

Vertical placement of aphakic Artisan intraocular lens in a patient with traumatic localized aniridia

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We report a 50-year-old patient who had secondary implantation of an aphakic Artisan (Ophtec) intraocular lens (IOL) that was placed vertically in the anterior chamber. The patient had had a perforating injury to the cornea that required corneal wound repair, lensectomy, and anterior vitrectomy. Because of the localized traumatic aniridia, the Artisan IOL could not be placed horizontally. Three months after surgery, the best corrected visual acuity was 0.9 and there were no complications.

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In the absence of capsular support, surgical options to correct aphakia include transscleral sulcus fixation of a posterior chamber intraocular lens (IOL) and placement of an angle-supported or iris-fixated anterior chamber IOL.^{1,2} There is no consensus on the indications, relative safety, and efficacy of these alternatives. Transscleral sulcus fixation of a posterior chamber IOL, while preserving the anatomy of the eye, is associated with a high incidence of intraoperative and postoperative complications such as lens tilting, decentration, choroidal hemorrhage, retinal detachment, cystoid macular edema, and conjunctival erosion of the transscleral sutures.^{3,4} Angle-supported anterior chamber IOLs are also associated with complications, some of which are direct consequences of the presence of haptics in the iridocorneal angle.⁵

The Artisan IOL (Ophtec), one of the latest versions of the iris-fixated anterior chamber IOL, is a single-piece poly(methyl methacrylate) IOL available with 2 optic diameters, 5.0 mm and 6.0 mm, and 2 overall lengths, 7.5 mm and 8.5 mm. The haptics have fine fissures to capture through enclavation a fold of mid-peripheral iris stroma where the iris is virtually immobile, less vascularized, and less reactive.⁶ The IOL is implanted in the anterior chamber under miosis through a superior or temporal 5.5 to 6.5 mm limbal or

sclerocorneal incision. In the anterior chamber, it is rotated to a horizontal position and centered on the pupil.⁶

To our knowledge, there are no reports of vertical placement of the Artisan IOL in aphakic eyes. We present a case in which the IOL was placed vertically in an eye with a perforating injury to the cornea.

CASE REPORT

A 50-year-old woman presented with a perforating injury in the right eye from the thrust of a blasted bottle cap. The ophthalmologic examination revealed a visual acuity of counting fingers, an oblique paracentral corneal perforation site at the 5 o'clock position, iris sphincter rupture in the same quadrant, phacodonesis, and cataract. The posterior segment could not be visualized, and ultrasonography was not possible because of the wound leakage. The corneal wound was reconstructed, and lensectomy with anterior vitrectomy was performed immediately. No posterior segment pathology was observed intraoperatively or postoperatively. After 4 months of uneventful follow-up, the acuity improved to 0.6 with aphakic correction. In the slitlamp examination, a corneal scar was observed in the perforation site and localized aniridia extending to the midperipheral iris was seen in the same quadrant.

Secondary implantation of an Artisan IOL was performed. In the preliminary workup, the endothelial cell count was 2910 cells/mm² using the Nidek Confoscan 3. The anterior chamber was measured using the Oculus Pentacam by obtaining an anterior chamber depth map (Figure 1). Surgery was performed under retrobulbar anesthesia. The vertical white-to-white diameter of the cornea was 11.5 mm using a surgical caliper intraoperatively. A 5.5 mm incision site was marked on the temporal side of the cornea. Two paracentheses were performed at the 7 and 11 o'clock positions. After acetylcholine was injected to constrict the pupil, the anterior chamber was filled with an ophthalmic viscosurgical device (OVD), sodium hyaluronate (Gelbag), and a corneal incision was made with a 45-degree diamond knife at

