of the suture in the sclera. For any lens with a power greater than 5 diopters, its position with respect to the eye affects optical correction. For this reason, the exact IOL position must be known, to be able to adjust the power of the lens preoperatively.

Using a formula taking into account a focal length change, it could give more accurate refractive results. A 2 mm posterior to the limbus IOL placement, will cause an IOL focal length backward displacement; so using this new focal distance as a factor in the calculation formula, will dampen the refractive result, resembling to the target chosen pre-surgically.

Material-Methods: Prospective, surgical case series at Hospital de la Luz, Retina Department in Mexico City. Fixation of an Akreos A060 lens to the sclera with an 8-0 Gore-Tex suture was done in each patient. Four sclerotomies at 2 mm posterior to the corneoscleral limbus were placed. One side 2 Sclerotomies were separated from each other by 4 mm. The spherical equivalent obtained post-surgically will be compared vs the refractive target chosen for the calculation of the lens in the bag.

Results: 11 eyes were included. The average sphere target was -0.27, and our postoperative sphere was 0.15. However, if we look at the postoperative cylinder, an average of -1.9 was obtained. When assessing keratometric astigmatism, we saw that an average of -2.09 was induced according to the Warren Hill calculation

## Comparison of two sutureless techniques of scleral fixation of intraocular lens in surgical aphakia

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**Aim:** To compare the anatomical and clinical outcomes, and complications of two different sutureless scleral fixation of intraocular lens implantation (SFIOL) techniques, that is, Yamane's flanged SFIOL technique and Canabrava's four-flanged SFIOL technique.

**Materials-Methods:** Thirty-two eyes of 32 patients who presented with aphakia due to the complicated cataract surgery and/or mechanical complications of IOL and underwent SFIOL with more than 6 months of follow-up were examined retrospectively. Group 1 (n=19) consisted of patients underwent flanged SFIOL using the Yamane technique; group 2 (n=13) consisted of patients underwent four-flanged SFIOL using the Canabrava technique. Improvement in logMAR visual acuity (VA), postoperative spherical equivalent (SE) and cylindrical refraction, IOL centration on slit-lamp biomicroscopy, complications, presence of dysphotopsia, and topographical aberrations were compared at 6 months follow-up.

**Results:** The indications for surgery were aphakia (n = 14), dislocated/subluxated IOL (n = 16) and aphakia accompanying with retinal detachment (n=2). The mean postoperative logMAR VA were  $0.6\pm 0.7$  and  $0.6\pm 0.5$  in group 1 and group 2, respectively ( $p=0.8$ ). In both groups, VA was above 0.3 logMAR only in one third of the cases. The mean postoperative SE was  $0.0\pm 2.7$  D in group 1,  $0.2\pm 1.3$  D in group 2 ( $p=0.8$ ). The mean postoperative cylindrical refraction was  $-3.0\pm 1.8$  D in group 1,  $-2.6\pm 2.4$  D in group 2 ( $p=0.6$ ). Postoperative transient corneal edema was seen in 4 (21%) eyes of group 1, mild IOL decentration was seen in 2 (15.3%) eyes of group 2. Positive dysphotopsia was seen in 3 (15.7%) eyes of group 1 and 4 (30.7%) eyes of group 2. No cases of hypotony, conjunctival erosion, haptic exposure or endophthalmitis were encountered throughout the follow-up.

**Discussion:** In our small study cohort, both sutureless flanged IOL fixation techniques considered to be resulted in good visual rehabilitation and IOL centration in patients with previous complicated surgery.



## **Double rectangular scleral mesh (DRSM) for severely subluxated/Dislocated IOLs: A closed vitrectomy approach**

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**Introduction:** severely subluxated and dislocated IOLs months to years following IOL implantation represent a challenging entity. We present a new technique of ab interno approach to replace the IOLs in the sulcus following PPV.

**Materials-Methods:** 6 cases of severely subluxated/dislocated IOLs are presented. Age range from 8-60 years. All cases were myope with no capsular support. Fashioning of a double rectangular scleral mesh was done on an intact eyeball before placing the sclerectomies. PPV was performed and the IOL was replaced and tethered onto the scleral mesh in 5 cases. One IOL was exchanged as it was damaged.

**Results:** Mean follow up was 104 months. Visual acuity improved in all cases. IOLs were all centered in the sulcus onto the DRSM. Complications included transient ciliary body bleeding in 2 cases and IOL haptic rupture necessitating IOL replacement on the scleral mesh.

**Conclusion:** DRSM offered an adequate support for IOL replacement and placement under a closed system. This offers IOL stability

## **Dislocated intraocular lenses – Tips and tricks of removal, repositioning and exchange**

Neeraj Sanduja, Charu Malik, Arnoev Sanduja  
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Management options for posteriorly dislocated posterior chamber intraocular lenses include observation, removal, exchange, and repositioning. Many microsurgical techniques have been developed for repositioning posterior chamber implants. These include repositioning into the ciliary sulcus if adequate posterior capsule support present, iris fixation techniques, scleral fixation suturing techniques and suture less glued fixation techniques. The indications, timing, and techniques for intervention are reviewed in a series of 20 cases with posteriorly dislocated posterior chamber implants. Sutureless glued IOL technique was used in 16 cases with excellent IOL stability and minimal astigmatism. A final visual acuity of 20/40 or better was achieved in 17(85 %) cases.

## Yamane Technique Highlights and Our Conclusions

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**Purpose:** To describe our results of the Yamane technique and point out highlights in this technique.

**Method:** Yamane sutureless scleral fixation technique was applied to 21 patients with aphakic and intraocular lens dislocation or subluxation. Preoperative BCVA and postoperative 3rd month BCVAs of the patients were noted. In addition, the ages, axial lengths, and post-operative spheric equivalent values of all patients were evaluated retrospectively in the study.

