



Visual Restoration after Reutilization of a Long-Standing Dislocated Intraocular Lens: A Case Report

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Abstract: Dislocation of intraocular lens (IOL) is a known late complication after cataract surgery. Standard management involves removal of the dislocated IOL followed by secondary implantation. However, reutilization of the existing IOL may be considered in selected cases. We reported a 61-year-old male presented with decreased vision in the right eye for three weeks. The patient had a history of cataract surgery 22 years prior in another country. Visual acuity was 1/60. Examination revealed aphakia with a posteriorly dislocated IOL in the vitreous cavity. The patient underwent pars plana vitrectomy (PPV), retrieval of the dislocated IOL, and scleral fixation of the same IOL. Postoperatively, visual acuity improved to 6/9 at five weeks with stable intraocular pressure and attached retina. In this case, the IOL remained structurally intact despite long-term implantation. Reusing the same lens reduces cost, avoids IOL power recalculation, and simplifies surgical steps. In conclusion, reutilization of a dislocated IOL with scleral fixation is a safe and effective option in selected patients, especially in resource-conscious settings.

Keywords: dislocated intraocular lens (IOL); scleral fixation pars plana vitrectomy secondary IOL

INTRODUCTION

Dislocation of the posterior chamber intraocular lens (IOL) is a recognized late complication following cataract surgery.^{1,2,3} Common etiologies include progressive zonular weakness, ocular trauma, pseudoexfoliation syndrome, high myopia, prior vitrectomy, and implantation with capsular tension rings.^{4,5} Patients typically present with unilateral decreased visual acuity, glare, photopsia, monocular diplopia, or sudden visual disturbances, such as a "curtain-like" sensation.⁶

The epidemiology of late posterior chamber intraocular lens dislocation after cataract surgery indicates a low but increasing incidence, with reported rates ranging from 0.2% to 3% overall,⁷ population-based cumulative risks of 0.1% at 10 years rising to 1.7% at 25 years,⁷ and annual incidence rates of 0.42–0.49 per 1000 person-years.⁸ This complication typically manifests after a mean interval of 7.18 years (range: 0–180 months), predominantly in older patients (mean age 72.7 ± 12.4 years) with a male predominance (64.67%), and is associated with higher odds ratios for pseudoexfoliation syndrome (adjusted OR 19.4), high axial myopia (OR 13.5), uveitis (OR 25.7), retinitis pigmentosa, prior vitrectomy, and male sex.⁷⁻⁹ The rising trend is attributed to expanding pseudophakic populations and longer lifespans, underscoring the need for vigilant monitoring in at-risk groups.⁷

Management generally involves pars plana vitrectomy with removal of the dislocated intraocular lens followed by secondary implantation of a new IOL—such as an anterior chamber IOL, iris-fixated IOL, or scleral-fixated IOL—to mitigate risks of material degradation, opacification, or instability associated with reusing long-implanted lenses.¹⁻³ However, recent advancements in surgical techniques, such as the use of scleral flaps and Gore-Tex sutures, have demonstrated promising outcomes for secure IOL fixation, even for previously dislocated lenses.¹⁰ In cases of intraocular lens dislocation, the choice of surgical technique depends on various factors, including the type of IOL, the extent of dislocation, and the surgeon's preference.¹¹ The decision-making process also considers patient-specific factors, such as age, comorbidities, and visual demands, to optimize visual outcomes and minimize complications.

Standard management for a long-standing dislocated intraocular lens often involves removal and secondary implantation of a new IOL to mitigate risks associated with the existing IOL. However, in selected cases where the IOL remains structurally intact after extended implantation—as demonstrated here after 22 years) scleral refixation offers a safe, cost-effective alternative that eliminates the need for IOL power recalculation, reduces operative time and economic burdens (particularly in resource-limited settings), and simplifies the surgical workflow.⁴ This case exemplifies successful reutilization via pars plana vitrectomy and scleral fixation, yielding improved visual acuity (from 1/60 to 6/9); stable IOL position; and no complications at five weeks postoperatively, underscoring its feasibility when intraoperative assessment confirms haptic and optic integrity.¹²

CASE REPORT

A 61-year-old male presented with decreased vision in the right eye for three weeks, described as a "curtain-like" sensation; there was no pain or redness. He had a history of cataract surgery performed 22 years earlier in another country. There was no history of trauma, hypertension, or diabetes mellitus. Initial examination (December 3, 2025) showed visual acuity (VA) of OD: 1/60 (pinhole 1/60) and OS: 6/9 (pinhole 6/6). Intraocular pressure of OD was 14 mmHg, and of OS 14 mmHg. Anterior segment of OD revealed aphakia, and of OS nuclear cataract (NO2NC2). Posterior segment of OD showed normal optic disc, CDR: 0.3–0.4, foveal reflex present in macula, and dislocated IOL observed in vitreous cavity. Ultrasound examination found hyperechoic structure in posterior vitreous consistent with IOL. Diagnosis of OD was aphakia with posteriorly dislocated IOL, and of OS was immature cataract.

