

# **Fibrin sealing improves stability of corneal prostheses during vitreoretinal procedures.**

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## **Abstract:**

**PURPOSE:** The aim of this study was to test the effectiveness of using a fibrin sealant as an aid to stabilize temporarily sutured keratoprotheses.

**METHODS:** Ex vivo the corneas were removed from six porcine eyes, and an Eckardt prosthesis was sutured and additionally fixed with fibrin sealant. The outflow resistance was recorded from eyes with and without fibrin-sealed keratoprotheses at different levels of intraocular pressure. The method of sealing the prosthesis was applied in the clinic and documented in four patients during intravitreal surgery.

**RESULTS:** The flow volume of the irrigating system was measured ex vivo. Control trials were performed to investigate the effects of graduated increases in hydrostatic pressure on the system. Leakage areas were calculated, and the stability of the system was monitored during the surgical procedure. Slit-lamp biomicroscopy, funduscopy, and visual outcome were documented in the patients. Ex vivo the differences in the leakage areas between the fibrin-sealed and the unsealed conditions were statistically significant up to 51.45 mmHg ( $P = 0.01$ ). In clinical applications, the fibrin sealant stabilized the keratoprosthesis, and no significant leakage or system instabilities occurred.

**CONCLUSIONS:** The results confirm that sealing increases the stability of the keratoprosthesis and

may enable greater surgical control.