

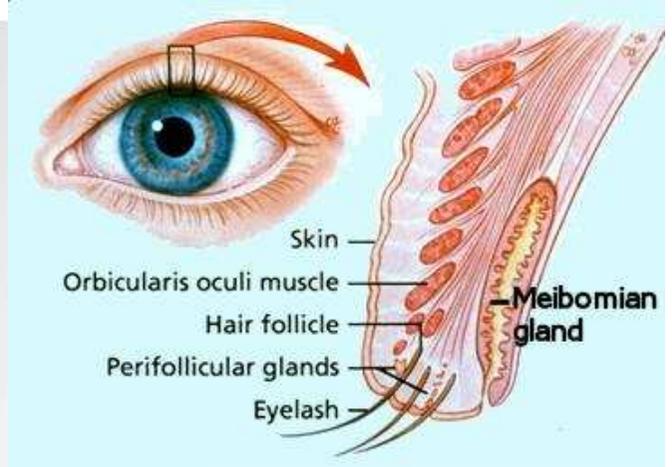
# MEIBOMIAN GLAND DYSFUNCTIONS RELATED TO SILICON-HYDROGEL CONTACT LENS WEARERS



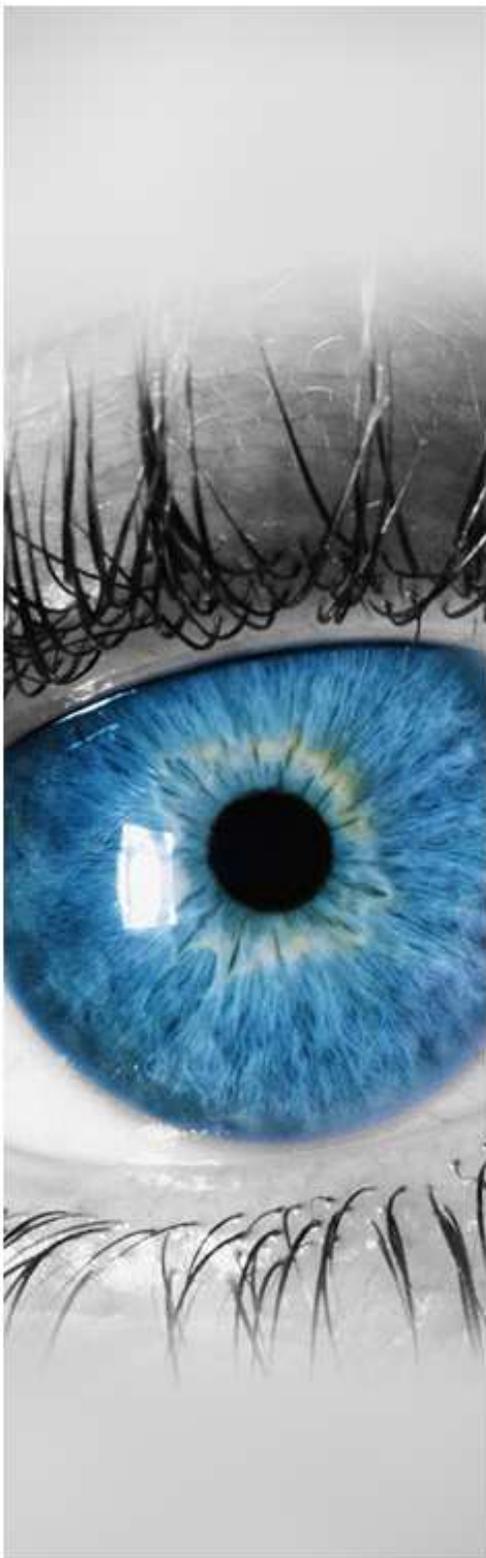
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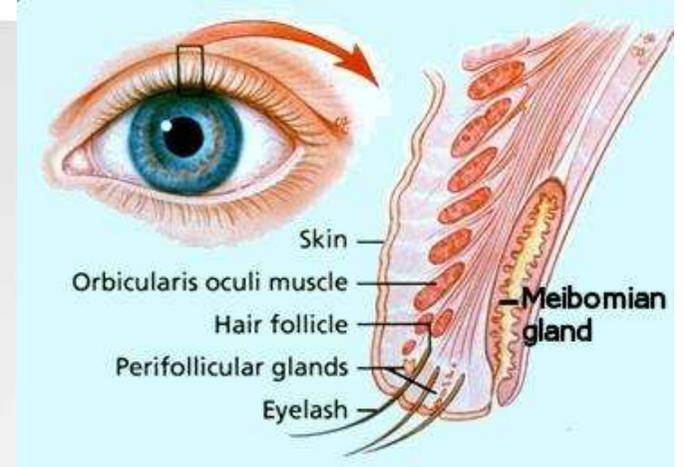
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# INTRODUCTION

