

**Session 3-U: Cataract: OVDs, Wound Construction**

**Title: In Vivo Dynamic Architectural Analysis of 3.2 mm Clear Corneal Incisions for Coaxial Phacoemulsification with OCT**

**Presenter:** Luis F. Torres, MD, PhD

**Contributing Authors:** Fidelia Sáez-Espínola, MD, José Díaz, MD, Juner Colina, MD, Ricardo Agurto, MD, Tania Valderrama, MD, Myriam Retchkiman, MD, Carlos Díaz, MD, Everardo Hernández, MD

**Purpose:** To analyze dynamic changes in the architecture of clear corneal incisions (CCIs) for coaxial phacoemulsification using optical coherence tomography (OCT).

**Methods:** A prospective, longitudinal, masked study in 27 eyes who had coaxial phacoemulsification and IOL implantation was done. All CCIs were created using a disposable, 3.2mm, trapezoidal, steel keratome. Radial and perpendicular images of CCIs were obtained using OCT at 1, 3, and 21 days after phacoemulsification. Intraoperative parameters recorded were: surgeon experience and incisional closure (sutured vs sutureless). Postoperative clinical variables also recorded at different timepoints were incisional leakage, corneal edema, level of anterior chamber (AC) inflammation and intraocular pressure (IOP).

**Results:** 85.2% of the incisions were sutureless. No wound revealed leakage. The angle of incision varied from 33 to 90° independently of the level of surgeon experience. Wound apposition in the epithelial margin was always perfect. In contrast, bad apposition of the endothelial margin was demonstrated in 48.1% of the cases at day 1, and remained in 14.8% at day 21. Gaping along the length of incision was documented in 29.6% at 24 hrs but persisted only in 7.4% at 3 weeks. There were no statistically significant correlation between apposition or gaping with angle of incision, IOP variations, or surgeon experience.

**Conclusions:** Although “in vivo” CCIs presented minor anatomical imperfections in the early postoperative period, they are clinically stable independently of angle of incision, IOP variation or surgeon experience. Efficient epithelial sealing and endothelial pumping may have an important role in the differences observed with respect to in vitro studies.