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Descemet's detachment in glycerol grafts used in pandemic corneal tissue shortage

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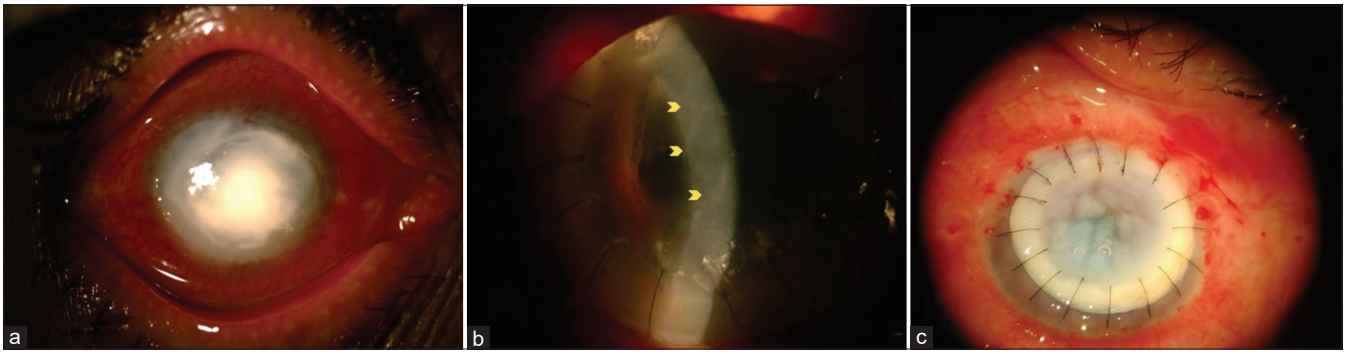

Figure 1: (a) Preoperative picture of one of the cases with total corneal abscess. (b) DMD in glycerol-preserved corneal tissue used for therapeutic penetrating keratoplasty (yellow arrows). (c) Cloudy appearance of the acellular GCT

Key words: Acellular, Descemet's membrane detachment, glycerol-preserved corneal tissue, pandemic tissue shortage

Eye banking difficulties in pandemic times lead to interrupted availability of donor corneas.[1] Glycerol-preserved corneal tissue (GCT) has become a valuable resource for tectonic and therapeutic corneal transplants in these situations.[2] Being acellular, GCT is nonimmunogenic and also provides excellent tensile support [Fig. 1]. However, postoperative reepithelization is slow and optical clarity poor in full-thickness transplants.[3]

We report three cases of Descemet's Membrane detachment (DMD) following uneventful therapeutic penetrating keratoplasty (TPK) with GCT, performed by experienced surgeons. The indications were two nonresolving fungal corneal ulcers and one perforated corneal ulcer. GCT was washed with balanced salt solution prior to the TPKs and a small lateral tarsorrhaphy was done to facilitate epithelialization. Over a follow-up of 2 months, there was no recurrence of infective keratitis in any of the patients.

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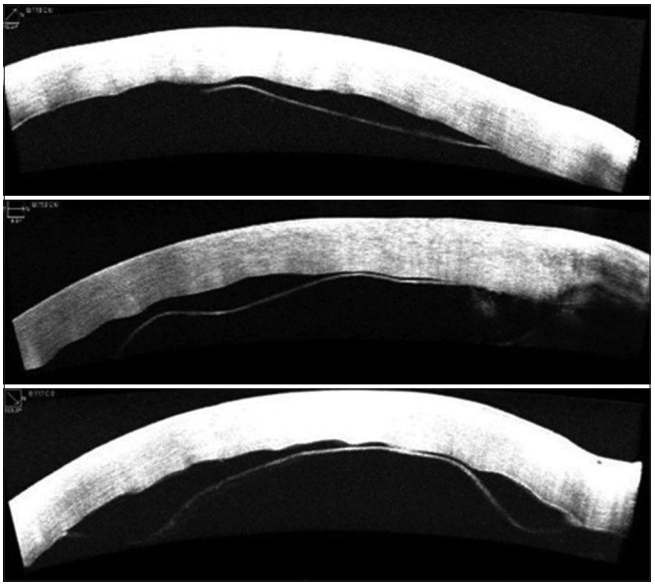

Figure 2: Panel of AS-OCT pictures in three meridians showing near-total DMD in the second postoperative week

Discussion

DMDs were noted in all cases in the second postoperative week [Fig. 2], which were confirmed on anterior segment

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optical coherence tomography (AS-OCT). The DM in all cases redetached after initial success with gas descemetopexy. Also, reverse sutures taken from limbal side to graft side through the detachment in one case were able to hold up the DM only temporarily. Full thickness cardinal suture bites taken intraoperatively during TPK with GCT may help prevent DMD. Alteration of tissue texture due to acellularity and loss of endothelial pump function in these grafts were reasons for nonattachment of DM. Also, the hazy view offered by GCT predisposes to small DMD during surgery which then progresses with aqueous seepage into the cleft.

DMD occurs commonly with usage of GCT due to tissue alteration and visibility issues. As GCT grafts are very cloudy, AS-OCT done postoperatively helped in the confirmation of this complication in our cases. As the acellular GCT has nonviable endothelium, observation alone, followed by future optical transplant, is a definite option.

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Conflicts of interest

There are no conflicts of interest.

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