

**Sir,
Intradesmectic air trap post deep anterior lamellar keratoplasty in a child with mucopolysaccharidosis**

Deep anterior lamellar keratoplasty (DALK) using the Anwar's big bubble technique has been used successfully to treat the cloudy corneas in Hurler's and Martoux-Lamy syndromes.^{1,2} We herein report a case of Hurler's syndrome with intradesmectic air entrapment during DALK in a child.

Case report

A 10-year-old boy with Hurler's syndrome presented with diminished vision and bilateral cloudy corneas. The BSCVA was 6/36 OD and 6/24 OS. AS-OCT of both eyes revealed hyper reflectivity throughout corneal stroma suggestive of stromal deposits. DALK was performed under general anesthesia in his right eye using Anwar's technique (using a bent sharp 30-gauge needle with bevel facing downwards); however, excessive corneal haze precluded the assessment of single bubble formation during surgery. Donor cornea from which descemet's membrane had been scraped with merocel after staining with 0.06% trypan blue was sutured to the recipient's bare descemet's membrane with 10-0 nylon sutures.

On the first postoperative day, severe corneal edema was present with an immobile air bubble in the center

of the cornea (Figure 1a). AS-OCT revealed splitting of the descemet's membrane and trapped air bubble in the intradesmectic space (Figure 1b). Topical 1% prednisolone acetate, 0.3% moxifloxacin, and 5% hypertonic saline drops four times a day were started. There was gradual resorption of the air bubble by third day with reapposition of the descemet's layers (Figure 1c) and resolution of stromal edema (Figure 1d). His visual acuity at 3 months improved to 6/9 with -2.5Dcyl@140° and endothelial cell count was 2263/mm².

Comment

Touboul *et al*³ recently reported occurrence of intradesmectic air bubble post DALK in an adult patient with corneal opacity. There exists potential space between the striated and unstriated layers of the Descemet's membrane due to its development in three major processes.⁴ It is this space that gives way during various phases of air injection during DALK. Deposition of mucopolysaccharides in corneal stroma with poor visibility of air bubble in our case probably facilitated intradesmectic cleavage with air entrapment. Awareness of this complication and performing gentle air-fluid exchange at the end of procedure can avoid persistent double or triple chamber and resultant failure of the procedure.

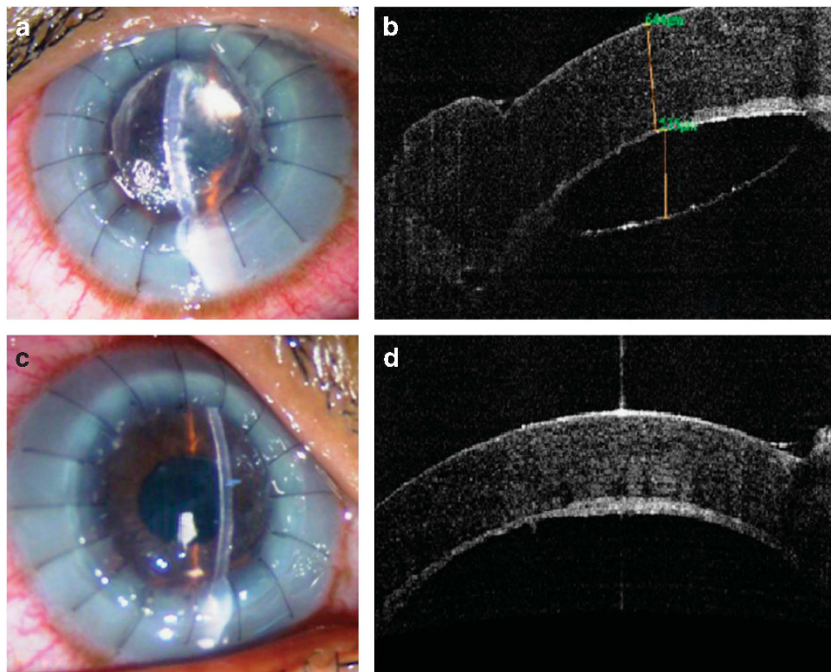


Figure 1 (a) Trapped central air bubble in intradesmectic space on the first postoperative day. (b) Descemet split on AS-OCT on the first day. (c) Complete absorption of air bubble on the third day. (d) Complete resolution of the trapped air bubble on AS-OCT on the third day.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

We certify that all coauthors have read the final manuscript within their respective areas of expertise and participated sufficiently in the study to take responsibility for it and accept its conclusions.

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Sir, Patient acceptance to smartphone technology to monitor and improve glaucoma health-care outcomes

It is well recognised that non-adherence of glaucoma eye drop medication could result in unnecessary changes to medication or listing for more invasive procedures, increasing risk to the patient and costs to the health-care establishment.^{1,2} Non-adherence rates have been reported as varying between 5 and 80%.¹ Four major factors have been identified that affect patient adherence: medication factors, patient factors, provider factors, and environmental factors.³ It is well recognised that smartphone usage is increasing and we believe that a glaucoma monitoring mobile application (App) can help to educate patients and improve patient adherence by improving all of these factors. We therefore surveyed a cohort of our patients to assess their smartphone usage and willingness to use such an application.

We undertook a prospective survey of patients attending their glaucoma follow-up appointment across two sites (Moorfields South at St Georges Hospital and Princess Royal University Hospital) during the first six months of 2013. Patients were asked to fill in a survey

form at the end of their visit and submit it anonymously at the reception desk. Self-reported data were collected on adherence with eye drop medication, reasons for missing treatment doses, smartphone usage, and interest in a medication adherence app.

Fifty patients completed the questionnaire. Mean age of respondents was 65.2 years (range 34–92 years) with a male:female ratio of 0.93:1. In all, 8/50 (16%) patients admitted to missing eye drops, reasons included difficulty remembering drops, unsure which drops to take, and running out of drops. Of the 50 patients, 41 (82%) had access to computer technology of which 18 patients (44%) had access to a smartphone. Of those that responded, 26/43 (60%) said that they would use a medication adherence App.

Our reported non-adherence rate is similar to other previous reports.^{1,4} Although it is often perceived that elderly patients have limited access to smartphones, we have demonstrated that a large proportion of our patients did have access to smartphone technology and are willing to use them to improve their health outcomes. It is not clear, however, to what degree non-adherence affects progression of glaucoma and visual field defects, and we are currently in the process of developing an App that may help to answer this question.

Conflict of interest

The authors declare no conflict of interest.

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