We report the case of a 35-year-old woman with unilateral anterior subcapsular cataract and intractable glaucoma 3 months after inadvertent upside-down placement of an Implantable Collamer Lens phakic intraocular lens (pIOL). At the time of presentation, the intraocular pressure (IOP) in the left eye was 40 mm Hg. It remained above 28 mm Hg with maximum medical therapy. Clinical examination with ancillary investigations such as Scheimpflug imaging and anterior segment optical coherence tomography revealed upside-down placement of the pIOL. Explantation of the pIOL and phacoemulsification with posterior chamber IOL implantation were performed during the same sitting. Postoperatively, the IOP returned to normal and the visual acuity was good.

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CASE REPORT

A 35-year-old woman presented to our tertiary care institute with complaints of diminution of vision, pain, and redness in her left eye. She had a history of pIOL implantation in both eyes about 3 months previously with an interval of 2 weeks between the procedures. At the time of presentation, the corrected distance visual acuity (CDVA) was 20/30 in the right eye and 20/80 in the left eye. The intraocular pressure (IOP) was 16 mm Hg and 40 mm Hg, respectively, with diffuse corneal edema in the left eye. On slitlamp examination, the right eye was within normal limits but the left eye showed conjunctival congestion, corneal edema with decreased peripheral anterior chamber depth (ACD), von Herick grade 0, and normal central depth; the single laser peripheral iridotomy in the superotemporal quadrant was patent. The pupil reacted sluggishly, and it appeared that the pIOL was touching the anterior capsule surface, with pigmentation on the anterior lens surface and presence of an anterior subcapsular cataract (Figure 1, A). Intravenous mannitol was given and the IOP decreased to 28 mm Hg, but there was no change in ACD. Topical brimonidine 0.1% and timolol maleate 0.5% and an acetazolamide 250 mg tablet were prescribed every 6 hours. When the corneal edema decreased, gonioscopy was performed and showed that angles in all 4 quadrants were closed. Ultrasound biomicroscopy ruled out the possibility of malignant glaucoma but showed an unusual upside-down pIOL. Scheimpflug imaging showed an adequate vault height of about 550 μm in the right eye and an upside-down pIOL abutting the anterior lens surface in the left eye (Figure 1, B and C). Anterior segment optical coherence tomography remain patent if the pIOL rotates.2 We describe a case of nonpupillary block angle closure with anterior subcapsular cataract due to inadvertent upside-down placement of a pIOL.
supported the findings, showing a 7 μm distance between
the lens and the pIOL in the left eye and an upside-down
pIOL (Figure 1, D and E). After the clinical scenario was
discussed and the option of pIOL explantation along with
phacoemulsification and IOL implantation was explained
to the patient, surgery was performed.

On the first postoperative day, the CDVA was 20/40 and
the IOP was 18 mm Hg with topical timolol maleate 0.5% alone. After 6 months, the CDVA improved to 20/25 and
the IOP was 16 mm Hg without antiglaucoma medication
and grade III open angles; posterior segment evaluation
showed a cup-to-disc ratio of 0.6 with a healthy neuroretinal
rim.

DISCUSSION

New technology is supplementary to clinical examina-
tion but should not supersede it. Our case highlights
the importance of careful clinical examination because
early detection in this case could have prevented the
development of cataract and intractable glaucoma. The upside-down placement of the pIOL led to vaulting
in the opposite direction with the pIOL abutting
the anterior lens surface, leading to anterior subcapsular
cataract. The IOL elevation was caused by the pIOL plate haptic pushing the iris anteriorly and thus blocking
the angles.

Elevated IOP by pupillary block or a nonpupillary block mechanism after pIOL implantation can be due to
ciliolenticular block,2-4 inappropriate sizing,5 steroid responsiveness, or retained ophthalmic viscosurgical
device (OVD).6,7 In our case, the cause of glaucoma was straightforward; ie, an inadvertently placed upside-down pIOL. Other causes such as re-
tained OVD or steroid-induced elevation can be

easily ruled out as they present in the early postoperative period. Malignant glaucoma can also be ruled
out as it presents with a uniformly shallow anterior chamber. Excessive vaulting of the pIOL can cause
pupillary block, which can be prevented by making
laser peripheral iridotomies. Another cause is an ab-
normal pIOL vault size due to disparity between
the white-to-white and sulcus-to-sulcus diameter,
which in turn leads to angle closure.5 Retrospectively,
was found that this inverted pIOL led to release of
pigmentation from the posterior iris surface that was
present on the lens surface and, after surgery, was
visible in the angles. Contact or closeness of the
pIOL to the crystalline capsule may induce perme-
ation disturbances, which may lead to a cascade of
metabolic disturbances and transformations within
the epithelial cells that are responsible for cataract
formation.1

Fortunately, our patient presented early, and
prompt management prevented irreversible damage
from the elevated IOP. Based on our experience in
this case, we suggest that utmost care be taken when
implanting a pIOL, especially regarding correct posi-
tioning, as well as close follow-up after surgery.

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