

Photo Essay

Descemet stripping automated endothelial keratoplasty: An alternate surgical modality for Descemet's membrane detachment following hydrops in keratoglobus

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Key words: Acute hydrops, descemet's stripping automated endothelial keratoplasty, Keratoglobus

A 47-year-old lady presented with inaccurate projection of rays in her right eye and blurred vision of counting fingers in the left eye since 10 days. Both the eyes had blue sclera. Slit-lamp biomicroscopy revealed bilateral keratoglobus and adherent leukoma with left eye acute hydrops due to Descemet's membrane detachment (DMD) [Figs. 1a and b] confirmed by anterior segment ocular coherence tomography (OCT) [Fig. 1c]. The wide Descemet's membrane (DM) rip and marked ectasia precluded successful air descemetopexy. Being monocular, an early DSAEK was advised for tectonic support to the thin cornea and quick visual rehabilitation. To avoid tearing of the fragile cornea, a 7.5 mm diameter lenticule was pushed through a scleral incision over a Sheet's glide, which decentered superiorly with the reverse Sinsky due to the inferior adherent leukoma and avoided stroking, since the cornea was brittle. All surgical incisions were sutured with long intrastromal 10-0 nylon bites. Air bubble tamponade was difficult due to posteriorly migrating air bubble. Postoperatively, lenticule was attached, stromal edema resolved and vision improved to 20/400 [Figs. 2a and b]. A challenging phacoemulsification with intraocular lens implantation was done 9 months later. The technical issues, included paracentesis extension and phacoemulsification, in a shallow anterior chamber (AC) due to adherent leukoma while protecting the DSAEK lenticule. At 2 years follow-up her vision is 20/125 [Figs. 3a and b].

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Discussion

The management of acute hydrops in keratoglobus can be conservative or surgical.^[1] Gas tamponade was not as effective in keratoglobus^[2] and unsuccessful in our case due to large rip with thickened fibrosed edges and marked ectasia.

Surgical management of keratoglobus is challenging, since the tissue is thin and fragile.^[3] Conventional penetrating keratoplasty is associated with numerous surgical challenges due to limbus to limbus thinning, thin sclera, and marked disparities in the recipient and host tissue. There has been a single case of DSAEK for keratoglobus with chronic hydrops due to spontaneous Descemet's membrane tear.^[4] We demonstrated that for nonresolving corneal hydrops in keratoglobus, DSAEK followed by cataract surgery, though technically demanding, provided gratifying and early visual rehabilitation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

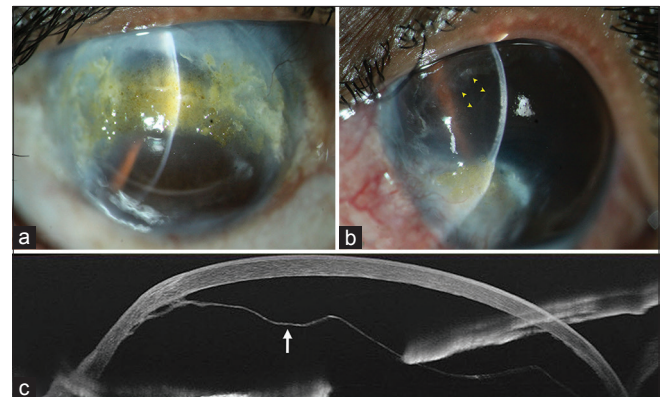


Figure 1: (a and b) Slit-lamp photograph of right and left eye, at presentation, showing limbus to limbus corneal thinning with central ectasia suggestive of keratoglobus. Bilateral secondary spheroidal degeneration is noted. The left eye showed stromal edema with an ellipsoidal rip in the Descemet's membrane (DM) (arrowheads) and an inferior adherent leukoma (c) Anterior segment ocular coherence tomography (OCT, DRI OCT Triton, Topcon, Tokyo, Japan) image showing a large DM detachment (DMD) (arrow) in the superior cornea in the left eye

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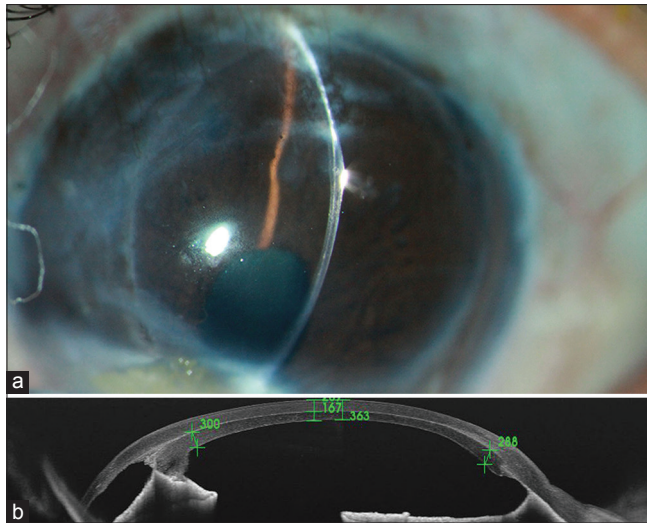


Figure 2: (a) Slit-lamp photograph of the left eye following DSAEK showing a well apposed compact lenticule with minimal overlying stromal edema (b) Anterior segment OCT image of the left eye showing a well attached lenticule with pachymetry of 167 μ and total corneal thickness of 363 μ

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

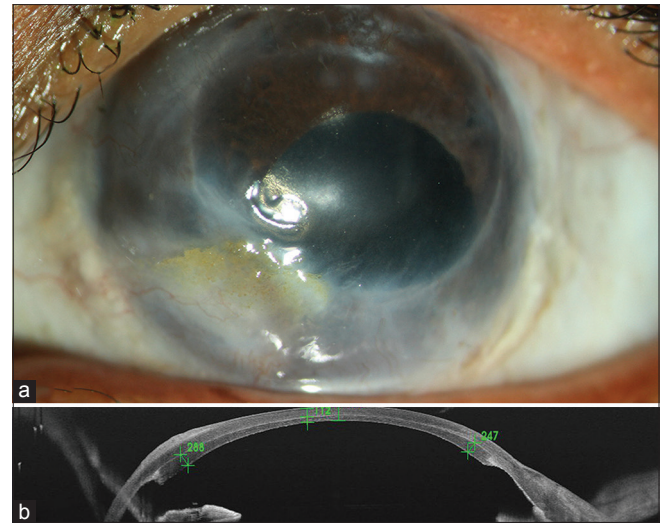


Figure 3: (a) Slit-lamp image of the left eye at the 2 year follow-up, with a clear cornea, well-apposed lenticule and an intraocular lens *in situ*. (b) Anterior segment OCT image of the left eye showing a well-attached lenticule with total pachymetry of 293 μ at 2-year follow-up

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