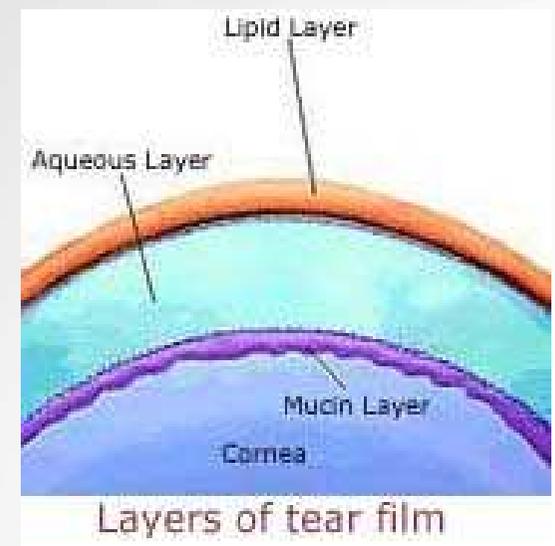
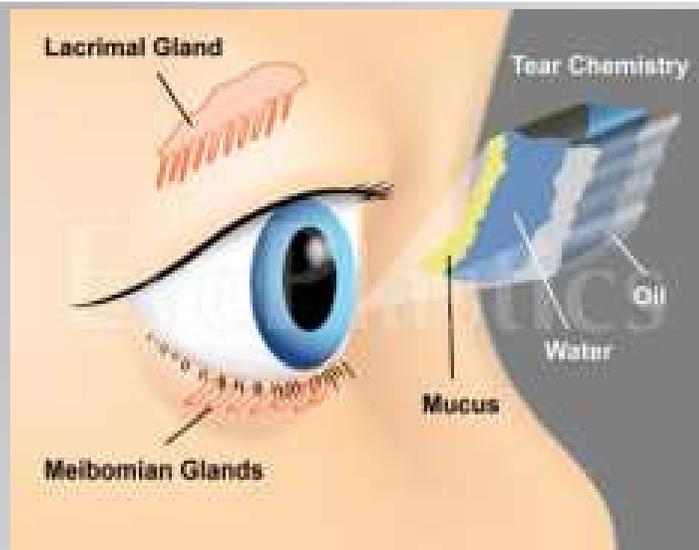


- Meibomian glands are the sebum (an oil-like secretion) producing glands located in both the upper and lower eyelids, they number about 25-30. Their secretion forms the external layer of the tear film, which helps to stop the water in the tear from evaporating.
- The Meibomian glands are modified sebaceous glands. In normal subjects, 45 % of glands are active, independently of age. Meibomian gland secretion decreases with age.

