

## Abstract

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### **Title:** Novel Custom-Made AC-IOL for Aphakia - Case Reports

**Introduction:** Anterior chamber lenses (AC-IOL) have lacked significant innovation since the 1980s, with the primary option being a rigid PMMA lens (Kelman Multiflex 2, Alcon Fort Worth, USA) implantable through a 5.0mm access. This report introduces a novel custom-made AC-IOL for addressing aphakia cases, offering improved options.

**Methodology:** The foldable AC-IOL, made from hydrophilic acrylate by Morcher GmbH Germany (Design Kermani), features a total haptic diameter of 13.0mm and a 5.0mm spherical optic. Haptics are angled at 10° to facilitate aqueous humor flow. Iridectomy is unnecessary. Three cases are discussed: congenital cataract surgery-related aphakia, complicated cataract surgery-induced aphakia with inadequate capsular support, and aphakia due to late dislocated IOL-capsular-bag-complex removal. All surgeries were under topical anesthesia using a 2.5mm self-sealing perilimbal incision, Monarch B shooter, and Provisc dispersive Viscoelasticum (Alcon Fort Worth, USA). Post-surgery, Prednisolone and Gentamicin were administered for 7 days.

**Results:** Follow-ups at 1 day, 1 week, 3 months, and 12 months indicated stable or improved conditions. Case 1 had unchanged endothelial cell count (ECC). Cases 2 and 3 showed moderate ECC decline up to 6 months, stabilizing thereafter. All cases achieved 20/40 or better best corrected visual acuity at 12 months. No inflammation was observed, and intraocular pressure remained within normal limits (<22mmHg) throughout.

**Conclusion:** The innovative custom AC-IOL offers a promising option for addressing aphakia cases. The procedure is straightforward, efficient, and safe. If needed, the AC-IOL can be replaced with a sulcus fixated IOL.