



NONCONTACT MEIBOGRAPHY AS A NOVEL TOOL IN DIAGNOSIS OF OCULAR SURFACE DISORDERS



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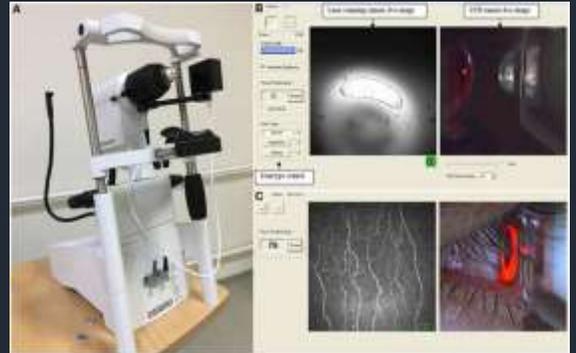
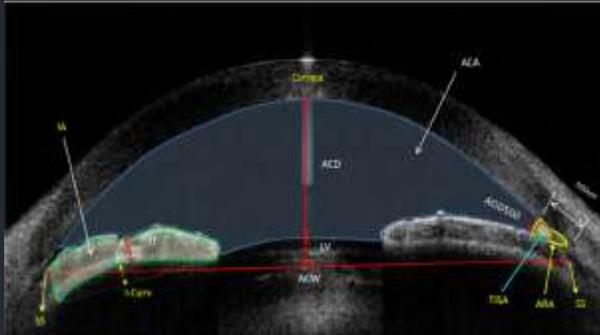
Introduction

- Imaging techniques for the anterior segment are nowadays routinely used in clinical practice.
- A variety of imaging techniques have been introduced to study the ocular surface, such as anterior segment optical coherence tomography, in vivo confocal microscopy, or non-contact meibography.



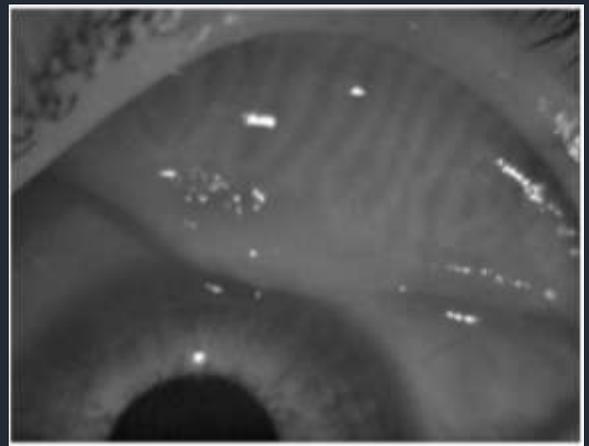
Anterior segment optical coherence tomography

In vivo confocal microscopy



Non-Contact Meibography

- Meibography refers to the visualization and quantification of Meibomian gland drop-out using photo documentation.
- Non-contact Meibography consist of a slit lamp equipped with an infrared charge-coupled device video camera and an infrared transmitting filter to allow the observation of the everted lid without contact to the instrument.

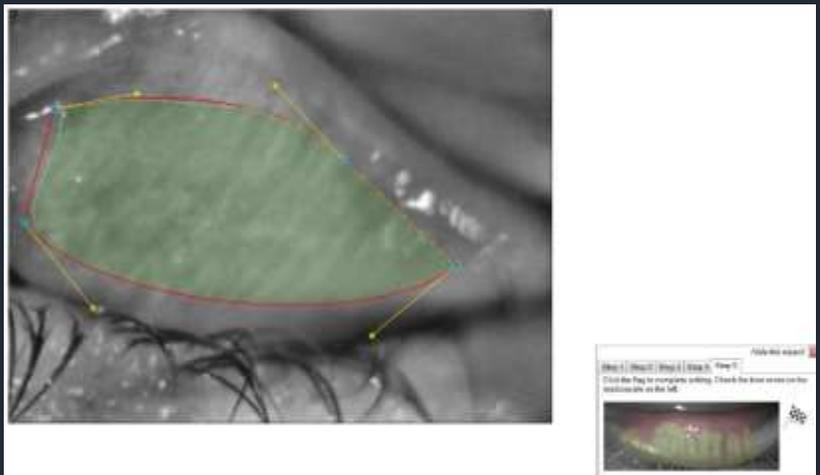


Evaluation:

