Intraductal Meibomian Gland Probing for Meibomian Gland Dysfunction Using VAS Testing

Steven L. Maskin, MD
FACOS
Tampa Eye and Ear Treatment Center
Tampa, Florida. www.drmaskin.com

Methods:

Purpose: To evaluate results of intraductal meibomian gland probing for lid tenderness as well as symptoms excluding lid tenderness using a standardized VAS test.

Results of Meibomian Gland Probing on VAS for Symptoms of MGD Excluding Lid Tenderness

<table>
<thead>
<tr>
<th>TIME (MONTHS)</th>
<th>≤ 1 MONTH</th>
<th>≤ 3 MONTH</th>
<th>&gt; 3 MONTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 13</td>
<td>62.7 ± 13.9 (82%)</td>
<td>57.4 ± 14.3 (79%)</td>
<td>51.4 ± 14.6 (74%)</td>
</tr>
<tr>
<td>l = 30</td>
<td>62.7 ± 13.9 (82%)</td>
<td>57.4 ± 14.3 (79%)</td>
<td>51.4 ± 14.6 (74%)</td>
</tr>
</tbody>
</table>

Follow-Up Study 1: Meibomian Gland Probing With Lid Tenderness

Results: Average patient age of probing was 62 ± 14.9 with a range of 40 - 83 years. A total of 63 lid probing sessions were performed on 24 patients with pre probing VAS scores ranging from 64.5 to 204.3 mm. The average VAS score for lid tenderness was 98.7 ± 14.4 (86%) for less than or equal to one month, 98.6 ± 14.4 (86%) for one to three months, and further improved to 95.1 ± 19.3 (80%) for three to six months, then to 92.4 ± 20.8 (78%) at six to nine months, and at nine to twelve months to 84 ± 14.3 (72%). Eighty-three lids of two patients have been analyzed, one of which underwent lid probing twice. The average last VAS measurement was 14.0, an average reduction of 75.5% at an average follow up of 5.8 ± 4.3 months.

Follow-Up Study 2: Meibomian Gland Probing Excluding Lid Tenderness

Results: Patients ages ranged from 14 to 91 of probing with average age of 60 ± 21. In twenty-one (21) lids of 6 patients, there was a mean pre-probing score of 15.3 ± 20.4 with an immediate post probing mean score of 1.9 ± 20.2 and a reduction of 88 ± 20.4 (84%) at three to six months. Symptoms yielded a VAS reduction of 100% at one to three months, and 91.5 ± 24.5% at three to six months. The average VAS score for lid tenderness was 81.6 ± 25.5 (66%) for less than or equal to one month, 73.7 ± 24.6 (59%) at one to three months, and 60.4 ± 22.4 (45%) at three to six months. Lid symptoms which improved included lid pressure, heaviness, puffiness, awareness, irritation, discomfort, dryness, grittiness, foreign body sensation, and lacrimation. Other symptoms that improved included eyelid, palpebral, and photophobia. There was an overall mean VAS reduction of 3.9 ± 4.0 (32%) at an average follow up of 36.4 ± 30.5 months.

Discussion:

Retreatment Data For 23 Of Original 25 Cases Of Obstructive Meibomian Gland Dysfunction With At Least 17 Months Follow-up

<table>
<thead>
<tr>
<th>Retreatment %</th>
<th>24 %</th>
<th>29 %</th>
<th>22 %</th>
<th>14 %</th>
<th>14 %</th>
<th>14 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 63</td>
<td>6.7 (5)</td>
<td>10.3 (5)</td>
<td>6.7 (5)</td>
<td>6.7 (5)</td>
<td>6.7 (5)</td>
<td>6.7 (5)</td>
</tr>
</tbody>
</table>

Purpose: To evaluate results of intraductal meibomian gland probing for lid tenderness as well as symptoms excluding lid tenderness using a standardized VAS test.

