1:40 PM

No Glue Sutureless Scleral Fixation of IOL: A New, Simple, Reproducible Technique

- Subhendu Kumar Boral, MBBS, MD(AIIMS), DNB(OPHTHALMOLOGY)
- Arnab Das, MD

OBJECTIVE To find out a simple way for scleral fixation of IOL avoiding suture assisted or glue assisted way of relatively complicated lengthy technique of scleral fixation.

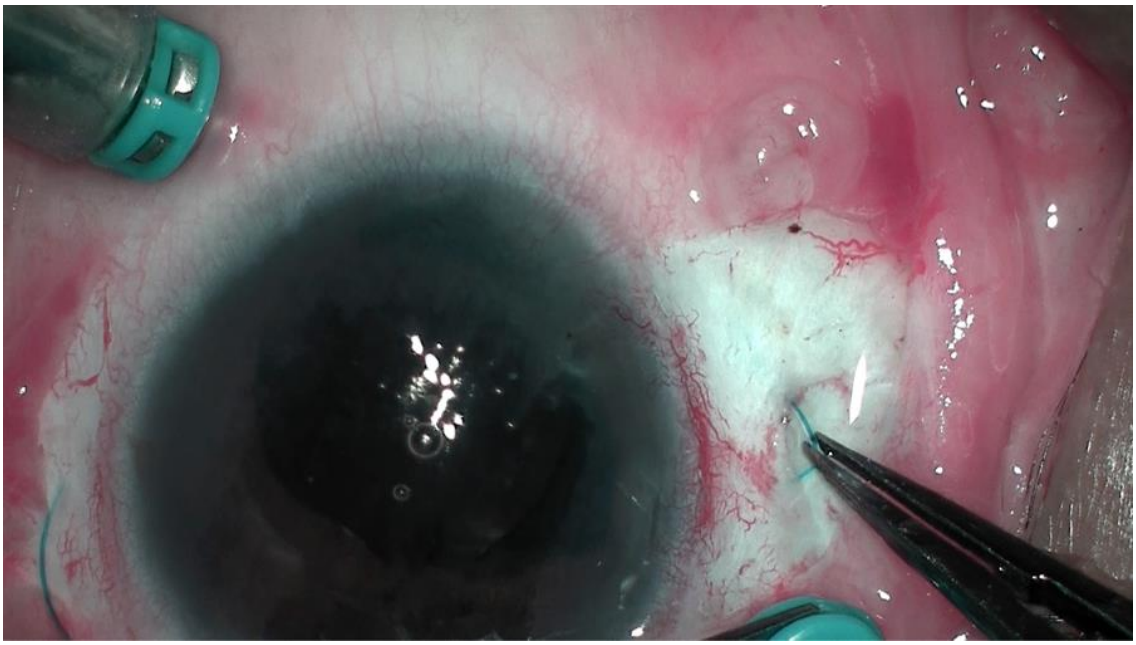
PURPOSE In presence of dislocated IOL, absent posterior capsule or subluxated cataract, a simple technique to fix IOL in sclera taken. The present study done to evaluate the outcome and viability of a simple technique for scleral fixation of IOL.

METHODS A retrospective study done taking all consecutive 32 cases where this new simple technique performed for scleral fixation of IOL in last three years. Two diagonally opposite paralimbal curved scleral pockets made 3mm away from limbus along with vitrectomy with other manoeuvres like IOL retrieval, cataract extraction etc. A multi piece IOL used for scleral fixation and the haptics were fixed under the scleral pockets inside a linear scleral tunnel underneath the superficial flap of the scleral pockets. Conjunctival apposition done with cautery. Post operatively anterior segment OCT (AS OCT) done to know the haptic positions by hyper reflective cross section of haptics within sclera.