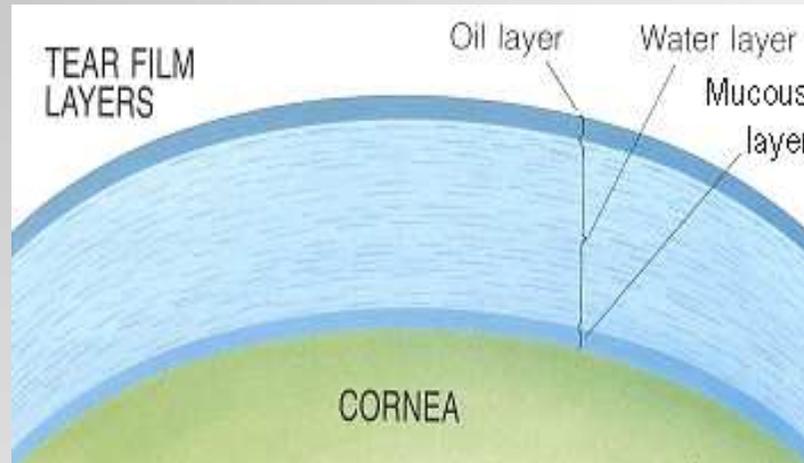




- Meibomian gland dysfunction (MGD) is a condition of Meibomian gland obstruction and is frequently associated with many ocular diseases, such as posterior blepharitis or meibomitis, chalasion, acne rosacea, Meibomian keratoconjunctivitis, evaporative dry eye syndrom, discomfort in contact lens wearers etc.
- Recognized as the root cause of these ocular diseases, the traditional treatment will consist of warm compresses, improved lid hygiene, systemic or topical antibiotics and steroids, surgical therapies.



- The ocular surface, tear film, lacrimal glands and eyelids act as a functional unit. Any event that disturb the homeostasis of this unit involve ocular surface diseases.
- The **tear film** is the most dynamic structure of this unit. Any condition that reduces the production, alters the composition, impedes the distribution of the tear film, may cause irritations of ocular surface and a degradation of vision. These conditions are often related to problems with the structure or function of the eyelids, cornea or conjunctiva.



- The integrity of the tear film is essential for the ocular comfort and health in contact lens wearers. It plays a critical role in maintaining corneal and conjunctival integrity, protecting against microbial, allergic and traumatic aggressions and preserving visual acuity.
- The superficial lipid layer (produced in major part by the Meibomian glands) is important for tear film stability; it prevents evaporation which is essential for the maintenance of the structural and refractive integrity of the ocular surface and the lens parameters.



# THE AIM OF THE STUDY

- The aim of the study is to reveal different treatment methods of the Meibomian glands dysfunctions in order to improve the comfort of the contact lens wearers.

# MATERIAL AND METHODS



- We followed about 60 patients with silicon-hydrogel contact lenses and we found 5 of them with Meibomian gland dysfunction.
- In MGD tear film is easily disturbed and the lipid layer comes in contact with the lens material and modifies the quality of the contact lens, leading to lipid deposits on the lens surface, disturbance of the visual acuity and intolerance of the contact lens material

# MATERIAL AND METHODS



- The contact lens patients had the following ocular conditions:
  - Posterior blepharitis – 3
  - Ocular pemphigus - 1
  - Recurrent chalasion – 1
- In all the cases we used the actual therapies of the MGD

# RESULTS AND DISCUSSIONS

## Treatment of MGD



- Historically MGD is considered one of the most difficult diseases to treat because we have lacked a simple, effective therapy.
- Beside classical treatment with local drops and ointments, local hygiene, warm compress, glands massage, we used a new approach – thermotherapy – with a special device

# RESULTS AND DISCUSSIONS

## Treatment of MGD



- How thermotherapy works?
- The Meibomian lipids melt between 32 – 40<sup>0</sup> Celsius, not at a fixed temperature. However, Meibomian secretion in subjects with MGD start melting at 35<sup>0</sup> Celsius, versus 32<sup>0</sup> Celsius in normal subjects.
- Recent studies found out that temperature influences significantly the drainage of the Meibomian gland secretions. The drainage from the dysfunctional glands is semnificantly improved through thermotherapy. This is most likely explained by a change in the Meibomian oil viscosity.