The surgical procedure performed on this patient was pars plana vitrectomy (PPV), retrieval of dislocated IOL, and scleral fixation of the same IOL (January 16, 2026). Instead of explantation, the IOL was carefully retrieved and repositioned using scleral fixation technique.

Postoperative follow-up on day 1 resulted in VA of 6/30 (pinole 6/9), IOP: 13 mmHg, and stable IOL. Follow up after three weeks: VA: 6/7,5, IOP: 15 mmHg, normal fundus; no complication was found.

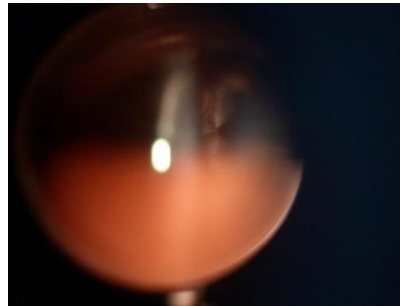


Figure 1. Initial slit-lamp photograph showing posterior dislocation of the intraocular lens

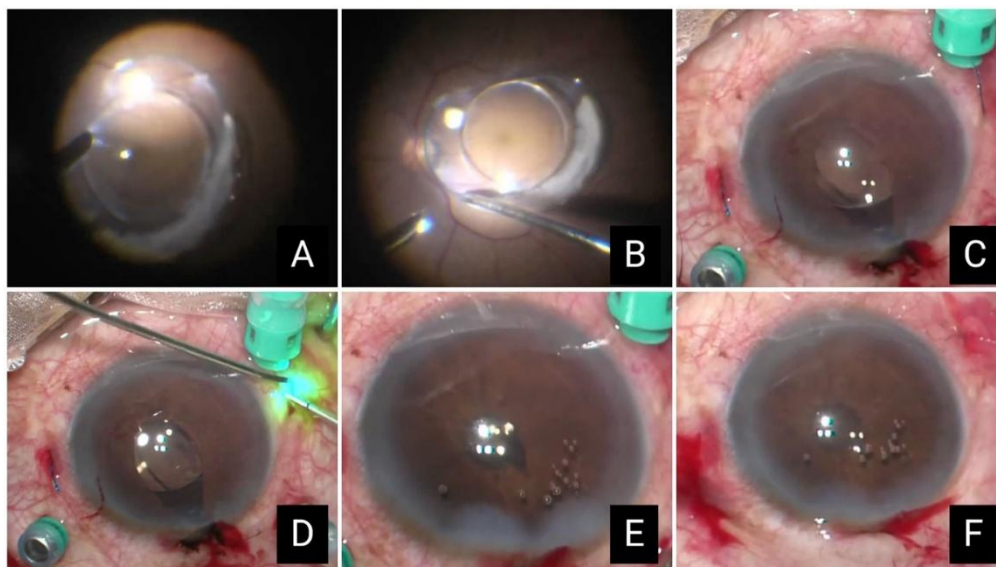


Figure 2. Intraoperative images illustrating IOL retrieval and scleral fixation. (A) Initial appearance of the dislocated IOL in the vitreous cavity. (B) The IOL was grasped and brought into the posterior chamber. (C) Both haptics were externalized. (D) Flanges were created at both haptic ends. (E) Appearance of the IOL after intracameral carbachol injection. (F) Final postoperative appearance after successful IOL repositioning and fixation

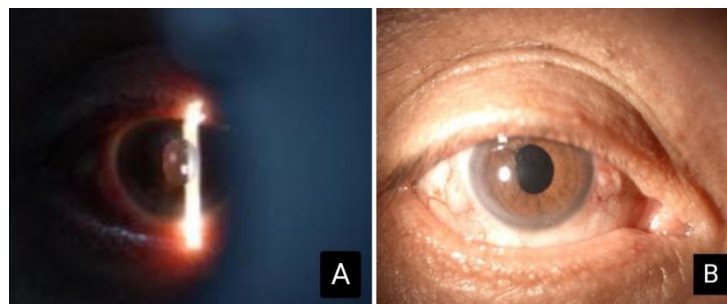


Figure 3. Postoperative slit-lamp photographs demonstrating a well-centered intraocular lens without visible haptic or flange exposure. (A) Slit-lamp examination showing a centrally positioned intraocular lens. (B) No visible externalized haptic or flange was observed, suggesting adequate haptic burial and reduced risk of foreign body sensation.