RESULTS Functional improvements seen in all. Mean preoperative BCVA was LogMAR 1 ± 0.39 and post operative BCVA LogMAR 0.50 ± 0.27. IOL centration achieved in all with excellent stability without any significant torque or optic tilt (mean astigmatism

0.70 ± 0.41D Cyl). In AS OCT, cross section of haptic revealed its hyper reflective shadow signifying its stable intrascleral position. No immediate or delayed complication noted in 6 month follow up period.

CONCLUSION Scleral fixation of IOL is the choice of management in absence of posterior capsule support and compromised corneal endothelial. Self-sealing scleral pocket usually avoid the need of glue or suture. This new cost effective simple way of scleral fixation of IOL decrease the duration of surgery without any complication.



HEIDELBERG ENGINEERING

Patient:	Ray, Shivji	**DOB:**	01-Jan-1957	**Sex:**	M
Patient ID:	P0102108700	**Exam.:**	04-Jan-2018		
Diagnosis:	---	**Comment:**	---		

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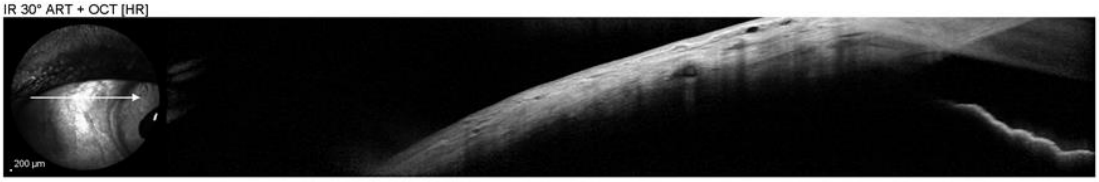
IR 30° ART + OCT [HR]



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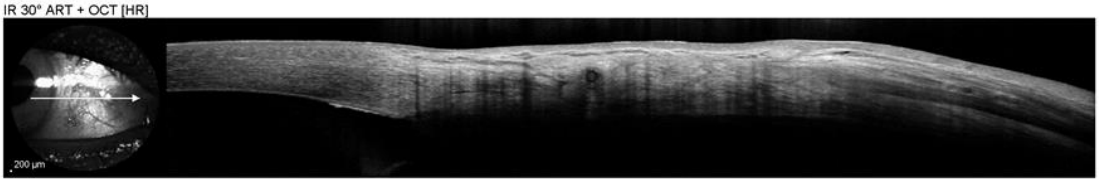

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Software Version: 6.8.3 *www.HeidelbergEngineering.com* *Overview Report, Page 1*

HUMAN RESEARCH This study involves human research.

IRB Approval Status: Approved by institutional review board

1:43 PM

Modified Flanged Scleral-Fixation for Intraocular Lens Insertion

- Richard H. Johnston, MD
- Mehdi Najafi, MD, PhD

OBJECTIVE To evaluate the visual and surgical outcome of modified flanged intrascleral fixation of intraocular lenses.