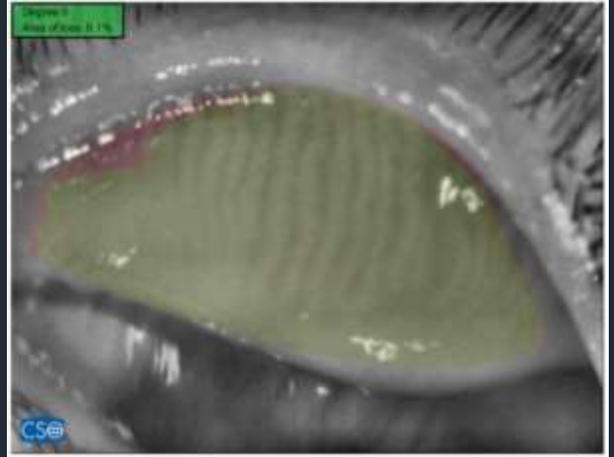
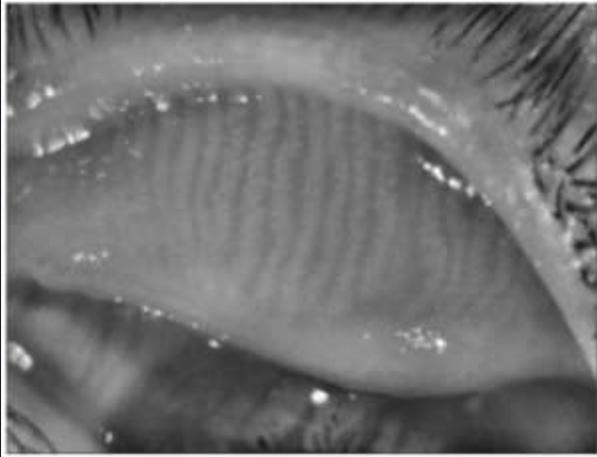
- Normal meibomian glands appear as hypoilluminant grape-like clusters.
- Upper eyelid MGs outnumber the lower eyelid MGs and are longer in length.
- The MGs that did not transverse the total tarsal plate were indicated as a “dropout.”

Advantages:

- Easy to perform, with entire gross evaluation of the lid.
- Good tool for documentation and monitoring of the glands.
- Subjective interpretation of the image by various objective and analytical grading systems.

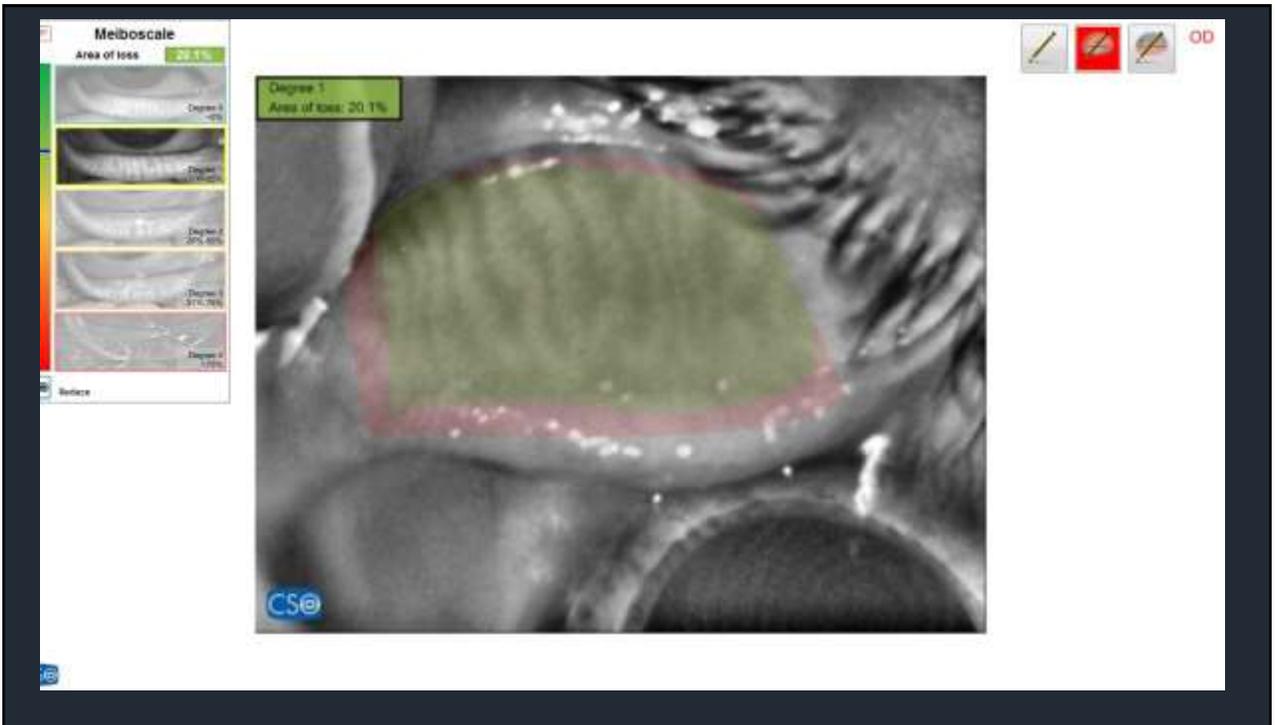


Noncontact meibography performed by Sirius (CSO, Florence, Italy)



