CO2 LASER-ASSISTED SCLERECTOMY SURGERY (CLASS) FOR VARIOUS GLAUCOMA TYPES – SHORT TERM RESULTS

Background:
CLASS is a non-penetrative technique in which only the outer wall of Schlemm’s canal is removed, while keeping intact the anterior chamber. The aim of the study was to evaluate the efficacy of CO2 laser-assisted sclerectomy surgery (CLASS) in primary and secondary open-angle glaucoma.

Methods:
A. Surgical procedure: Ten patients underwent CLASS with a CO2 laser system (IOPiMate, OT-135P2-IOPtimaLtd, Israel). Following the exposure of limbus by creation of 5x5 mm scleral flap, deep scleral layers within scleral bed were gradually ablated until percolating fluid was observed from the ablated area. The percolating aqueous humor from the exposed Schlemm’s canal absorbs the laser energy and thus stops the effect of further ablations, which serves as a safety mechanism in a self-controlled manner.

B. Patients: Ten patients underwent CLASS as a primary filtration surgery for primary (POAG) or secondary open-angle glaucoma. Eight eyes were operated for POAG, 2 eyes for secondary capsular glaucoma associated with pseudoexfoliation syndrome (PXG). Intraocular pressure (IOP) was measured at the baseline, then 1, 2, 4 weeks and 2, 3, and 6 months postoperatively.

C. Outcome evaluation: Complete success was defined as 5±IOP≤18 mmHg and 20% IOP reduction with no medication at a 6-months endpoint visit. Qualified success was defined as the same as preoperatively IOP range with or without medication.

Results:
All of ten patients completed 6 months of follow-up. The mean baseline IOP of 25.4±3.7 mmHg (mean±SD) decreased to 15.1±3.1 mmHg at 6 month. A mean IOP reduction of 38.4% was achieved at 6 months (P<0.0001). The mean number of anti-glaucoma topical medications was reduced from 3.8±0.4 at the baseline down to 0.3±0.7 at the last follow-up visit. Intraoperative complications were mild and with no sequelae. At 6 month of follow up time, complete success was achieved in 80% of patients, whereas qualified success was achieved in 100% of patients.

Conclusion:
Short-term results show that CLASS may become a safe and effective treatment for primary and secondary capsular open-angle glaucoma.