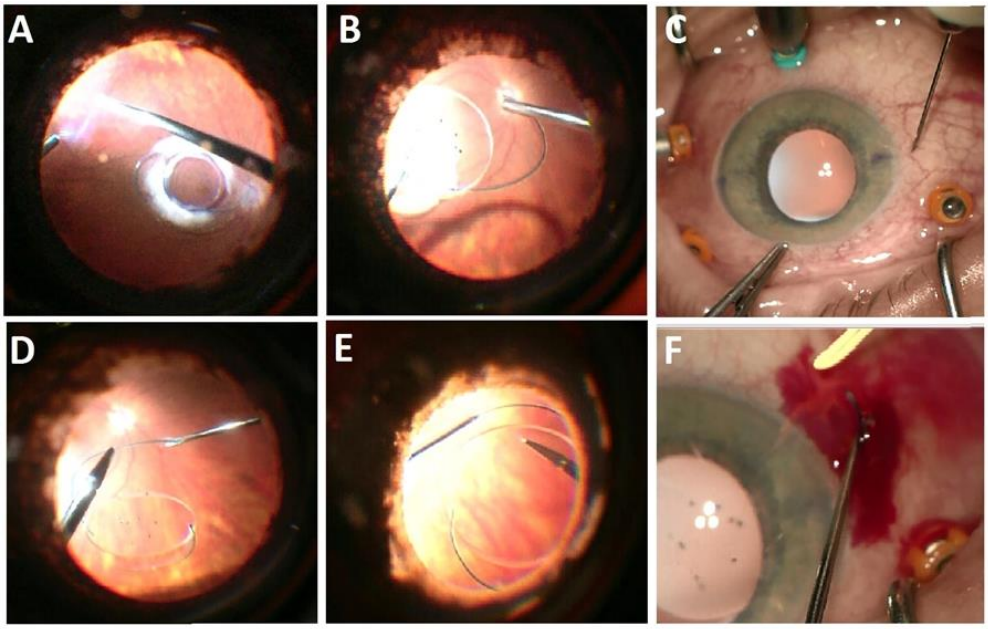
PURPOSE We have modified the flanged intrascleral fixation of intraocular lenses (IOL) by Yamane *et al.* to improve its surgical and visual outcome. Our technique involves feeding of IOL haptics into receiving needles with a procedure confined to the posterior segment. We conducted a retrospective clinical study to evaluate the outcome of our method in patients undergoing IOL implantation.

METHODS All patients underwent a vitrectomy. Dislocated 3-piece IOLs were refixated to the sclera; whereas, single-piece IOLs were exchanged with a 3-piece IOL which was allowed to descend within the posterior chamber. Two 30g needles were inserted into the vitreous cavity 2mm behind the limbus and 180 degrees apart. The haptics were fed into receiving needles and externalized. The haptics ends were cauterized to create flanges that were buried into the sclera. A retrospective study was conducted to evaluate the outcome of patients who had IOL insertion with the above method. Data collected included lens status, visual acuity prior and after surgery, ocular comorbidities and surgical complications.

RESULTS 25 patients were included in the study from Jan-Nov 2017. 7(28%) presented with aphakia and underwent secondary IOL insertion. 18 (72%) presented with a dislocated IOL and underwent scleral fixation of same IOL for 3 piece IOLs or IOL exchange for single piece IOLs. Visual acuity improved from 20/300 (logMAR 1.2) pre-operatively to 20/50 (LogMAR 0.4) post-operatively (p value < 0.05). Average follow up after surgery was 78 days. None of the patients developed corneal edema or iris

capture post-operatively. There was no need for peripheral iridotomy as described by Yamani et al. 4 (16%) patients developed vitreous hemorrhage which resolved within one week. Cystoid macular edema related to surgery was noted in 2 (8%) patient and improved with topical treatment. 1 patient developed exposure of one of the haptics which required repair with a scleral patch graft. There were no cases of hypotony and 1(4%) case of elevated intraocular pressure which was controlled with topical medication.

CONCLUSION We have improved several aspects of flanged scleral-fixation of IOLs including no anterior segment manipulation, use of the same dislocated IOL in selected cases, no requirement for peripheral iridotomy and no hypotony. We report slightly higher rates of vitreous hemorrhage which resolved with observation. No posterior chamber complications such as retinal tears or detachment occurred.



HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

1:46 PM

Outcomes of Scleral Tunnel Fixation Techniques

- Gareth Lema, MD, PhD
- Joseph Ling, MD

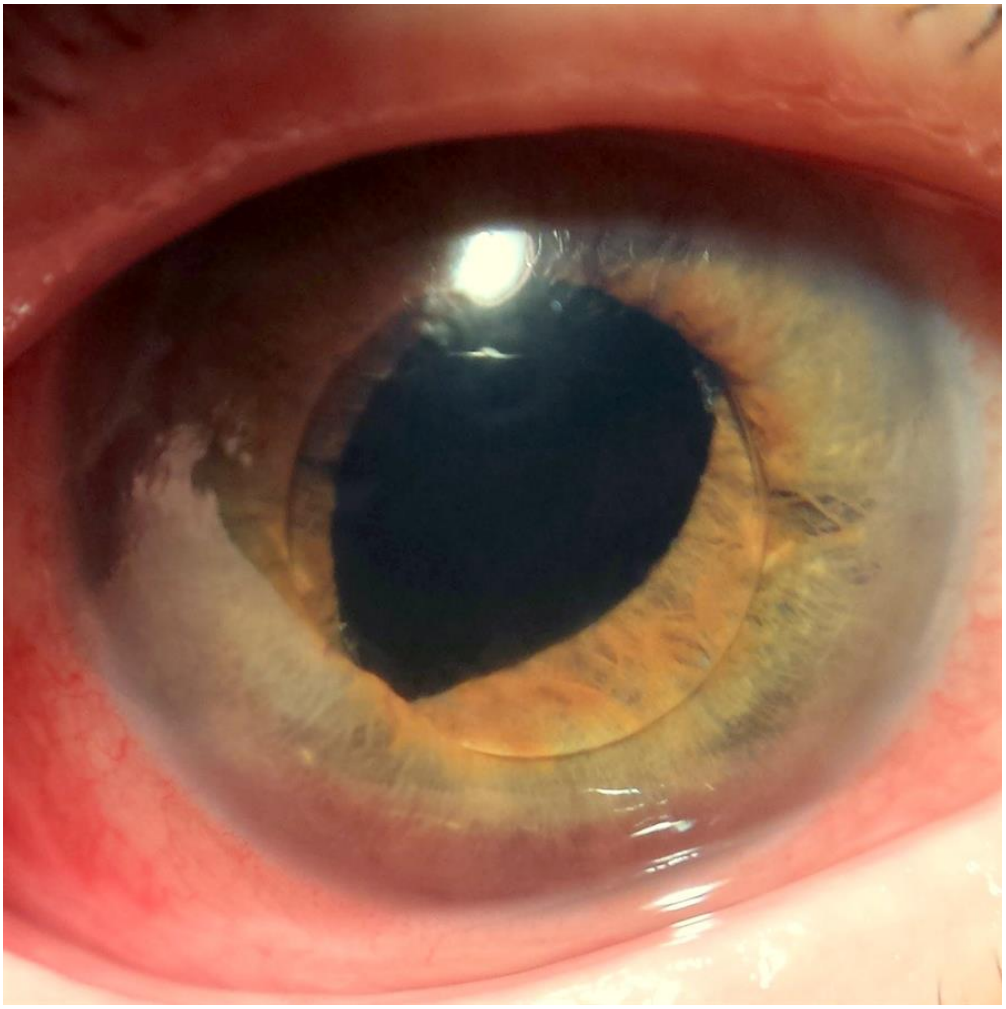
OBJECTIVE To report outcomes and adverse events from scleral tunnel fixation of intraocular lenses (IOL), including an instance of complete iris capture nine months after lens implantation.

PURPOSE Scleral tunnel fixation techniques have rapidly become a preferred method to secure intraocular lenses in cases of IOL rescue, secondary implantation, and IOL exchange. Several techniques have been proposed. This paper reports the outcomes of more than 30 cases by a single surgeon, and the results portend outcomes that other surgeons may encounter while endeavoring to learn this technique.

METHODS Consecutive cases performed between August 2013 and August 2017 were reviewed. Patients were only excluded if a final visual acuity could not be measured, in order to report a comprehensive list of possible outcomes. Indications for surgery included dislocated IOL, uveitis-glaucoma-hyphema (UGH) syndrome, and traumatic aphakia. Three techniques were used to create the sclerotomy and scleral tunnel: (1) creation of the sclerotomy and tunnel with a 23g MVR blade, (2) creation of the sclerotomy and tunnel under a partial thickness scleral flap, and (3) creation of the sclerotomy and a scleral shelf with a 20g MVR blade.

