group, IFA revealed no dye leakage from the early to late phases (figure 1A–C).

**COMMENT**

Our results indicate that eyes with endothelial decompensation after ALI may actually have a chronic postsurgical breakdown of the blood-aqueous barrier. Presumably, the predisposition to postoperative inflammatory reactions in patients with ALL-BK appears to be caused by the manifested impairment of the blood-aqueous barrier. Although the reason why such a subclinical change may continue for a long period of time after ALI is unclear, the post-ALI endothelial decompensation may possibly be due to the humoral transport of substances such as prostaglandins and cytokines (eg, TGF-β1) in the anterior segment.

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**Simultaneous amniotic membrane transplantation in emergency penetrating keratoplasty: a therapeutic option for severe corneal ulcerations and melting disorders**

In cases of severe corneal melting, immediate penetrating keratoplasty (PK) can be required but is accompanied by a high prevalence of complications due to ongoing inflammatory stimuli and wound-healing disorders. In these situations, the properties of amniotic membrane (AM) including promotion of epithelial healing as well as antiangiogenic, anti-inflammatory, and immunomodulatory effects can be beneficial. In the context of PK and AM transplantation (AMT) different surgical
approaches are possible: (1) AMT prior to PK; (2) PK with simultaneously performed AM patch, as described in this study; and (3) AMT after PK. Potential advantages of a simultaneous AMT with PK may include the following. First, epitheliopathogenic effects of the AM promote wound healing and epithelialisation of the graft and therefore allow early topical steroid application. Second, immune-modulatory effects of the AM on the ocular surface in the early phase after PK may reduce the risk of immunologic graft rejection. AM provides a barrier between immune-competent cells in the tear film and the corneal graft, and may attract and trap inflammatory cells. AM itself seems to be an immune-privileged tissue, and this property might be transferred to the grafted corneal tissue. Third, prevention of early neovascularisation of the corneal graft by the antiangiogenic effect of AM not only sustains graft clarity, but also reduces the risk of immune rejection.

The purpose of this study was to evaluate the combination of emergency PK with simultaneous AMT in severe corneal melting disorders to analyse the impact on the short and intermediate-term postoperative performance of the graft in terms of epithelial wound healing and graft survival in comparison with PK without AMT.

We performed a retrospective, non-randomised, single-centre observational case series. Clinical files from 53 patients with corneal melting disorders related to different infectious and non-infectious diseases who underwent emergency PK because of corneal perforation or presedecemetal ulceration were analysed. PK was performed either with simultaneous AMT in 20 patients (group 1) or without AMT in 35 patients (group 2); the median age at the time of PK was 73/63 years. We used cryopreserved AMs exclusively. The follow-up time was 7.8/9.5 months on average. The main outcome measures included postoperative rate of persistent epithelial defects, graft clarity and subsequent surgical procedures.

In group 1, the AM was lost after 8.6±5 days on average. After this time, the epithelium was closed in 85% of the eyes. Eyes of group 1 showed less persistent postoperative epithelial defects: in 90% of eyes in group 1 versus 61% of eyes in group 2, the corneal epithelium was closed within 4 weeks (p=0.02; χ² test; figure 1). Only 20% of eyes in group 1 developed new corneal epithelial defects or corneal ulcers versus 42% in group 2, but this effect was statistically not significant (NS). Thirty per cent in group 1 and 46% in group 2 showed suture loosening; approximately one-third of patients in both groups (35% in group 1 vs 56% in group 2) required subsequent surgical procedures during the follow-up period. At the end of follow-up, most of the grafts (80% in group 1, 70% in group 2, NS) were clear without scarring or corneal oedema.

CONCLUSION Simultaneous AMT as a patch can be beneficial in eyes with severe corneal melting disorders requiring immediate PK by promoting postoperative wound healing and by subsequently increasing the prognosis of the corneal graft. This technique offers an alternative strategy in advanced cases of corneal melting.

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