DISCUSSION

Dislocated IOLs are commonly managed by removal followed by secondary implantation,¹

which offers the advantage of eliminating risks from reusing aged IOLs, such as material degradation, opacification, or instability. Although effective, this approach significantly increases surgical costs, prolongs operative time, and introduces refractive uncertainty due to IOL power recalculation.^{13,14}

In contrast to the standard management, in this case, the original IOL remained structurally intact despite being implanted for more than two decades. This allowed the reutilization of the same lens, avoiding the need for new implantation. This approach streamlined the surgical procedure, obviating complex IOL power calculations and reducing associated economic burdens, particularly advantageous in resource-constrained environments.^{5,15} However, potential drawbacks of reusing the existing IOLs include the risk of pupillary optic capture and the long-term integrity of the haptic-optic junction.¹⁶

The advantages of this approach include reduced cost, elimination of IOL power recalculation, and simplified surgical workflow. These benefits are particularly relevant in resource-limited settings.^{5,15} However, this strategy necessitates careful intraoperative assessment of IOL integrity and haptic stability to ensure long-term functionality and minimize postoperative complications. Furthermore, while the conventional approach of explanting dislocated IOLs and implanting a new one is often preferred for managing these lenses, it may lead to complications such as vitreous hemorrhage and retinal detachment.⁶ Nevertheless, contemporary practices increasingly favor refixing the original IOL whenever feasible, as it can mitigate surgical trauma and procedural complexities associated with lens exchange.⁴ This approach not only minimizes corneal endothelial cell damage but also reduces astigmatic changes, contributing to better postoperative visual outcomes.¹² For instance, in cases where capsular support is compromised, intrascleral fixation of posterior chamber IOLs provides a viable alternative, allowing placement in an anatomically favorable position and potentially reducing complications.¹⁷ The decision between IOL repositioning and exchange hinges on various factors, including the integrity of the existing IOL, the presence of adequate capsular support, and the surgeon's expertise with specific fixation techniques.¹⁸

Scleral fixation remains a reliable method for stabilizing IOLs in eyes without capsular support.^{19,20} With proper technique, it provides good visual outcomes and long-term stability. However, it is crucial to consider the potential for complications such as suture erosion, optic capture, and secondary glaucoma, which necessitate meticulous surgical execution and careful patient selection.²¹

Advantages of scleral fixation over alternative techniques are as follows: scleral fixation of IOLs is preferred over other secondary IOL implantation methods—such as iris-sutured IOLs, iris-claw (e.g., Artisan/Verisyse or retropupillary iris-claw) lenses, anterior chamber IOLs, or sulcus placement—in cases of IOL dislocation or aphakia without capsular support. This preference stems from its ability to position the IOL in the posterior chamber, mimicking the natural anatomical location of the crystalline lens, which optimizes optical performance and reduces the risk of long-term complications.³ Scleral fixation offers anatomical and optical superiority compared to alternatives. Unlike anterior chamber IOLs, which contact the anterior chamber angle and can cause progressive corneal endothelial cell loss or interlens synechiae, scleral fixation avoids anterior segment distortion.³ Iris-sutured or iris-claw techniques, while effective, may lead to iris chafing, pigment dispersion, chronic uveitis, or secondary glaucoma due to mechanical iris trauma.^{6,22} In contrast, scleral fixation places the optic in the capsular bag-equivalent position, preserving foveal alignment and reducing tilt/decentration.^{19,20}

Scleral fixation technique also features a lower complication profile. Standard management of dislocated IOLs often involves explantation and secondary implantation, which carry risks of vitreous hemorrhage and retinal detachment.^{1,6} Iris claw implantation, though sutureless in some designs, has reported rates of cylinder formation (up to 1.5 D) and endothelial loss (10-20% over 5 years).⁶ Scleral fixation mitigates these by avoiding iris or angle contact, with studies showing stable IOL centration (e.g., mean tilt $2.02^\circ \pm 1.28^\circ$, decentration 0.18 ± 0.04 mm) and no suture-

related issues like erosion or exposure when performed suturelessly.⁴

Additionally, scleral fixation provides cost and efficiency benefits, especially in resource-limited settings. Reutilizing the dislocated IOL via scleral fixation eliminates the need for new IOL procurement, power recalculation, and extended surgery, reducing costs and refractive surprises.^{5,15,22} Iris claw techniques require specialized lenses (e.g., custom iris-claw), increasing expense, while AC IOLs are simpler but suboptimal for optics. Nevertheless, while scleral fixation generally offers a favorable safety profile compared to anterior chamber IOLs or iris-fixed IOLs, it is important to acknowledge that ACIOLs, despite their historical use and simplicity, carry inherent risks of corneal edema, secondary glaucoma, and uveitis.²³