RESULTS The primary outcome was visual improvement. The mean visual improvement, regardless of indication, was from 20/400 to 20/100. Adverse events were categorized based on timing: intraoperative, perioperative, and long-term post-operative. Intra-operative complications were: kinked or broken haptics and wound leak. Perioperative complications were hypotony, wound leak, lens dislocation, and ocular hypertension. Long-term complications were cystoid macular edema, corneal edema, UGH syndrome, and pupillary block glaucoma from iris capture by the lens. Damage to haptics was more likely with technique (1) due to the smaller sclerotomies. Wound leak was most common with technique (2) due to difficulties closing the sclera under the partial thickness scleral flap. Complications were lowest with technique (3), due to adaptations of the technique and the accumulated experience of the surgeon. Unique cases will be discussed in detail.

CONCLUSION Scleral tunnel fixation of IOLs is an elegant procedure that yields excellent visual results. The technique promises a low rate of complications and an appealing cosmetic result for patients due to positioning of the lens behind the iris. The technique can be used for multiple indications, although it should be used with caution in UGH syndrome.



HUMAN RESEARCH This study involves human research.
IRB Approval Status: Not approved

1:49 PM

Comparison of 2 Modified Sutureless Techniques of Scleral Fixation of Intraocular Lens

- Aditya S Kelkar, MS DNB FRCS
- Jai Kelkar, DOMS,DNB, FCPS, FRCS
- AKSHAY KOTHARI, M.S.
- Hetal Mehta, M.S.,DNB,FICO

OBJECTIVE To determine the technical superiority, advantages and complications of one technique over the other in sutureless scleral fixation of intraocular lens

PURPOSE To compare the visual outcome and complications of two sutureless scleral fixated intraocular lens implantation techniques viz .intrascleral Intraocular Lens fixation technique and modified Yamane's technique of scleral fixation of Intraocular Lens.

METHODS The study was approved by the Institutional Ethics Committee and adhered to the tenets of the Declaration of Helsinki. Patients who underwent sutureless scleral fixation of IOL between June 2015 to February 2017 with more than 6 months follow up were examined retrospectively. Improvement in visual acuity, intraocular pressure measurements, endothelial cell count, central macular thickness and intraoperative/postoperative complications were compared at 6 months follow up.

RESULTS Seventy eyes were analyzed. The mean follow up was 10.5 + 1.5 months. The final visual outcomes in both groups viz. modified intrascleral IOL fixation technique (Group A) and modified Yamane's technique (Group B) were comparable. The mean age in Group A was 55.80+20.85 years and in Group B was 57.06+16.90 years. The indications for surgery were aphakia (n=15), subluxated/dislocated cataract (n=31), and dislocated/subluxated IOL (n=24). Majority of the eyes (92%) improved to visual acuity 0.3 logMAR units or better. The uncorrected distance visual acuity (UDVA), endothelial cell density and central macular thickness at six months follow up were comparable in both groups. No significant IOL tilt/decentration was noted. Postoperatively, transient IOP rise occurred in 18 eyes, retinal detachment in 1 eye, vitreous hemorrhage in 1 eye and cystoid macular edema in 2 eyes.

CONCLUSION Both the techniques have favorable visual outcome however, modified 27 g needle assisted Yamane's technique is technically superior because of its transconjunctival approach and less surgical time.Also, its needle assisted approach for haptic externalization makes it less traumatic and also prevents haptic damage during externalization.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

1:52 PM

Long-term Outcome of Pars Plana Vitrectomy and Sutured Scleral-Fixated Posterior Chamber Intraocular Lens Implantation or Repositioning

- Gregg T. Kokame, MD, MMM
- Jessica Shantha, MD
- Ryan T Yanagihara
- Kyle N Kaneko, BS

OBJECTIVE To assess the long-term stability of sutured scleral-fixated posterior chamber intraocular lenses (PC IOL) performed in combination with pars plana vitrectomy.