Measurements:

- Measurements of the dropout by percentage, as well as grouped the dropout by a scale within the area, which was highlighted by the users' free-hand tool:
- Grade 0, no loss at all;
- Grade 1, $\leq 25\%$;
- Grade 2, 26%–50%;
- Grade 3, 51%–75%;
- Grade 4, greater than 75%



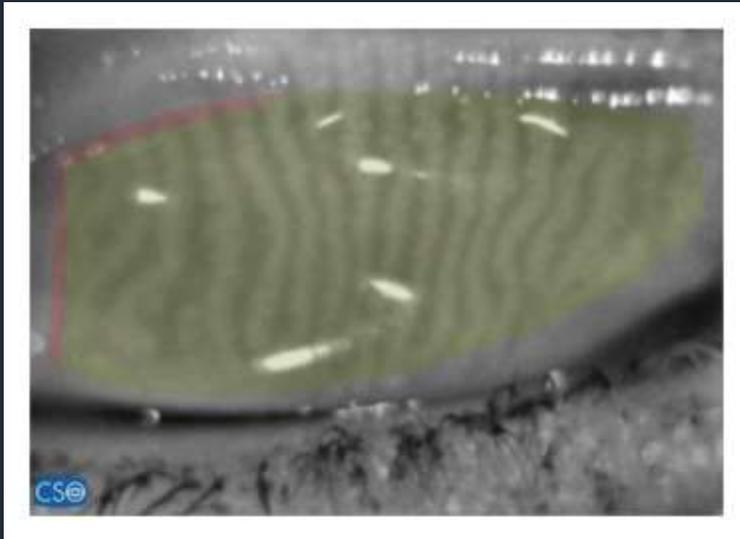
Meibograde System

The meibograde system was developed and validated by Call et al.*

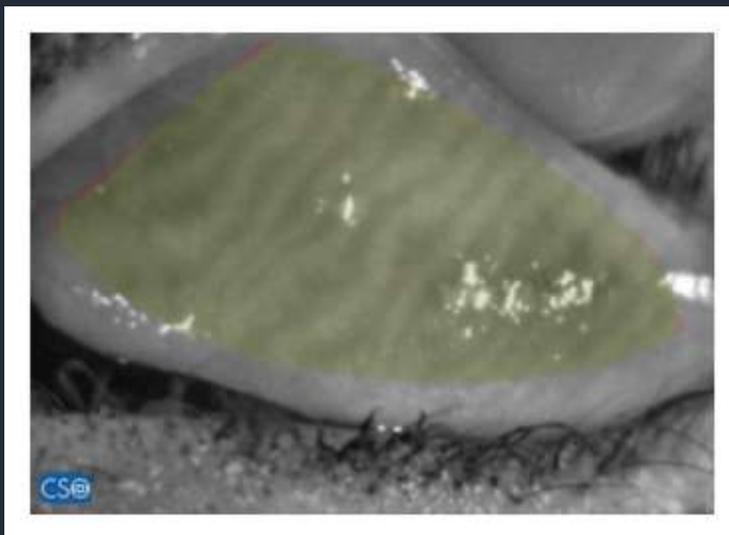
This system involves gland distortion which is an abnormal gland to tarsus ratio, tortuous glands, and/or discordant patterning depending on previously studied histopathological changes.

*Call CB, Wise RJ, Hansen MR, Carter KD, Allen RC. In vivo examination of meibomian gland morphology in patients with facial nerve palsy using infrared meibography. *Ophthalmic Plast Reconstr Surg.* 2012 Nov-Dec;28(6):396-400.

