Does in-office manual expression for Meibomian Gland Dysfunction (MGD) work?

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Does in-office manual expression for Meibomian Gland Dysfunction (MGD) work?

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Disclosures
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Does in-office manual expression improve symptoms for patients with MGD?

Does in-office manual expression improve MG function for patients with MGD?
Meibomian Gland Dysfunction


“...a chronic, diffuse abnormality of the meibomian glands, commonly characterized by terminal duct obstruction and/or qualitative and quantitative changes in the glandular secretion. It may result in alteration of the tear film, eye irritation, clinically apparent inflammation, and ocular surface disease.”

—The International Workshop on Meibomian Gland Dysfunction: Executive Summary
Meibomian Gland Dysfunction (MGD) is the most common cause of dry eye\(^{1-4}\)


Manual Expression

- Forced expression has been a treatment for obstructed glands dating back to 1888\textsuperscript{5}

- Manual expression of the MG is proven to be an effective treatment\textsuperscript{6} however is widely underutilized\textsuperscript{7}

Methods

- Single site evaluation of the effectiveness of manual expression on MG function and symptom relief

- N=24 subjects:
  - M:F 6:18

- Mean age 63.5 years old (37 to 81 years).
**Methods**

- **Inclusion criteria:**
  - >18 years
  - Self reported dry eye
  - H/o chronic MGD
  - Consent to treatment with manual expression

- **Exclusion criteria:**
  - Active inflammation/infection
  - Ocular surgery within 3 months
  - Contact lens use

- Symptoms were evaluated using OSDI and SPEED validated questionnaires - Baseline/2 weeks/1 month
OSDI

- Validated, used to diagnose any type of DED
- 12-item questionnaire
  - Graded 0-4
- Scoring
  - 0 -100*
    (Schiffman et al, Arch Ophthalmol 2000)
  - “Dry” if score > 12*
    (Miller et al, Arch Ophthalmol, 2010)
SPEED

- Validated
- Evaluates frequency and duration of symptoms
- Scored 0-28
  - Mild dry eye ≤ 5
  - Moderate dry eye =6-9
  - Severe dry eye ≥ 10

Methods

- Gland function was assessed using Meibomian Gland (MG) secretion score
- Meibomian Glands Yeilding Liquid Secretion (MGYLS)
- Grading 15 meibomian glands of the lower eyelid
- Scale of 0-45 where 45=normal

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality of MG secretion</th>
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<tbody>
<tr>
<td>0</td>
<td>No secretion</td>
</tr>
<tr>
<td>1</td>
<td>Inspissated</td>
</tr>
<tr>
<td>2</td>
<td>Liquid colored</td>
</tr>
<tr>
<td>3</td>
<td>Clear oil</td>
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Warming the lids

- External heat was applied to both eyes using commercially available eyelid warming mask for 10 minutes prior to expression.

(From the report of Murakami et al. OVS (2015), this approach is effective is raising internal eyelid temperature for an effective treatment time (> 4 minutes))
Methods

- Manual expression performed on one eye
  - Performed on both upper and lower lids immediately following heat therapy
  - Glands expressed distal to proximal nasal to temporal
  - Glands were expressed for 10-15 secs
Expressing the glands

- Manual expression one eye at the slit lamp with Maskin® Meibum Expressor (Rhein medical)
- Expressed glands distal to proximal for both upper and lower lids
Results

Significance was found in symptom relief using both SPEED an OSDI
Subjective improvement with SPEED

Baseline 2 weeks 1 month
Treated eye Untreated Eye
Subjective improvement with SPEED

Test eye change from baseline: 2 weeks $p=0.004$ and 1 month $p<0.0001$
Subjective improvement - OSDI

Statistically significant change from baseline in treated group at 2 weeks and 1 month, no significant change from baseline in control.
Objective findings
MG secretion score

No statistically significant change from baseline for test or control eye

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>2 week</th>
<th>1 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>treated eye</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>untreated eye</td>
<td></td>
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</table>
Conclusions
Conclusions

- One time manual expression using forceps shows significant improvement in symptoms at two weeks and one month when compared to the control eyes.

- Symptoms improve with manual expression despite no improvement in objective MGD scores.
Heat each eye individually prior to expression to maintain liquefaction of meibum

Pain associated with manual expression

Potential for MG loss with manual expression?
In-office manual expression

LEO: Liquefy, Express, Observe

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Pre-treatment

1. Confirm Meibomian Gland (MG) Obstruction addressing 4 components of MG dysfunction (MGD)
   a. Meibum Composition- Evaluate the MG secretions using finger compression or cotton bud to press on the outer portion of the lower lid margin. Additionally, meibomian gland evaluator could be used to assess the quality of meibum.
   b. Terminal duct and MG orifice obstruction
Thank You

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