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Management of Severely Subluxated Cataracts using Femtosecond Laser Assisted Cataract Surgery

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Abstract

Purpose: To assess the role of femtosecond laser technology in the management of severely subluxated cataracts

Design: Retrospective, interventional case series

Methods: All eyes with subluxated cataract seen between July 2012 and June 2015 were assessed for suitability for femtosecond laser assisted cataract surgery, with the use of capsular tension devices. Participants with subluxated cataracts of at least 6 clock hours of zonular weakness were included in the study. Data collected included patient demographics, pre and post-operative best corrected visual acuity (BCVA), nuclear density, extent of zonular weakness, completeness of capsulotomy and complications. Poor visual outcome was defined as BCVA of worse than 20/40. Main outcome measure was the retention of the capsular bag.

Results: Of the 72 eyes with subluxated cataracts undergoing surgery during the study period, 47 eyes of 47 patients were eligible for analysis. Mean age of the patients was 60.7 years old (standard deviation [SD] 13.2 years). The majority were male (32, 68.1%) and Chinese (38, 80.8%). The mean duration of follow up was 8 months (SD 5.6). The main identifiable cause of lens subluxation was trauma (11 eyes). Almost two-thirds (30 eyes) had more than 9 clock hours of zonular weakness. Seventy percent of cataracts (33) were nuclear sclerosis grade 3 and above. The capsular bag was preserved in 43 eyes (91.5%). The intraocular lens was stable and centered at the last follow up in all these 43 eyes. An anterior capsule tear occurred in 6 eyes, all of which had cataracts of nuclear sclerosis grade 3 and above, with posterior extension occurring in 3 eyes. Primary posterior capsule rupture occurred in one eye. At one month 37 eyes (80.4%) had a BCVA of 20/40 or better. There was significant improvement in BCVA at one month [mean of 0.92 logMAR units (SD 0.88) to 0.22 (SD 0.38) ($P<0.001$, paired samples T-test)] which was maintained at 1 year.

Conclusions: Selected cases of severely subluxated cataracts may be managed using femtosecond laser technology to perform the capsulotomy and nuclear fragmentation,