

Reconstruction of Damaged Corneas by Transplantation of Autologous Limbal Epithelial Cell

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摘要

Abstract

BACKGROUND: Stevens-Johnson syndrome, ocular pemphigoid, and thermal or chemical burns can cause scarring and opacification of the cornea and loss of vision. Transplantation of epithelial cells from the limbus of the contralateral cornea can restore useful vision. However, this procedure requires a large limbal graft from the healthy eye and is not possible in patients who have bilateral lesions. **METHODS:** We took specimens of limbal epithelial cells from the healthy contralateral eyes of six patients with severe unilateral corneal disease. The epithelial cells were cultured and expanded on amniotic membrane. The amniotic membrane, together with the sheet of limbal epithelial cells, was transplanted to the denuded corneal surface of the damaged eye after superficial keratectomy to remove fibrovascular ingrowth. The mean (+/-SD) follow-up period was 15+/-2 months. **RESULTS:** Complete reepithelialization of the corneal surface occurred within two to four days of transplantation in all six eyes receiving transplants. By one month, the ocular surface was covered with corneal epithelium, and the clarity of the cornea was improved. In five of the six eyes receiving transplants (83 percent), the mean visual acuity improved from 20/112 to 20/45. In one patient with a chemical burn who had total opacification of the cornea, the acuity improved from the ability to count fingers at 40 cm to 20/200. No patient had recurrent neovascularization or inflammation in the transplanted area during the follow-up period. **CONCLUSIONS:** Transplantation of autologous limbal epithelial cells cultured on amniotic membrane is a simple and effective method of reconstructing the corneal surface and restoring useful vision in patients with unilateral deficiency of limbal epithelial cells.