PURPOSE To assess the long-term stability of sutured scleral-fixated posterior chamber intraocular lenses (PC IOL) performed in combination with pars plana vitrectomy.

METHODS Retrospective study of 118 eyes of 111 patients who underwent sutured scleral fixation of at least one haptic of a posterior chamber intraocular lens with 10-0 polypropylene combined with a pars plana vitrectomy. The fixation knot tying technique required two separate 10-0 polypropylene sutures tied into one combined knot – one suture closed the fixation sclerotomy and created the scleral fixation, and one suture looped together around the haptic of the PC IOL securing the haptic to the scleral fixation site. The primary outcomes were: position of the PCIOL at last follow-up, dislocation of either one or both haptics of the PCIOL, and breakage of the 10-0 polypropylene fixation suture.

RESULTS PCIOLs remained well stabilized and positioned at last follow-up in 116 of 118 eyes (98.3%) with a mean follow-up of 6.0 years. The maximum stable follow-up with two intact fixation sutures was 24.75 years. There were 4 cases of redislocation (3.4%), but 2 cases were due to unstable residual capsular support. There was one case of suture breakage in 214 fixation sutures (0.47%), and one case of haptic breakage

CONCLUSION Scleral fixation sutures with 10-0 polypropylene provide excellent long term fixation of PC IOLs with a less than 0.5% incidence of suture breakage and documented suture stability for up to over 24 years.

1:55 PM

Safety and Efficacy of Retropupillary Iris Claw Intraocular Lens Implant in Aphakia With Inadequate Capsular Support

- Aniruddha Maiti, MBBS DO DNB FRVS FICO
- Priyanka Khandelwal, DNB
- Sangeeta Roy, MD
- Prosenjit Mondal, MBBS, MS

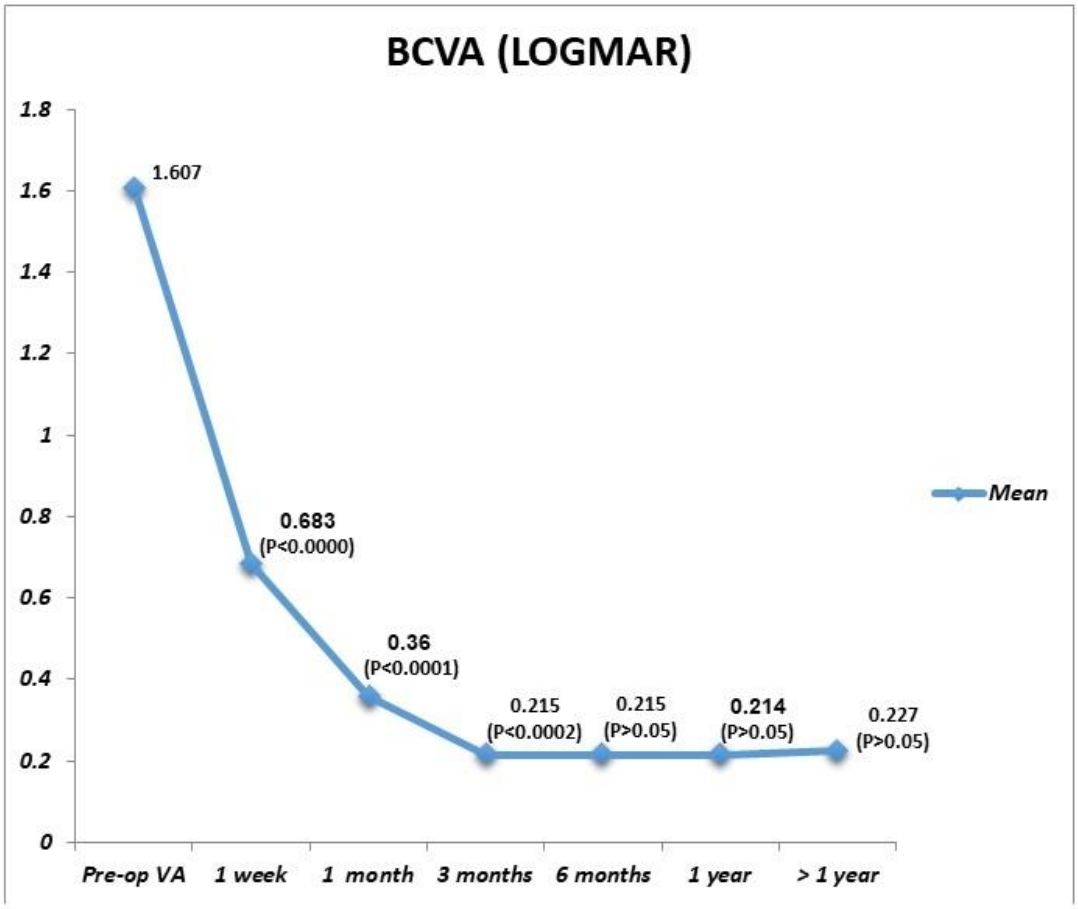
OBJECTIVE To measure safety and efficacy of retro pupillary iris claw intraocular lens implant in aphakia with inadequate capsular support.