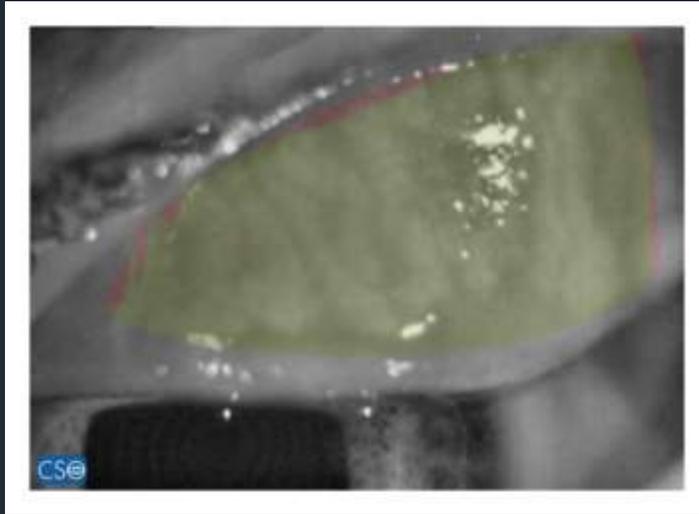
Grade 0, no significant eyelid involvement



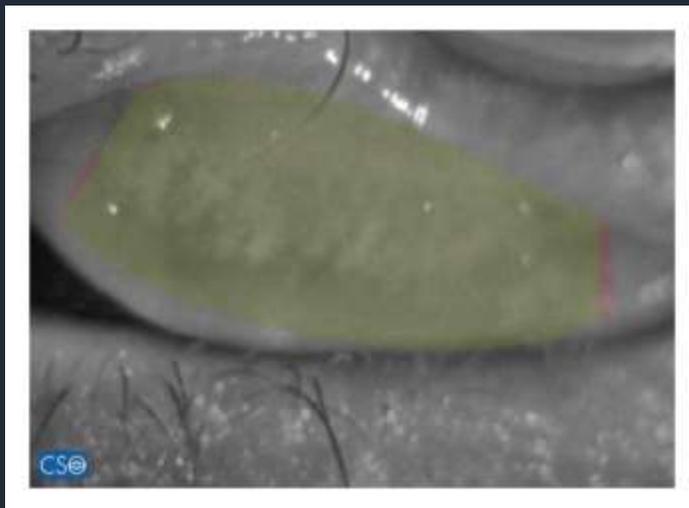
Grade 1: dilatation and tortuosity of the MG.



Grade 2: dropout of MG along with gland distortion.



Grade 3: MG does not traverse the total tarsal with mottling of details.



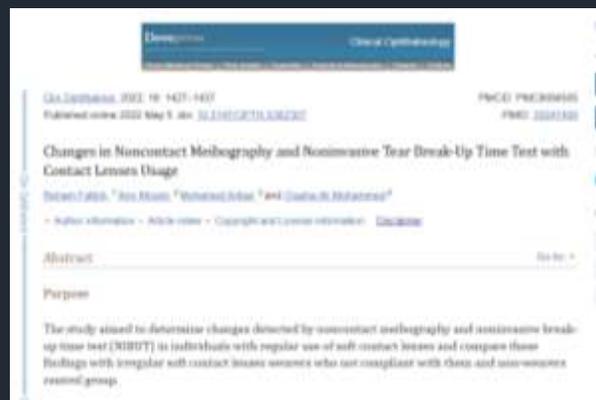
Non-Contact Meibography in different ocular surface disorders

1) Study the effect of posterior blepharitis on meibomian glands



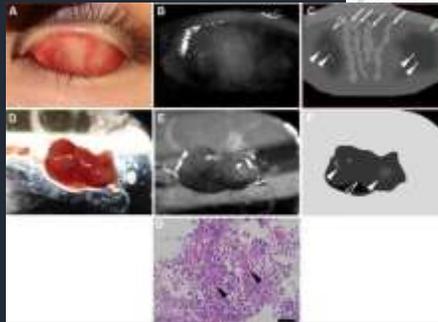
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2) Determine changes detected by noncontact meibography in individuals with regular use of soft contact lenses



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3) Differentiation between chalazion and sebaceous carcinoma.



Non-Contact Meibography in different ocular surface disorders

4) Prevalence of Meibomian Gland Atrophy in a Pediatric Population.



Non-Contact Meibography in different ocular surface disorders

5) Evaluation of morphological changes of meibomian glands in patients with type 2 diabetes.



Non-Contact Meibography in different ocular surface disorders

6) Evaluation of morphological changes of meibomian glands in Sjögren's syndrome and non-Sjögren's dry eye patients.



Home Message

- A variety of imaging techniques have been introduced to study the ocular surface.
- Meibography refers to the visualization and quantification of Meibomian gland drop-out using photo documentation.
- It used for subjective interpretation of the image by various objective and analytical grading systems.
- It used in evaluation of posterior blepharitis, changes with regular use of soft contact lenses, gland Atrophy in a Pediatric Population and morphological changes of meibomian glands in patients with type 2 diabetes.

**Thank
You**

