Visante anterior segment optical coherence tomography analysis of morphologic changes in the anterior segment structures after deep sclerotomy versus phaco-deep sclerotomy with intraoperative mitomycin-C and no implant use

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Purpose: To compare intrascleral bleb characteristics after non-penetrating deep sclerectomy (NPDS) and Phaco-NPDS after 5 years of follow-up using Visante anterior segment optical coherence (AS-OCT).

Methods: This Cross-sectional study examined 47 eyes from 47 patients who had undergone either NPDS (27 eyes) or Phaco-NPDS (20 eyes). Intraocular pressure (IOP) measurements, best corrected visual acuity, slit-lamp examination, and Visante scans were performed.

Results: The significant reductions of IOP and antiglaucoma medication occurring in both groups were comparable (p > 0.05). The mean IOP reduction was 37.26% in the NPDS group and 41.57% in the Phaco-NPDS group. The success rates of the two procedures were also comparable (p = 0.88). Intraoperative complications did not occur in either group. AS-OCT revealed the presence of an open intrascleral space in all eyes evaluated in both groups. Mean height (0.32 vs 0.33 mm), transverse length (2.76 vs 2.78 mm), anteroposterior length (2.32 vs 2.48 mm) and volume of the scleral lake (2.68 vs 2.67 mm$^3$) were also comparable (p > 0.05). There were no significant differences in subconjunctival filtering bleb type between groups (p = 0.09).

Conclusions: Phaco-NPDS is a valid option in patients suffering from glaucoma and cataract because potential pathways for aqueous humor drainage are maintained, the surgery has a low rate of complications, and it permits a good control of IOP.