

# The efficacy of CO<sub>2</sub> laser-assisted deep sclerectomy (CLASS) in Chinese open angle glaucoma (OAG) patients: 12-Months Results

Gangwei Cheng, Meifen Zhang, Yong Zhong, Jialiang Zhao. CHINA

## Purpose:

To determine the safety and efficacy of CO<sub>2</sub> laser-assisted deep Sclerectomy (CLASS) in Chinese open angle glaucoma patients at 12 months' follow up.

## Methods:

33 eyes of 29 consecutive patients with open angle glaucoma (OAG), including 21 POAG eyes, 6 uveitic glaucoma eyes, 3 JOAG eyes, 2 steroid induced OAG eyes, and 1 traumatic glaucoma eye were recruited in a nonrandomized prospective study.

Laser-assisted deep sclerectomy using a CO<sub>2</sub> laser system (IOptiMate, IOptima) was performed in all patients. A one-third-thickness scleral flap (5\*5mm in size) was created, and a CO<sub>2</sub> laser with a beam-manipulating system was used to achieve deep scleral ablation (over 90% of the sclera depth) and unroofing of Schlemm's canal zone. 0.04% Mitomycin C for 2 minutes or 5Fu for 4 minutes was applied at the scleral lake. Antimetabolic agents were also used at subconjunctival space and sub-superficial flap (before CO<sub>2</sub> ablation) at the surgeon's discretion. Visual acuity, complete ophthalmologic examination, and IOP were measured and documented at baseline, 1 day, 1, 2,4,8 weeks and 6 and 12 months. UBM was used to examine the scleral lake at 1, 3, 6 and 12 months.

Complete success was defined as  $5 \leq \text{IOP} \leq 21$  mmHg reduction with no IOP lowering medication. Qualified success was defined as a similar IOP range with one antiglaucoma medication. Laser Goniopuncture (LGP) was applied for chosen cases post-operatively.

## Results:

The preoperative IOP of  $36.9 \pm 13.0$  mmHg (mean  $\pm$  SD) dropped to  $7.2 \pm 1.7$  at one day and  $16.6 \pm 3.8$  mm Hg at 12 months. 3 eyes were converted to trabeculectomy due to Iris incarceration (2/33) and totally closure of scleral lake (1/33, uveitic OAG) post-operatively. 36.4% (12/33) of the eyes underwent LGP. Scleral lake existed in 72.7% (24/33) eyes at 12 months visit. Complete success rate at endpoint was 54.5% (18/33) while Qualified success was 81.8% (27/33). Complications were mild and with no sequelae.

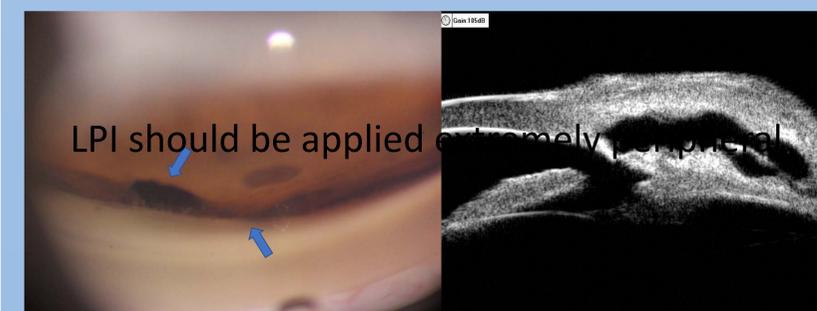
## Conclusions:

**CLASS has been proven as an effective treatment for Chinese OAG patients. It could potentially treat secondary open angle glaucoma. Further modification and peri-operative management are necessary to evaluate the long-term effect of CLASS.**

IOP change after CLASS Surgery



TDW (Trabecular Decement Window) after LGP (Blue Solid Arrow)



LPI+ALPI is recommended in **Chinese** OAG patients before or after CLASS procedure, which would remarkably reduce the risk of PAS or iris incarceration, (Left superior photograph).

UBM was valuable to examine the scleral lake and TDW area (Right superior photograph).

## Disclosure

I have the following financial interest or relationship to disclose:  
IOptima Ltd., Tel Aviv, Israel.