Contemporary evidence favors scleral refixation of the original IOL over exchange, as it minimizes corneal endothelial damage, astigmatism, and surgical trauma.^{4,12} For instance, repositioning dislocated three-piece IOLs via scleral methods yields superior visual recovery (e.g., logMAR 0.21 ± 0.18 at 3 months) with fewer redislocations.¹²

Why the Yamane technique is an optimal choice among scleral fixation variants, the Yamane flanged intrascleral technique (double-needle sutureless fixation) stands out as optimal, particularly for reusing dislocated IOLs.¹⁹ Introduced in 2017, it involves externalizing IOL haptics through 30-gauge needles, creating flanges via thermal cautery for intrascleral tuck, eliminating sutures entirely.¹⁹ This methodology significantly reduces operative time and surgical complications associated with traditional sutured techniques, offering enhanced long-term stability and precise centration of the intraocular lens.²⁴

The Yamane technique provides sutureless stability, avoiding suture breakage, erosion, or loosening—unlike traditional 10-0 polypropylene scleral sutures, which fail in 5-10% over 5 years.²⁰ Flanges offer rigid anchoring, with zero redislocations reported in follow-ups.^{4,19} It also excels in efficiency and safety, with operative time under 15 minutes, minimal conjunctival manipulation, and reduced intraocular trauma. The technique preserves endothelial cells better than sutured methods (6-10% loss vs. 20%) and avoids pupillary capture risks with proper sizing.^{16,17}

This case also highlights the durability of IOL biomaterials, which may remain functional even after long-term implantation. Therefore, leveraging this durability through techniques like Yamane's for IOL repositioning can offer advantages in terms of surgical efficiency and ease for surgeons.²⁵ For instance, successful repositioning of 20+-year-old dislocated IOLs using the trailing-haptic-first modification of the Yamane technique has been reported, demonstrating good refractive outcomes without complications.²⁶

However, this approach requires careful case selection. Reutilization should only be performed when the IOL is intact and suitable for fixation. For instance, the double-flanged intrascleral haptic fixation technique, while highly effective for three-piece IOLs, cannot be applied to one-piece IOLs due to their structural differences.²⁷ Moreover, the optimal outcome of multifocal IOLs, particularly when refixed, heavily relies on precise centration and appropriate vertical alignment to achieve optimal results and prevent visual impairment.²⁸ Furthermore, studies indicate that the Yamane technique, despite its advantages, can lead to postoperative complications such as cystoid macular edema and epiretinal membrane.²⁹ The modified Yamane technique, however, has demonstrated favorable outcomes with minimal complications, particularly regarding intraocular pressure and visual acuity improvement.³⁰

To minimize the risks of cystoid macular edema and epiretinal membrane following the Yamane technique, surgeons should emphasize meticulous intraoperative techniques to avoid iris trauma and inflammation, shorten operative duration, ensure complete anterior vitrectomy, and administer prophylactic measures such as sub-Tenon triamcinolone acetate injections or long-term topical nonsteroidal anti-inflammatory drugs.^{31,32} Further research is needed to determine the long-term efficacy and safety profile of the Yamane technique, particularly concerning its application in diverse patient populations and its comparative outcomes against other contemporary scleral fixation methods.³³

Long-term studies across diverse populations remain essential to further validate its superiority,³³ yet current evidence positions the Yamane technique as a premier choice for selected cases, highlighting the resilience of modern IOL biomaterials and advancing surgical paradigms for aphakia management.

CONCLUSION

The successful reuse of a long-standing dislocated IOL via the Yamane flanged intrascleral fixation technique, as demonstrated in this case, underscores its efficacy as a sutureless, minimally invasive approach for managing IOL dislocation in the absence of capsular support. This method not only achieves stable centration, excellent visual recovery, and preservation of the original IOL's optical properties but also offers advantages over alternatives like iris-claw or anterior chamber IOLs, including reduced risks of iris trauma, endothelial loss, and refractive surprises, and lower costs in resource-limited settings. Despite potential complications such as transient cystoid macular edema or epiretinal membrane, meticulous technique and prophylactic anti-inflammatory measures can optimize outcomes.

Conflict of Interest

There is no conflict of interest in this study.

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