Safety and efficacy of CO₂ laser assisted sclerectomy with mitomycin C as stand alone and combined with phacoemulsification. 1 year follow up results.

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**ABSTRACT**

- **Purpose:** To determine safety and efficacy of CO₂ Laser Assisted Sclerectomy (CLASS) with mitomycin C and combined procedure of phacoemulsification with CO₂ Laser Assisted Sclerectomy with mitomycin C over the course of 1 year, determined by IOP reduction and medication reduction.
- **Methods:** An ongoing, retrospective interventional non-randomized comparative chart review.
- **Results:** We reviewed 42 eyes over 1 year follow-up. Main outcomes measures were taken at the same day of operation and 1-day, 6 months and 12 months post-operation, and analyzed for the overall group, Phaco + CLASS group and CLASS alone group.
- **Conclusions:** CO₂ Laser Assisted Sclerectomy with mitomycin C was found to be safe and efficacious in the immediate postoperative period, on the same day, 24 hours, 6 months and 1 year after procedure. One year results have shown the advantages of this BAGS (Bleb Less AB-externo Glaucoma Surgery) procedure. At the time of the current report, no adverse events nor complications were noted.

**TECHNOLOGY**

- This procedure takes advantage of the use of CO₂ laser technology to ablate tissue from sclera and of the schlemm’s canal roof to allow percolation of aqueous to the subconjunctival and suprachoroidal spaces, which can be adapted to any microscope at the time of the surgery.

**RESULTS**

- From the initial 42 eyes enrolled in the follow up after CLASS procedure, 26 had sufficient data collection to make a statistical analysis at 12 months post op.
- Glaucoma severity of included patients ranged from mild field loss to advanced stage.
- Intraocular pressure was 20.8±6.7 mmHg.
- Mean number of glaucoma medications pre-operatively was 3.6±1.1 (range 2-5).
- Glaucoma severity ranged from mild field loss to advanced stage.
- Mean post-operative intraocular pressure on the same day was 11.8±8.1 mmHg (range 0-36), and at 1-day post surgery result was 12.8±6.3 mmHg (range 2-27).
- At 6 months, average IOP was 13.5±4.5 (range 6-29) and at 12 months average IOP was 14.7±3.6 (range 7-21), P < 0.05.
- Mean postoperative intraocular pressure was 20.8±6.7 mmHg.
- Mean number of glaucoma medications pre-operatively was 3.6±1.1 (range 2-5).
- Mean postoperative intraocular pressure on the same day was 11.8±8.1 mmHg (range 0-36) and, at 24 hours after surgery result was 12.8±6.3 mmHg (range 2-27).
- At 6 months, average IOP was 13.5±4.5 (range 6-29) and at 12 months average IOP was 14.7±3.6 (range 7-21), P < 0.05.
- On group comparison (combined Phaco + CLASS vs. CLASS alone) some differences were noted:
  - Initial iop drop was greater in CLASS alone procedure (22.9±7.0 vs 20±6.5)

- At 12 months, IOP drop was greater in average in CLASS alone group (-7.35 mmHg vs -5.35 mmHg), P < 0.05.
- Drops administered at 12 months was 0±1.2 for combined procedure, and 1±1.1 in CLASS alone procedure.

**METHODS**

- Follow up of 42 eyes during one year, performing IOP measurements pre-op, same day post op, one week post op, 6 months post op, 10 months post op and 12 months post op.
- After collecting data, the group was sub divided in 2:
  - Combined Phaco + CLASS + MMC
  - CLASS + MMC alone

<table>
<thead>
<tr>
<th>Overall Group</th>
<th>Phaco + CLASS</th>
<th>CLASS alone</th>
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<tbody>
<tr>
<td>Day 0</td>
<td>20.82</td>
<td>22.8</td>
</tr>
<tr>
<td>24 hrs</td>
<td>13.78</td>
<td>14.62</td>
</tr>
<tr>
<td>6mo</td>
<td>13.64</td>
<td>14.94</td>
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<tr>
<td>12 mo</td>
<td>13.66</td>
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</tbody>
</table>

**CONCLUSIONS**

- CO₂ Laser Assisted Sclerectomy with mitomycin C was found to be safe and efficacious in the immediate postoperative period, on the same day, 24 hours, 6 months and 1 year after procedure. One year results have shown the advantages of this BAGS (Bleb Less AB-externo Glaucoma Surgery) procedure. At the time of the current report, no adverse events nor complications were noted.
- Further follow up and data analysis is required to evaluate the efficacy of this procedure on a longer term.

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