

SAFETY AND EFFICACY OF CO2 LASER-ASSISTED SCLERECTOMY VERSUS TRABECULECTOMY – ONE YEAR RESULTS



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INTRODUCTION

Compared to conventional trabeculectomy, the gold standard for glaucoma surgery, nonpenetrating deep sclerectomy (NPDS) has a higher safety profile, but with an increased technical difficulty. CO2 laser-assisted sclerectomy surgery - CLASS (IOPTiMate®, IOptima, Israel) is an alternative to the manual NPDS procedure, that simplifies the most delicate step by gradually removing scleral tissue until Schlemm's canal, leaving a thin intact layer through which aqueous humour percolates.

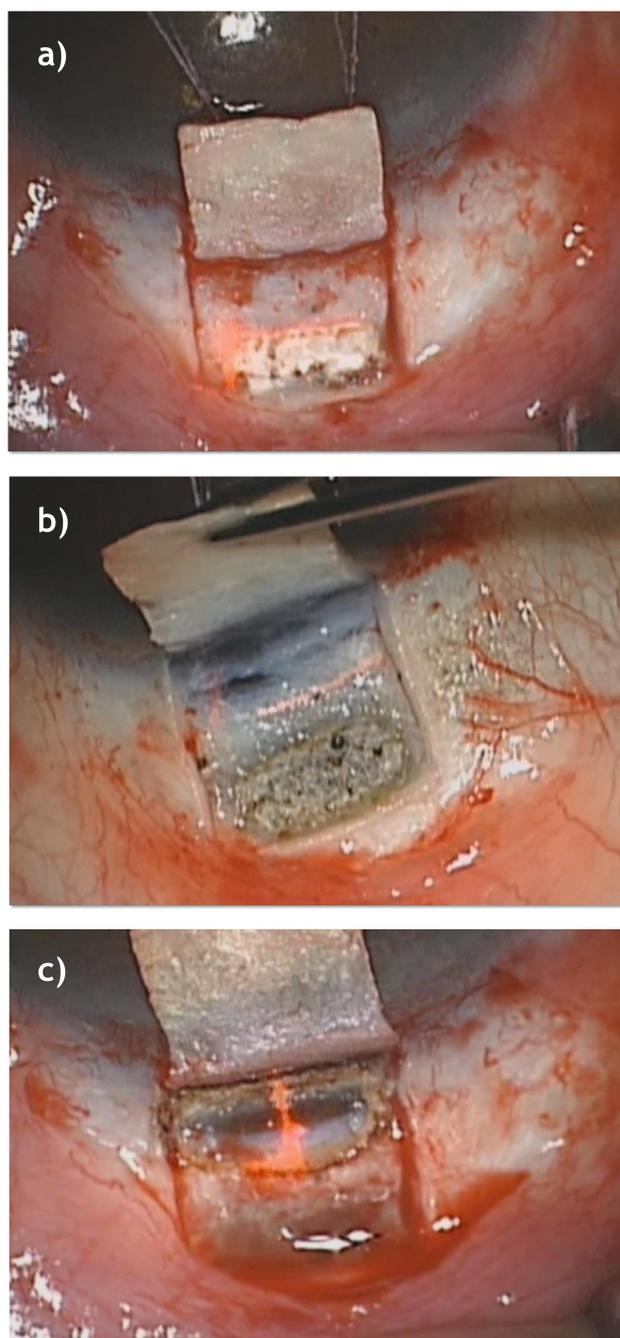


Fig 1 – CLASS procedure
a) Scleral lake ablation
b) Schlemm's canal ablation
c) Aqueous humour percolation

PURPOSE

This study aimed to compare the safety and efficacy of glaucoma surgery using either CO2 LASER-assisted sclerectomy surgery (CLASS) or trabeculectomy (TRAB), in patients with open angle glaucoma.

