

Modified emulsion polymer isocyanate-gluing: A minor amendment in cyanoacrylate glue application

Dear Editor,

We have recently described a modified method of cyanoacrylate glue (CG) application named "Emulsion polymer isocyanate-gluing (EPI-gluing)" for noninfective nontraumatic corneal perforations ≤ 3 mm in size.^[1] Briefly, in this method, a small patch of fresh epithelium harvested from an adjacent healthy area of the cornea is transplanted to the site of melt before the application of CG. We conceptualized that the former might function as a mechanical barrier to aqueous leak and intracameral manipulations besides providing tectonic support to CG and promoting host-site epithelial healing. However, we also expressed our concerns regarding a remote possibility of infection and melt at the donor-site due to breach of epithelial integrity.

In order to overcome this fear, in our next five cases, we debrided 1mm concentric peri-melt epithelium (PME) and packed it inside the melt area, a process akin to inverted internal limiting membrane (ILM) flap technique for macular hole closure [Video 1].^[2] However, unlike inverted ILM flap technique, in our modified method of EPI-gluing, we completely detached the PME from its adhesions and took necessary care to lay it epithelium side-up on the melt area (to avoid any risk of epithelial ingrowth). Usually, this PME is discarded due to the belief that it being necrotic and inflamed,

could limit stromal adhesion of CG. No intraoperative or postoperative complications were encountered in our series of patients with the results being reasonably favorable. Modified EPI-gluing with PME, therefore, provided all benefits of EPI-gluing without disturbing the adjacent healthy corneal areas. Postoperative serial anterior segment optical coherence tomography could not reveal the status of transplanted PME due to shadowing effect of overlying CG [Fig. 1]. The final assessment after dislodgement of glue revealed a healed perforation with an intact epithelium.

Unlike adjacent healthy epithelium, the PME can be easily debrided due to its weak adhesions with the underlying stroma. This circumvents the need for any alcohol-based delamination and its subsequent intraocular entry. Nevertheless, extreme caution is required during the harvesting process to prevent unnecessary trauma to the already fragile melt area. We believe that utilizing PME not only evades the need for manipulating adjacent healthy areas, but also promotes adhesion of CG by baring the surrounding stroma. We presume that this minimalizes the risk of infection as the latter remains almost always covered by CG till its dislodgement. However, long-term studies comparing different methods of gluing are required for any conclusive evidence.

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Conflicts of interest

There are no conflicts of interest.

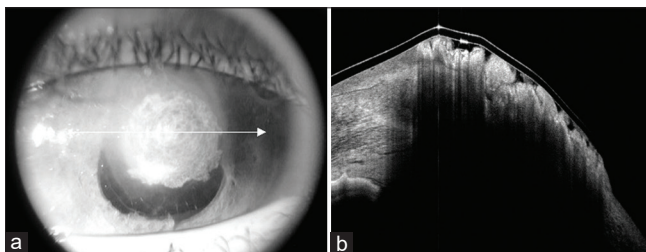


Figure 1: Postoperative clinical photograph (a) and ASOCT (b) showing shadowing effect of cyanoacrylate glue on underlying corneal layers

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