

Letter to the Editor

Amniotic membrane transplantation associated with a corneal patch in a paediatric corneal perforation

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Editor,

A 9-year-old girl was admitted to our department because of sudden ocular pain and visual acuity loss caused by a corneal perforation in the right eye. The patient had suffered an episode of herpes simplex virus (HSV) stromal keratitis in the same eye 10 months earlier, which was resolved by the administration of oral acyclovir, topical trifluridine and dexamethasone. The aetiological diagnosis of HSV was based on clinical and indirect serologic immune enzymatic reactivity (indirect fluorescence assay [IFA]), which confirmed the presumed HSV keratitis reinfection. On admission, the patient referred to no history of corneal symptoms or eye trauma since the previous keratitis episode. Visual acuity was counting fingers at 10 cm and ocular examination revealed a 4-mm paracentral ulceration with the iris incarcerated inside (Fig. 1). The anterior chamber was partially collapsed and corneal diffuse stromal inflammation with conjunctival injection was observed.

Prophylactic antibiotic and anti-inflammatory treatments with tobramycin eyedrops six times per day, cyclopentolate 1% eyedrops once per day and oral amoxicillin suspension twice per day (50 mg/kg/day) were started immediately. Penetrating keratoplasty (PK) under general anaesthesia was scheduled 1 day after admission to the hospital. Viscoelastic materials were injected to deepen the

anterior chamber and to prevent peripheral anterior synechiae, via a temporal corneal paracentesis. The original operation plan was changed and a corneal circular human patch (diameter: 3 mm) was anchored with eight 10-0 nylon interrupted sutures to fill up the perforated area. A large, monolayer amniotic membrane (AM) graft was also put in place, with its epithelial side up to cover and protect the corneal patch (Fig. 2).

After surgery, topical tobramycin and artificial tears were administered four times per day for 8 weeks and oral acyclovir (20 mg/kg/day) was used for 3 months. The patient was followed up for 10 months. The AM dissolved at 1 month and corneal suture removal was performed at 5 months to reduce limbal neovascularization (Fig. 3). At the final ophthalmological examination

(at 10 months), corneal transparency as a result of the epithelialization of the corneal graft and the stability of the corneal stromal thickness was observed. The patient's best corrected visual acuity was 18/20 and no recurrence of HSV corneal disease was observed.

Herpes simplex virus stromal keratitis may interfere with vision and predispose to amblyopia in cases of recurrent herpetic infection in childhood. However, only a few case series of HSV keratitis in children have been reported in the literature and the occurrence of corneal perforation is a rare but invalidating complication which may be related to an excessive inflammatory response and recurrence of the disease (Chong et al. 2004). Multilayered AM transplantation or PK may be performed for the

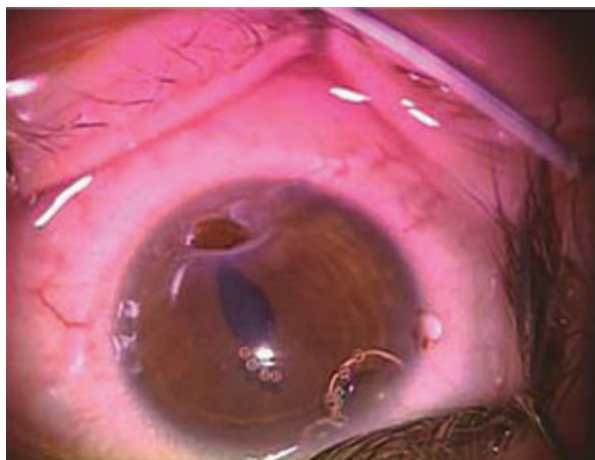


Fig. 1. Paracentral perforation with part of the iris trapped in the cornea.



Fig. 2. A monolayer amniotic membrane graft is added to cover and protect the corneal patch.

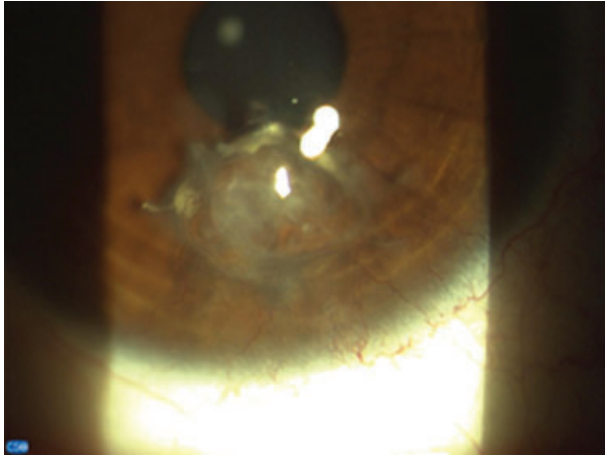


Fig. 3. At 5 months, corneal suture removal is performed to reduce limbal neovascularization.

treatment of corneal perforations in the absence of response to conventional treatment (Tuli et al. 2007). However, PK after HSV keratitis has been reported as a risk factor for recurrent infection and successive corneal graft rejection (Sterk et al. 1995). It has recently been shown that AM transplantation can significantly decrease the number of inflammatory cells in the cornea after HSV infection and reduce the severity of necrotizing keratitis (Heiligenhaus et al. 2003). However, it can be performed only in small and medium-sized perforations (Rodriguez-Ares et al. 2004).

This report demonstrates for the first time the efficacy of AM trans-

plantation combined with corneal patching for stromal herpetic perforation in children, which, along with appropriate systemic therapy, yields rapid healing of the corneal surface. Whereas AM transplantation facilitates a decrease in the number of inflammatory cells and helps to avoid graft rejection, PK helps to preserve the integrity of the ocular anatomy and to prevent potential secondary amblyopia in cases of large perforation. Pre- and postoperative systemic antiviral therapy is nonetheless advised as a prophylactic measure. However, this approach must be validated in larger series of patients affected by this rare condition.

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