**Results:** The indication distribution for surgery was aphakia in 14 patients, IOL dislocation in 5 patients, IOL subluxation in 2 patients. The mean age of the patients was  $64.1 \pm 18.3$  years. The mean axial length of the patients was  $23.1 \pm 1.6$  mm. The preoperative BCVA was  $0.1 \pm 0.05$  (Snellen). Postoperative BCVA was  $0.7 \pm 0.2$  (Snellen). The difference between preoperative and postoperative BCVAs was statistically significant ( $p < 0.05$ ). Postoperative mean spherical equivalent was  $-2.75 \pm 1.07$  D. A correlation was found between postoperative myopic spherical equivalents in patients with an axial length greater than 23 mm.

**Conclusion:** Yamane sutureless scleral fixation technique is a new secondary IOL surgery that is effective, fast, and has good short-term results. In this study, a tendency to postoperative myopic spherical equivalents was observed as the axial length increased. To apply scleral fixation 2.25 or 2.5 mm behind the limbus instead of 2 mm behind may prevent tendency to postoperative myopic spherical equivalent in patients with an axial length greater than 23 mm.

## Modified Yamane intrascleral haptic fixation results from a tertiary referral clinic

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**Purpose:** To assess the safety and success of sutureless intrascleral haptic fixation, Modified Yamane Intrascleral Haptic Fixation (MYIHF) technic in our clinic.

**Method:** Eighteen eyes of 18 patients who had MYIHF between January 2019 and June 2022 for aphakia and IOL dislocation were analyzed retrospectively. The main incision was made with a 2.8 mm blade, and an Eyecryl Plus Three Piece IOL was inserted in the posterior chamber. Two reciprocal scleral tunnels of 1.5 mm in length were created 1.5 mm away from the limbus with a 27 gauge needle. Then, IOL haptics were retrieved and externalized. The tip of the haptics was cauterized and buried in the scleral tunnels.

**Results:** The median (IQR) age was 65.5 (56.7–74.2). The mean follow-up time was 9.3±4.6 (range, 6–20) months. The mean preoperative, postoperative 1st, 3rd and 6th BCVA was 1.1±0.87, 0.83±0.89, 0.80±0.89, and 0.90±0.99 logMAR, respectively ( $p=0.04$ ). None of the patients had haptic exposure, tilted IOL, or unexpected astigmatism. Postoperative 6th month SE assessment showed 11 (61.1%) patients with less than ±0.50 dioptre, 2 (11.1%) patients between ±0.50 and ±1.00 dioptre, and 4 (22.2%) patients higher than ±1.00 dioptre. In the postoperative 1st month, none of the patients had ocular discomfort. In the postoperative six-month follow-up, 2 (11.1%) patients had pseudophakic macular edema, and 1 (5.6%) had branch retinal vein occlusion.

**Conclusion:** MYIHF has started taking a significant part in secondary IOL implantation due to its simplified technic, the less requirement of equipment, and time-saving advantages. Positioning the IOL is still challenging, but none of our patients had malpositioned IOL. MYIHF technic proves safety, adequate postoperative BCVA, and a well centralized IOL but requires long-term studies to replace sutured scleral fixation technics fully.

## **Results of 140 cases of IOL implantation with Yamane technique combined with pars plana vitrectomy**

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the aim of the presentation is to present the results of 140 consecutive cases of IOL implantation with Yamane technique combined with pars plana vitrectomy for various conditions, such as complicated cataract surgery, traumatic and/ or spontaneous crystalline lens dislocation in vitreous chamber, traumatic and/ or spontaneous crystalline lens dislocation in vitreous chamber. Anatomical and functional results were described, as well as intraoperative and postoperative complications.

## **A Novel Modified Flapless surgical Technique for sutureless scleral fixation of FIL SSF intraocular lens: a retrospective case series**

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### **Purpose**

To report two variations of a novel modified flapless surgical technique in patients who underwent implantation of Soleko FIL-SSF lens.

### **Methods**

Thirteen eyes of thirteen consecutive patients requiring secondary IOL implant were evaluated, with a three-month minimum follow up.

The variation to the standard surgical technique was represented by the creation of two 1/3 thickness scleral grooves, instead of the typical partial thickness scleral flaps. The two anchors of the FIL-SSF lens were positioned in the grooves, avoiding any exposure.

The conjunctival was closed with 8-0 vicryl suture or equivalent, making sure that the anchors were well covered.

### **Results**

Mean age of patients was  $70 \pm 14,8$  years, with average preoperative visual acuity of  $1,2 \pm 0,8$  LogMAR. No intraoperative complications occurred. Anatomical success was achieved in all patients. Three months after surgery, mean visual acuity was  $0,87 \pm 0,77$  LogMAR. Transient IOP elevation was reported in 3/13 (23,1%) patients and cystoid macular edema was observed in 1/13 (7,7%) patient during postoperative follow up. No other complications, such as conjunctival erosion, were reported.

### **Conclusion**

Flapless surgical technique for Soleko FIL-SSF IOL implantation has shown to be safe and effective as the standard technique, revealing shorter surgical time.

## **Carlevalle Scleral Fixated IOL. The Ultimate Solution**

Stratos Gotzaridis

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Since the introduction of PC IOLs there were papers presenting scleral fixation of IOLs in the absence of capsular support. During the years the techniques were improving to more efficient and sophisticated ones.

Since the introduction of the Carlevalle IOL in 2015. The Carlevalle IOL is the one and only labelled for the use of capsular absence. Also has great advantages in preventing of tilting and losing its stability