Modified trabeculectomy with extended subscleral tunnel: A secured way to successful glaucoma surgery

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Purpose: To describe a modified surgical technique which combined the beneficial effects of an extended subscleral tunnel (ESST) augmented with postoperative mitomycin-C (MMC) drops, and to evaluate its safety and efficacy in controlling IOP in glaucoma patients.

Methods: Controlled randomized prospective clinical trial included 54 eyes of 46 patients diagnosed with primary open angle glaucoma (1ry OAG). They were divided into two equal groups: the ‘trabeculectomy with adjunctive MMC only’ treatment group A, and the ‘modified trabeculectomy with adjunctive MMC and ESST augmented with postoperative MMC drops (0.03mg/ml)’ treatment group B. Ultrasonic biomicroscopy (UBM) measurement of the aqueous drainage route (ADR) was done at 12 and 24 months postoperatively. The main outcome results included cumulative probability of surgical success, IOP values, number of antiglaucoma drugs needed.

Results: Group B achieved a cumulative probability of complete success of 0.68 and qualified success of 0.28 at the end of the 24-months study period, however group A achieved 0.44 and 0.40 respectively. Group B succeeded to achieve a lower mean IOP values than group A with less antiglaucoma drugs at all postoperative visits, but not to the statistically significant level (p > 0.05). The ADR was always larger in group B and there was a statistically significant decrease in its size only in group A (p = 0.036). Group B achieved statistically significant less early and late postoperative complications as well as additional interventions, when compared to group A (p = 0.029). No significant adverse effects were caused by this modified combined technique.

Conclusion: Modified trabeculectomy with ESST combined with adjunctive augmented MMC could present an efficient, safe, familiar and applicable treatment technique for a successful trabeculectomy. It may provide a favorable long-term outcome representing a simple novel way to successful glaucoma surgery.