PURPOSE To study safety and efficacy of retropupillary iris claw intraocular lens implant in various aphakic conditions without any other pathology that is causing compromised vision .

METHODS It is a retrospective study involving 60 aphakic eyes with inadequate capsular support presented in tertiary eye hospital from June 2015 to June 2017.Patients included were post traumatic subluxation /total dislocation of crystalline lens or IOL without adequate capsular support and post cataract surgery aphakia that resulted from intra- or post-operative complications, which included dropped nucleus , subluxation /total dislocation of the IOL. Patients with lack of adequate iris tissue to support iris claw lens and any other ocular pathology causing compromised vision were excluded.All eyes underwent 25 G PPV only or with either IOL explanation/ nucleus removal with iris claw lens implant.

RESULTS The follow up ranges from 6 months to 24 months. Out of 60 patients 28 patients had IOL drop, 21 had nucleus drop and 11 had aphakia. 68.33% were males and 31.67 % were females. Right eye was involved in 46.67% and left eye in 53.33%. Mean preoperative visual acuity was 1.607 logmar (SD- 0.507) which improved significantly (p value <0.0000) at first follow up at one week with mean VA of 0.683 logmar (SD- 0.241) , at one month 0.36 logmar (SD- 0.135) (p value < 0.0001) , at 3 months 0.215 logmar (SD-0.135) (p value <0.0002) , at 6 months 0.215 logmar (SD-0.135) (p value 1) which was not significant, at 1 year 0.214 logmar (SD-0.129) (p value 0.9693) , after 1 year 0.227 logmar (SD-0.143) (p value 0.6766). Mean pre operative IOP 12.867 mm Hg (SD-1.961) and post operative IOP 13.17 mm Hg (SD-2.95) (p value 0.5089). 2 out of 60 haptics were disenclaved. 3.33% patients developed ERM and 8% had oval pupil.

CONCLUSION Iris claw lens implantation with PPV is safe and effective procedure with no significant complications for the correction of aphakia without capsular support. Considering the post operative IOP results the necessity for doing Peripheral Iridectomy is not mandatory .



	IOP (mm of Hg)		
	pre op IOP	IOP	P value
Mean	12.867	13.17	P = 0.5089
SD	1.961	2.95	p > 0.05
No.	60	60	Not Significant

HUMAN RESEARCH This study involves human research.