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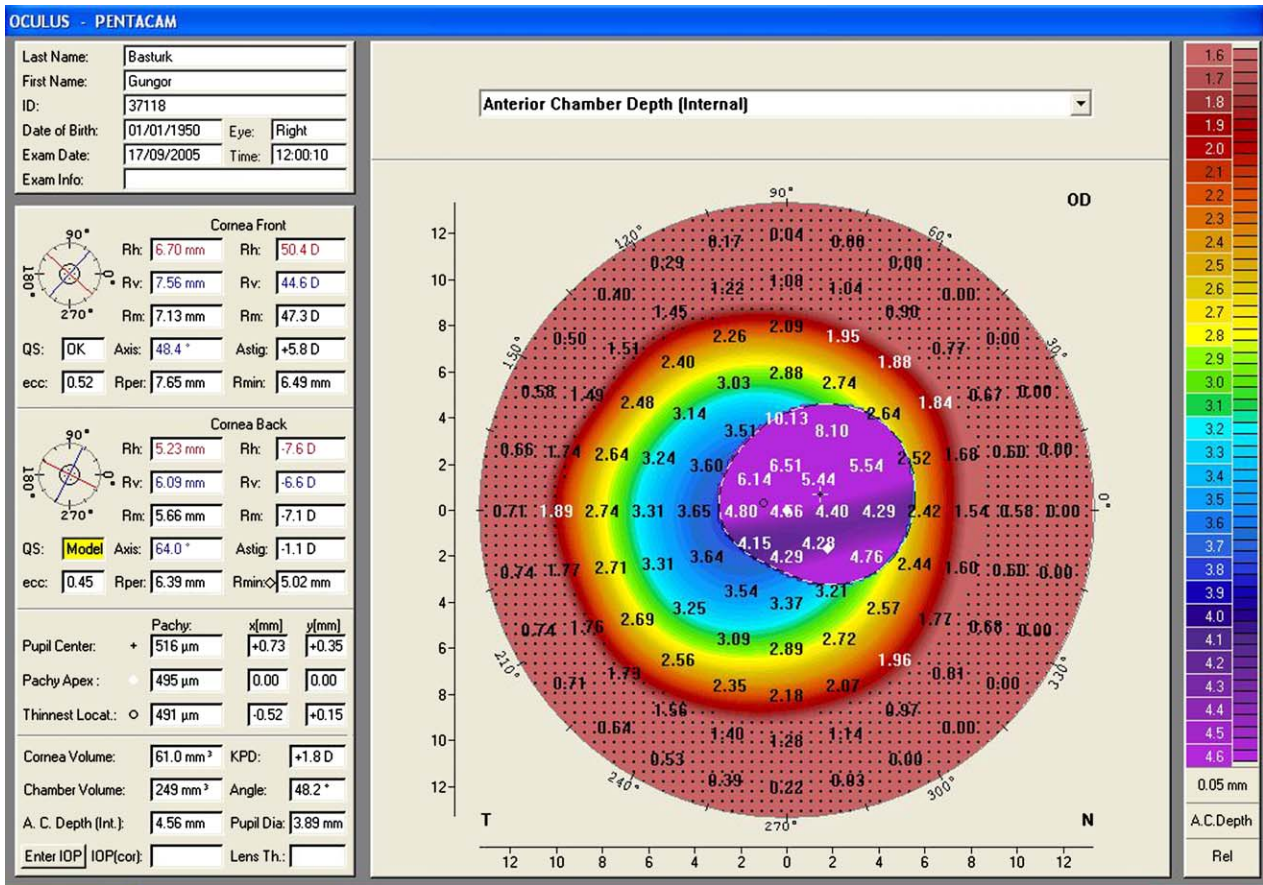


Figure 1. Anterior chamber depth map taken with the Oculus Pentacam before secondary implantation of the Artisan IOL.

the previously marked site. An Artisan IOL with a 5.0 mm optic and a power of +17.0 diopters was inserted in the anterior chamber with a forceps and rotated so it was placed vertically. Enclavation was done first on the superior haptic and then on the inferior one. The corneal incision was closed with 3 interrupted 10-0 nylon sutures, and the OVD was aspirated. Gentamicin 20 mg and dexamethasone 3 mg were injected subconjunctivally. Dexamethasone and ofloxacin drops were prescribed postoperatively, tapered, and then discontinued after 2 months.

After 3 months of follow-up, the visual acuity increased to 0.9 with -4.50 × 35. In the slitlamp examination, the Artisan IOL was well centered with no distortion of the iris or any significant anterior chamber reaction (Figure 2). The fundus examination revealed no pathology, and the intraocular pressure was 16 mm Hg with an applanation tonometer.

DISCUSSION

The Artisan IOL and its variant the Artiflex (foldable iris-claw IOL) have been used safely for secondary implantation in adults and children with aphakia.^{2,7-9} They have also been used after traumatic injuries to the globe.^{9,10} Van der Pol and Worst¹¹ describe the use of Artisan aphakic IOLs in children with congenital, developmental, and



Figure 2. Clinical photograph of the eye after vertical implantation of the Artisan IOL.

traumatic cataracts, and their results are similar to those in other reports concerning the use of posterior chamber IOLs. The surgical technique is relatively common in all the studies, placing the IOL horizontally so the haptics

are enclavated on the nasal and temporal sides of the iris mid stroma. In our case, the iris epithelium and stroma on the nasal side had been traumatized by a penetrating injury so the eye's anatomy did not allow the usual placement of the Artisan IOL. We therefore decided to place it vertically, the upper haptic holding the 12 o'clock iris tissue and the lower haptic, the 6 o'clock iris tissue. At the 3-month follow-up, no decentration or tilting of the IOL was observed and the patient did not complain of monocular or binocular diplopia.

The residual refractive error measured 3 months after surgery was -4.50×35 , probably due to the corneal scar at the penetration site. In the future, 2-step laser in situ keratomileusis, described by Güell et al.,⁹ might be considered to correct the astigmatism.

In conclusion, Artisan IOLs can be placed vertically in the anterior chamber in eyes in which traumatic or congenital variances in the anterior segment anatomy prevent horizontal placement of the IOL. Longer follow-up and controlled randomized studies with a larger cohort are needed.

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