

# SAFETY PROFILE OF A POSTERIOR CHAMBER PHAKIC IOL



Studies assessed surgical safety.

BY KELLY A. KISER, MD; DREW DICKSON, MD; AND LANCE KUGLER, MD

## TEN-YEAR PREVALENCE OF RHEGMATOGENOUS RETINAL DETACHMENT IN MYOPIC EYES AFTER POSTERIOR CHAMBER PHAKIC IMPLANTABLE COLLAMER LENS

Arrevola-Velasco L, Beltrán J, Rumbo A, et al<sup>1</sup>

Industry support: None

### ABSTRACT SUMMARY

A retrospective cohort study evaluated the prevalence of rhegmatogenous retinal detachment (RRD) in myopic eyes that underwent posterior chamber phakic IOL (ICL, STAAR Surgical) surgery compared to a control group of nonoperated myopic eyes during a 10-year period. The study groups had similar demographics, axial lengths, and spherical equivalents (SEQs). RRD prevalence was assessed through chart review and, for individuals with incomplete records, telephone questionnaires followed by specialist verification.

Seven of the 252 operated patients (mean SEQ, -12.60 D) experienced an RRD compared to five of the 221 nonoperated patients (mean SEQ, -10.50 D). The prevalence rates were 1.71% and 1.25% for the operated and control groups, respectively ( $P = .773$ ). Equivalence tests showed no significant difference in RRD prevalence between the groups ( $P = .59$ ). The median time between surgery and RRD diagnosis was 66 and 81 months in the operated and control groups, respectively.

The investigators concluded that phakic IOL implantation for high myopia did not increase the long-term risk of RRD.

### DISCUSSION

High myopia is a well-studied risk factor for RRD. The

## FACTORS LEADING TO REALIGNMENT OR EXCHANGE AFTER IMPLANTABLE COLLAMER LENS IMPLANTATION IN 10 258 EYES

Wei R, Li M, Aruma A, et al<sup>2</sup>

Industry support: None

### ABSTRACT SUMMARY

A retrospective study evaluated the incidence, causes, and outcomes of realigning or exchanging an EVO ICL

## STUDY IN BRIEF

- ▶ A 10-year retrospective cohort study found a similar prevalence of rhegmatogenous retinal detachment (RRD) in myopic eyes that underwent posterior chamber phakic IOL surgery and nonoperated myopic eyes. The findings suggest that phakic IOL surgery for high myopia does not influence the risk of RRD.

### WHY IT MATTERS

This is the first long-term follow-up study to compare RRD prevalence between cohorts of eyes that received a phakic IOL and nonoperated eyes with equal selection and inclusion/exclusion criteria as well as a minimum follow-up time.

condition has been reported to occur in myopic patients following phakic IOL surgery. The study by Arrevola-Velasco and colleagues is the first to provide long-term follow-up data on RRD prevalence in operated and nonoperated eyes with equal selection and inclusion/exclusion criteria as well as a minimum follow-up time.

The study found no significant difference in the cumulative incidence of RRD between the operated and nonoperated cohorts and no differences based on the Kaplan Meier estimate and survival curves or equivalence tests. The findings reaffirm the safety of phakic IOL implantation in terms of RRD risk but also highlight the importance of diligent preoperative screening and, when necessary, preemptive treatment of peripheral retinal abnormalities.

(STAAR Surgical) after its implantation. The incidence of realignment or exchange was 0.21% (22 of 10,258 eyes). The two main causes were the misalignment of a toric EVO ICL and excessive vault. Twelve eyes underwent axis rotation or an IOL exchange for the former, which improved the eye's UCVA and reduced the amount of cylinder from an average of 1.75 to 0.87 D ( $P = .01$ ). Excessive vault was corrected in 10 eyes (0.10%). Seven of these required an IOL exchange, which reduced the vault from  $1,098.6 \pm 63.1$  to  $615.7 \pm 139.6$  mm ( $P < .001$ ). The EVO ICL was

► THE LITERATURE

rotated vertically in three eyes, which decreased the vault from  $853.3 \pm 130.5$  to  $425.0 \pm 149.1$  mm ( $P = .02$ ).

**DISCUSSION**

The investigators concluded that the indication for realignment of a toric EVO ICL or exchange of an EVO ICL is rare but beneficial in specific circumstances. Vertical rotation and other methods can be effective for addressing excessive vault.

The results support the implant's safety and align with previous studies. A meta-analysis by Packer et al of 28 studies found a 0.47% incidence of secondary surgical intervention in 2,970 eyes and reported that high preoperative cylinder was the greatest risk factor for toric EVO ICL realignment.<sup>3</sup>

Advances in image-guidance surgical systems could enhance the initial placement of EVO ICLs and thus reduce the chances of misalignment. Excessive vault can often be avoided with customized sizing and addressed with vertical rotation.

## STUDY IN BRIEF

- In a retrospective study of 10,258 eyes that received an EVO ICL or toric EVO ICL (both from STAAR Surgical), the incidence of IOL realignment or exchange was 0.21%. The main reasons for realignment and exchange were toric misalignment and excessive vault, respectively.

## WHY IT MATTERS

The study provided insight into the safety and risks associated with the EVO ICL and introduced less invasive surgical methods such as vertical rotation for addressing excessive vault.

The investigators reported no endothelial cell loss or reduction in patients' corrected distance visual acuity after EVO ICL implantation. ■

1. Arreola-Velasco L, Beltrán J, Rumbo A, et al. Ten-year prevalence of rhegmatogenous retinal detachment in myopic eyes after posterior chamber phakic implantable collamer lens. *J Cataract Refract Surg.* 2023;49(3):272-277.
2. Wei R, Li M, Aruma A, et al. Factors leading to realignment or exchange after implantable collamer lens implantation in 10 258 eyes. *J Cataract Refract Surg.* 2022;48(10):1190-1196.
3. Packer M. Meta-analysis and review: effectiveness, safety, and central port design of the intraocular collamer lens. *Clin Ophthalmol.* 2016;10:1059-1077.

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