

Fibrin glue-assisted sutureless limbal stem cell transplantation surgery for the treatment of severe ocular chemical injury.

Authors: Sonmez B, Beden U

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Abstract:

PURPOSE: To report the use of fibrin tissue glue in securing the keratolimbal allograft (KLAL) and living-related conjunctival limbal allograft to the ocular surface in patients with severe ocular chemical injury.

DESIGN: A retrospective review of interventional case series.

METHODS: Conjunctival limbal allografts were harvested from the first-degree living-related relatives under topical anesthesia and fixated to the superior and inferior limbal quadrants in the recipient eye. The KLALs were fixated mainly to the nasal and temporal limbus with the help of fibrin tissue glue after being cut into 2 crescents and manually dissected to near one-third thicknesses in a lamellar fashion.

RESULTS: Five eyes of 4 patients were included in the study. The sources of the chemical injuries were: CaOH₂ (3 eyes), NaOH (1 eye), and mitomycin C (1 eye). The limbal stem cell deficiency was 360 degrees in 4 eyes and 300 degrees in 1 eye. Corneas were covered with conjunctiva or fibrovascular tissue adjacent to the areas with limbal stem cell deficiency. The fibrin tissue glue was effective in securing both the keratolimbal and the conjunctivolimbal grafts at the surgery. Postoperatively, the corneal epithelium healed within 1 week in all of the eyes. Neither graft dislocation nor graft rejection occurred after a mean of 18.2 months of follow-up.

CONCLUSIONS: The use of fibrin glue to fixate the KLAL and the living-related conjunctival limbal allograft in patients with severe chemical trauma is practical and effective. This technique may also be beneficial in terms of decreasing the risk of rejection in this patient group.