TWO STEP APPROACH USING RADIOFREQUENCY (RF) TO TREAT DRY EYE SYMPTOMS ASSOCIATED WITH MEIBOMIAN GLAND DYSFUNCTION (MGD) AND CONJUNCTIVOCHALASIS (CCH)

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Disclosures

Financial:
▶ Consultant for Cynosure a Hologic Company
▶ Part owner of the eyeThera ThermaShield (eye shields used in this study)

Device Use:
▶ The RF device used in this study is cleared by the FDA and indicated for the non-ablative treatment of mild to moderate facial wrinkles and rhytids as well as use in general surgical procedures in accordance to its instruction for use.
▶ The device is being used off label in this study to specifically treat dry eye symptoms, Meibomian Gland Dysfunction and Conjunctivochalasis.

▶ Thank you to Jennifer Civiok at Cynosure for assistance with this presentation
Study Design

- IRB approved retrospective chart review
- Treated for MGD and CCH
- Received 1 treatment with the same device for both indications
- Had attended a post treatment follow up
- 25 subjects
- Males and females
- Average age 68 +/- 11.5 yrs
- Average follow up @ 3 months post last treatment
Dry eye: a chronic, progressive condition that causes eye discomfort, limits vision, interferes with cataract and refractive surgery and reduces quality of life.

- **Prevalent** - affecting approximately 40-50 million people in the US.
- **Commonly reported** - most frequent reason for seeking medical eye care.
- **Multiple causes** - no treatment protocol provides comprehensive relief to all patients.
- **Common treatments include:**

  Artificial tears, topical anti-inflammatory medications, warm compresses, Lipiflow, Intense Pulsed Light therapy, oral Omega oil supplements, oral and topical antibiotics, lid massages, and lid scrubs.

Many available treatments alleviate symptoms of dry eye without treating the underlying cause.
**Background**

- **Meibomian Gland Dysfunction (MGD):** waxy blockages (causing obstruction) or other abnormalities of the Meibomian glands so they don’t secrete enough oil into the tears.
  - Most common cause of Dry Eye
  - Tear quantity and quality is poor

- **Healthy:** 25-30 vertical glands/eyelid
  - Tears= mixture of water, salt, protein and oil

- **Unhealthy:** Glands plug up, wither away and disappear
  - Causes appear to include inactivity (poor blinks), poor diet and poor hygiene
Conjunctivochalasis (CCH): is a common eye surface condition characterized by the presence of excess folds of the conjunctiva located between the globe of the eye and the eyelid margin.

- Is a common co-contributor of dry eye symptoms and correlates with severity of DED
- Excess tissue causes friction, micro-trauma and prevents the normal flow of tears

Current Treatment include surgical procedures such as excising the excess tissue, tightening the loose tissue, or replacing the abnormal conjunctival tissue (typically with an amniotic graft).

Blocks tear flow into the punctum and causes delayed tear clearance

Interferes with tear meniscus

Blinking helps with aqueous tear deficient (ATD) Dry Eye, but not CCH

Gumus et al. AJO. 2010; 150:798-806
Di Pascuale et al. BJO. 2004;88:388–392

Courtesy of Scheffer Tseng, MD
MGD RF Treatment

- Insert topical anesthetic (properacaine) eye drops and then eye shield
- Apply gel to external eyelid and use 10mm aesthetic handpiece
- Heat to a target temperature of 42 degrees C and massage the glands in inward (purging) motion
- Repeat for other eyelid and periorbital wrinkles
- Total treatment times is approx. 10-12 minutes

www.jdryeyedisease.com/index/view/2
CCH RF Treatment

- Topical anesthetic, then 0.2cc Local lidocaine injection, Pt in upgaze @ SL
- Settings: Power 4 in Cut mode
- Use the forceps to grasp redundant tissue
- Ball tip applies energy to CCH fornix folds
- Total treatment time/eye approx. 3-5 min
- Tapered course of Tobramycin/Dex drops
- Treat fellow eye 4-6 wks later
Evaluation Methods

Standardized Patient Evaluation of Eye Dryness (SPEED)
- Validated questionnaire used to understand a patient’s experience with symptoms common to Dry Eye. Scores range from zero to twenty-eight, with higher scores representing more frequent and severe symptoms.

Meibomian Glands Yielding Liquid Secretion (MGYLS)
- Volume of liquid secretion of the gland described as zero, minimal, moderate or copious.

Non-Invasive Tear Break-up Time (NIBUT)
- Tear film instability measurement.

Schirmer’s Testing (with anesthesia)
- Schirmer’s Litmus paper used to assess Aqueous Tear Deficiency.
RESULTS

✓ SPEED totals decreased by 34.6%, with 83% of subjects responses indicating an improvement.

✓ NIBUT to first tear breakup showed an increased tear stability by an average of 2.3±6.3 (45%).

✓ MGYLS increased by 34% (from 137 to 206).

✓ The number of MGYLS producing moderate or copious amounts of tear oil increased from 25% at baseline to 49%.

✓ Schirmer's test results showed increased tear production 2.3mm±6.9 (20%).

✓ Photographic and clinical evaluation showed substantial reduction in CCH.

✓ SPEED, NIBUT, MGYLS and Schirmer's test result improvements were statistically significant (p<.05) as compared to baseline.

Side effects included tenderness and irritation, which resolved within 2-5 days, and redness which resolved within 2-4 weeks

CONCLUSION

A two-step approach using a radiofrequency device to treat dry eye patients provides significant improvement and relief for a broad spectrum of dry eye signs and symptoms.