IRB Approval Status: Approved by institutional review board

1:58 PM

1-Year Outcomes of a Surgical Technique for Sutureless Intrascleral Fixation of a 3-Piece Intraocular Lens Using a 30-Gauge Needle

- Jonathan L. Prenner, MD
- Harold M. Wheatley, MD
- Stuart N. Green, MD

OBJECTIVE To describe our initial experience with a novel surgical technique for scleral fixation of a three-piece IOL utilizing vitrectomy, intrascleral fixation via a thin walled 30g needle, and thermal haptic deformation.

PURPOSE To describe our initial experience with a novel surgical technique for scleral fixation of a three-piece IOL utilizing vitrectomy, intrascleral fixation via a thin walled 30g needle, and thermal haptic deformation.

METHODS Retrospective review of a consecutive series of eyes that underwent the novel IOL fixation procedure. All patients were followed for at least one year after surgery. Outcomes data were obtained and analyzed.

RESULTS Six eyes of six patients were included in the series. Short-term (<1 week) complications were limited, and included IOL capture (n=1) and corneal edema

(n=1). These resolved with in office repositioning and topical steroid use respectively. No medium-term (>1 week, <3 months) or long-term (>3 months) complications occurred. All patients improved visually as would be expected after treatment of their lens malposition.

CONCLUSION Scleral IOL fixation utilizing vitrectomy and intrascleral fixation via a thin walled 30g needle and thermal haptic deformation was well tolerated at one year. This novel approach allows for a simple, transconjunctival method for IOL fixation.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Exempt from approval

2:01 PM

27-Gauge Sutureless Intrascleral Fixation of Intraocular Lenses with Haptic Flanging: Clinical Outcomes and a Disinsertion Force Study

- Maxwell S Stem, MD
- Christianne A Wa, MD
- Bozho Todorich, MD, PhD
- Maria Woodward, MD
- Mark K. Walsh, MD, PhD
- Jeremy D. Wolfe, MD, MS

OBJECTIVE We hypothesized that haptic flanging during sutureless intrascleral fixation of an intraocular lens (IOL) with 27-gauge trocar cannula**s** would create a more stable IOL.

PURPOSE To determine if haptic flanging during 27-gauge sutureless intrascleral (SIS) fixation of intraocular lenses (IOLs) increases IOL stability and to report the clinical outcomes of patients who have undergone SIS surgery using 27-gauge trocar cannulas with haptic flanging.

METHODS This was a retrospective surgical case series using live and cadaveric human eyes. We obtained five adult cadaver eyes from Eversight (Ann Arbor, MI) and performed SIS IOL surgery on all eyes. One haptic from each IOL was flanged with a low temperature cautery. The eyes were cut in half at the equator and then a dial tension gauge affixed to an 8-0 nylon suture was used to measure the force required to dislodge the flanged and unflanged haptics. For the clinical case series, we identified all patients who had undergone 27-gauge SIS IOL surgery between July 2016 and November 2017. All participants must have had at least 1 month of postoperative follow-up to be included.

RESULTS In the cadaveric experiment using 5 eyes, flanged haptics required more force to dislocate the IOL compared to unflanged haptics (14 ± 4 vs. 3 ± 1 grams, p = 0.03). The clinical case series included 52 eyes from 52 patients. The average age at the time of surgery was 73 ± 14 years, with a mean follow-up of 27 ± 19 weeks. The most common indication for surgery was IOL dislocation/subluxation (n = 43, 83%). Mean visual acuity improved from 20/140 pre-operatively to 20/50 at post-operative month 1 (p < 0.001). The most common post-operative issue was IOP elevation (n = 12, 23%). Four patients (8%) needed a re-operation, including two patients (4%) who experienced IOL dislocation.

CONCLUSION Haptic flanging during 27-gauge SIS surgery creates a more stable scleral-fixated IOL compared to the traditional unflanged technique. In addition, this variation of SIS surgery appears safe and effective for patients who require secondary IOLs.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board