METHODS

Retrospective case series including consecutive patients with primary and pseudoexfoliative open angle glaucoma, submitted to filtration surgery between January and December 2016. Topical Mitomycin C 0,2 mg/ml for 2 minutes was applied in all patients. The best corrected visual acuity (BCVA), intraocular pressure (IOP) and number of instilled antiglaucomatous medications were documented at baseline and at 1 week, 3 weeks and 1, 3, 6 and 12 months. All intra and postoperative complications were registered. Complete success was defined as an IOP ranging from 5-19 mmHg, with a minimal reduction of 30% with no medications. Qualified success was defined by the same criteria with and without medications.

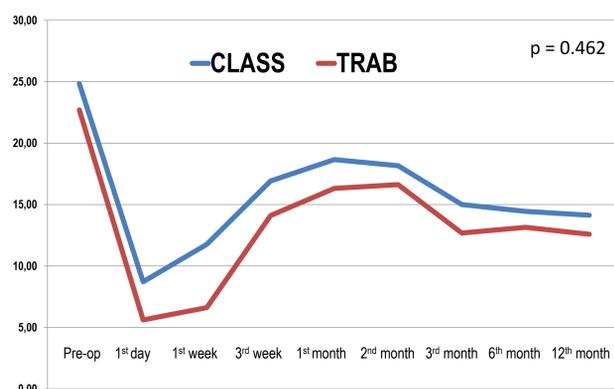


Fig 2 – IOP variation during follow-up

	CLASS (n=17)	TRAB (n=20)
Hypotony (PIO ≤ 5 mmHg)	3 (17.6%)	8 (40%)
HypHEMA	0	3 (15%)
Shallow anterior chamber	0	2 (10%)
Choroidal detachment	0	1 (5%)

Fig 3 – Post-op complications

RESULTS

Thirty seven eyes from 37 patients were submitted to CLASS (n=17) or TRAB (n=20). The two groups were similar in pre-op IOP and demographic factors. In the immediate postoperative period, were registered in the CLASS group 3 cases of hypotony and no other complications; in the TRAB group: 8 cases of hypotony (PIO ≤ 5), 3 cases of hypHEMA, 2 shallow anterior chambers and one choroidal detachment. On the follow-up, two goniopunctures and two needlings were required on the CLASS group vs. six needlings on the TRAB group. At the 12th month visit, a mean IOP reduction of 40.1% was registered in CLASS group (vs. 44.6% in TRAB), p=0.462, with a mean reduction of 2.5 medications (vs. 2.8 in the TRAB group). The complete success rate was 55% in CLASS group vs. 50% in TRAB group and the qualified success rate was, respectively, 88% and 90%.

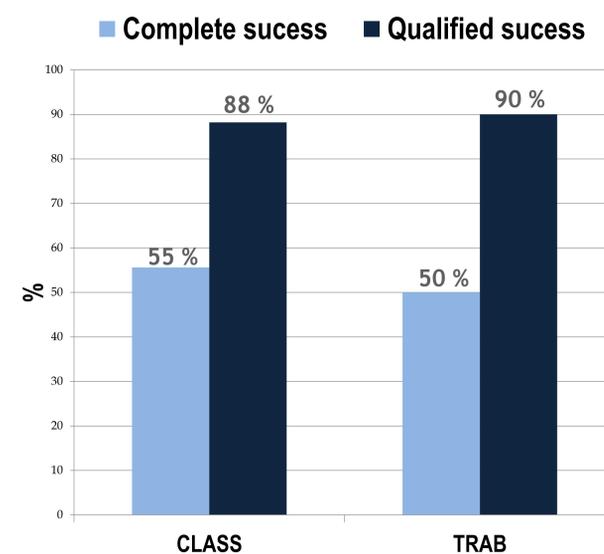


Fig 4 – Complete and qualified success at 12th month

CONCLUSIONS

The results of our study provide evidence of a similar efficacy profile between CLASS and TRAB, but with less postoperative complications in the CLASS group. CLASS yields an easier and safer deep sclerectomy surgery mostly due to a controlled ablation of the Schlemm's canal.