Methods: Intraductal meibomian gland probing for MGD as previously described in ARVO abstract 2009 was performed on 24 patients with pre probing lid tenderness and 5 patients with symptoms excluding lid tenderness. Several of the probing lid tenderness and symptoms excluding lid tenderness were evaluated using a standardized VAS with probing probing VAS responses of various post probing time points including immediately, weekly for the first month, monthly for the first six months, quarterly for the next year, and semi-annually thereafter. The average last follow up of 5.93 ± 4.7 months. Lid symptoms which improved included lid pressure, heaviness, puffiness, awareness, irritation, discomfort, dryness, grittiness, foreign body sensation, and lacrimation. Other symptoms that improved included eyelid, palpebral, and photophobia. There was an overall mean score reduction of 3.9 ± 4.0 (32%) at an average follow up of 36.4 ± 30.5 months.

Follow-Up Studies

- Methods: Charts were reviewed looking at numbers of patients with follow up, length of follow up, status of symptoms at last follow up and number of patients needing retreatment.
- Results: Twenty one out of 25 of the initial group of twenty five patients had at least 17 months follow up with an average of 33.44 months follow up. Follow up was by office exam in 15, by phone in 3 and by email in 2. Patients who had MGP were probed a total of 14 times (SD ± 4.4). Follow up was by office exam in 16, by phone in 3 and email in 2 patients. At least 17 months follow up with an average of 25.5 ± 6.04 months follow up. There were no probe fractures in these studies. There were no adverse sequelae. Extending the length of the gland prevented extending the probing too far. Therefore, five degrees was the probe length used for all glands. At the time of probing for a lid, the lid was checked for a dilated duct. At times, checking to ensure the probe was co-linear to the gland, additional mild force was used to pop through the intraductal tissue.

Conclusion: With At Least 17 Months Follow-up

- With an average follow up of more than 25 months, there have been no long-term adverse effects of Meibomian Gland Probing. The Meprop Meibomian gland probing appears highly effective in rapidly reducing standardized VAS patient scores of a variety of symptoms associated with Meibomian Gland Dysfunction. VAS scores remain markedly improved for at least 12 months. At the 25 month follow up, 67% of the patients had no required retreatment. These levels of probing resistance and orifice-hormonig frequency were viable in a grading scale of the intraductal gland for clinical use. Six patients had some anesthetic complications including laceration, pill, and jugular vein injection. These adverse sequelae were deemed to be minor.

Reference


Clinical Photos

The probing photos on left show appearance of left upper lid with lid margin recession and gland graggling. On the right, the comparison photo shows a normal lid with closed eyes and eye closed with both lids. In six months after gland probing showing vascular regression with marked reduction in conjunctival color and gland graggling. There was no associated marked reduction in lid tenderness VAS from pre probing score of 48.1 out of 100 to his last visit score of 5.1, 10 months post probing.

Conclusions

- With an average follow up of more than 25 months, there have been no long-term adverse effects of Meibomian Gland Probing. Meprop Meibomian Gland probing appears highly effective in rapidly reducing standardized VAS patient scores of a variety of symptoms associated with Meibomian Gland Dysfunction. VAS scores remain markedly improved for at least 12 months. At the 25 month follow up, 67% of the patients had no required retreatment. These levels of probing resistance and orifice-hormonig frequency were viable in a grading scale of the intraductal gland for clinical use. Six patients had some anesthetic complications including laceration, pill, and jugular vein injection. These adverse sequelae were deemed to be minor.

Reference


Qualitative Evaluation of Anesthesia for Meibomian Gland Probing

<table>
<thead>
<tr>
<th>Anesthetic Eval</th>
<th>YES</th>
<th>MAYBE</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidocaine 8%</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>AktenTM Lidocaine Gel (3.5%)</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Lidocaine 23 %</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Lidocaine 41 %</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Lidocaine 63.1%</td>
<td>14</td>
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</tbody>
</table>

Technique

(1) The lid margin and glands were examined with and without trans-illumination to evaluate patency of orifice and status of the glands, specifically looking for evidence of ductal highway. (4) At times resistance was encountered. Respecting the ductal highway. (4) At times resistance was encountered. Respecting the ductal highway.

n = number of patients
l = number of lids
63.1% at an average follow up of 4.79 ± 4.53 months.