Corneal incisions in extra capsular cataract extraction versus phacoemulsification: OCT morphological study

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Abstract:

Purpose: To study the architecture of Extra capsular cataract extraction (ECCE) versus Phacoemulsification clear corneal incisions using anterior segment spectral domain optical coherence tomography (SD-OCT). Setting/Venue: Ophthalmology Department, Assiut University Hospitals, Assiut, Egypt. Methods: This is observational prospective cross-sectional study comprised 40 eyes of 40 patients after cataract surgery (20 eyes underwent ECCE and 20 eyes underwent phacoemulsification). Each eye was scanned 2 months after surgery at the corneal incision site with anterior segment SD-OCT. (RTVue-100; Optovue) Results: We compared between the incision architecture in the ECCE and phacoemulsification groups considering any architectural changes in the epithelial side; endothelial side, stromal healing of the corneal wound. Wound apposition at the epithelial margin was achieved in all cases. Imperfect apposition of the endothelial margin (Stepping and wound gaping) was seen in 45% of the ECCE group and 10% of the phacoemulsification group. Irregularity of the stromal healing line was seen in 25% of the ECCE group while was not seen in the phacoemulsification group. Double level of stromal entry was observed in 20% of ECCE group and was absent in the phacoemulsification group. Only one case of epithelial ingrowth into the anterior chamber was detected in the ECCE group. Conclusions: Phacoemulsification clear corneal wound is characterized by better reproducibility in construction, more regularity in the stromal healing line, and more sealing at the endothelial side than the ECCE corneal wound. Both ECCE and phacoemulsification corneal incisions seal well at the epithelial side of the corneal wound.

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