Modified technique of intralenticular aspiration for anteriorly dislocated lens with iridocorneal touch in buphthalmic eyes

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DESCRIPTION

Spontaneous anterior dislocation of crystalline lens in paediatric patients is an ophthalmic emergency and warrants immediate surgical intervention to prevent long-term ocular complications such as glaucoma and corneal decompensation.¹ Traumatic dislocation accounts for majority of the cases.² Tearing of the zonules in buphthalmos can also lead to secondary lens luxation.³

Intralenticular aspiration technique is one of the most common techniques implemented by surgeons worldwide to manage such challenging cases.^{1,4}

Herein, we describe a modified technique of intralenticular aspiration to manage bilateral anteriorly dislocated lens with iridocorneal touch and corneal decompensation in buphthalmic eyes.

Surgery was performed under general anaesthesia under explained poor visual prognosis, and

Video 1 Depiction of the surgical steps of our modified technique of intralenticular aspiration with vitrectomy cutter and irrigation cannula in irrigation–aspiration cut mode.

preoperative ultrasound biomicroscopy (UBM) was performed on the operating table for a detailed structural evaluation of the anterior segment. UBM revealed total iridocorneal and corneolenticular touch with intumescent lens (*figure 1A*). All the surgeries were performed by a single surgeon (SK) sitting superiorly at the 12 o'clock position. Two stab incisions were made at 10 o'clock and 2 o'clock positions with microvitrectoretinal (MVR) blade in the clear cornea just anterior to the limbal vascular arcade. The tip of the blade was further inserted horizontally through the full thickness of the adjacent iris with a stab incision through the posterior capsule of the lens horizontally (*figure 1B,C*). This was followed by intralenticular aspiration of the lens with a 25 G vitrectomy cutter through one incision in the posterior capsule and 27 G irrigation cannula through the other, holding the capsular bag–lens complex in place (*figure 1D*). Lens aspiration was performed in irrigation–aspiration (I-A) cut mode on a Centurion Vision system based on active fluidics technology, keeping vacuum at 400 mm Hg, aspiration flow rate at 25 cc/min, cut rate at 100 cpm and intraocular pressure (IOP) at 40 mm Hg equivalent to a bottle height of 54 cm water. A capsular bag was then compromised with the cutter in cut I-A mode, keeping cut rate at 4000 cpm, vacuum at 250 mm Hg and aspiration flow rate at 20 cc/min. Limited anterior vitrectomy was performed in cut I-A mode to ensure that there was no remnant of vitreous strands in the anterior chamber (*figure 1E*). At the end of the surgery, anterior chamber was formed with balanced salt solution, and stromal hydration of the ports was performed. Two surgical peripheral iridotomies (PIs) were already made 180° apart at the beginning

Figure 1 Ultrasound biomicroscopy imaging revealed total iridocorneal and corneolenticular touch with intumescent lens (A). Clinical photograph of the anteriorly dislocated lens with iris bombe and corneal oedema (B). Stab incision with microvitrectoretinal blade through clear cornea passing through full thickness of iris and posterior capsule of lens (C). Intralenticular aspiration with vitrectomy cutter and irrigation cannula in I-A cut mode (D). Removal of the lens capsule with vitrectomy cutter in cut I-A mode (E).

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Images in...

of the surgery when the MVR blade was inserted through the full thickness of the iris to reach the posterior lens capsule.

Video 1 depicts the surgical steps of our technique.

In our case, we did not have any space to manipulate in the anterior chamber and our technique prevented further damage to the corneal endothelium. Additionally, a single instrument was

used (vitrectomy cutter) in two different modes for performing lens aspiration followed by removal of the capsular bag, thus preventing the need for change of instruments, making the procedure simple and easier. We did not encounter any posterior segment complication or lens drop while performing controlled lens aspiration in I-A cut mode with the aforementioned settings.

To conclude, our technique of intralenticular lens aspiration through the limbal route is a safe and simple technique which could be performed in patients requiring urgent surgical intervention with nil (Von Herick zero) anterior chamber and sclera thinning precluding lensectomy through the pars plana route.

Patient's perspective

I was happy with the postoperative outcome of my child and she could see better than before due to early intervention.

Learning points

- ▶ Spontaneous anterior dislocation of crystalline lens patients is an ophthalmic emergency and warrants immediate surgical intervention to prevent long-term ocular complications such as glaucoma and corneal decompensation.
- ▶ Preoperative ultrasound biomicroscopy imaging is a simple, less expensive imaging modality which could pick up subtle changes in the anterior segment easily, enabling better surgical planning.
- ▶ This technique of intralenticular lens aspiration through the limbal route could be performed in patients requiring urgent surgical intervention with nil (Von Herick zero) anterior chamber and sclera thinning. It precludes the need for additional PI and also prevents manipulation in the anterior chamber, hence reducing the risk of further damage to the corneal endothelium.

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