# RESULTS AND DISCUSSIONS

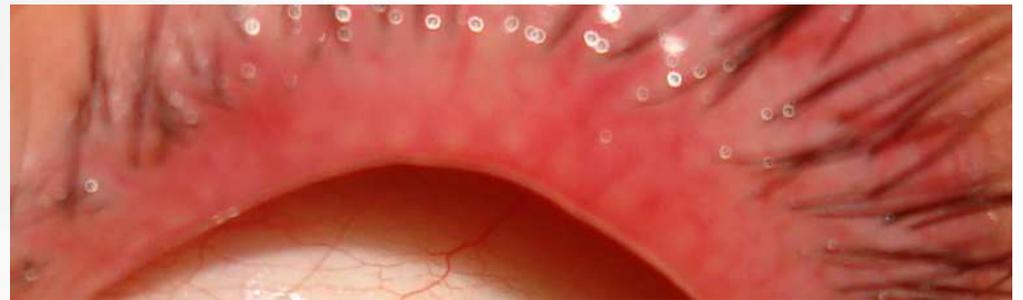
## Blefaritis with meibomitis



Before thermotherapy



After thermotherapy



We used classic treatment and thermotherapy once / day for 10 days

# RESULTS AND DISCUSSIONS

## Chalasion Case



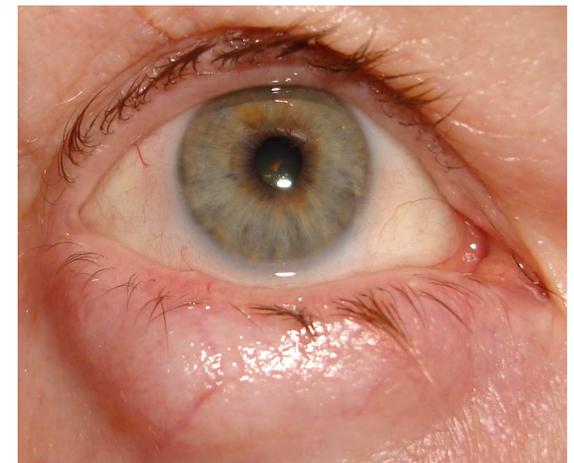
Before thermotherapy



After 10 days of Thermotherapy:

-the chalasion diminished and was surgically removed

-the contact lenses were better tolerated



# RESULTS AND DISCUSSIONS

## Ocular pemphigoid

Patient: R. G. 48 years old

- Symblepharon, dystrichiasis, corneal erosions
- Treatment:
  - Medical:
    - artificial tears, local/ general corticotherapy, local antibioterapy
    - TCL (Si-H)
  - Surgical:
    - symblepharon surgery + AM transplant
  - Thermotherapy for 20 days – better tolerability of the CIs afterwards



# RESULTS AND DISCUSSIONS



- Contact lens wear is associated (50 %) with a decrease in the number of functional Meibomian glands.
- Si-H contact lenses are taking usually more lipids on their surface and in MGD could lead to discomfort, visual disturbance and contact lens intolerance
- Recent studies and what we found out was the fact that temperature influences significantly the drainage of the Meibomian gland secretions.

# RESULTS AND DISCUSSIONS



- The initial warm compresses for five minutes improved tear film lipid layer thickness (TFLLT) by 120 percent (Olson et al, 2003). Longer application of heat did not significantly increase TFLLT. Since that brief report in 2003, several additional approaches have emerged.
- The warm compresses in conjunction with massage actually offer relief for up to three months (Korb and Blackie, 2008).
- Another noninvasive protocol involves azithromycin applied topically. Results appearing in April 2011 suggested that the signs and symptoms associated with posterior blepharitis improved following a 30-day treatment strategy (Opitz and Tyler, 2011).

# CONCLUSIONS



- The classical treatment with local drops and ointments, local hygiene, warm compress is not enough in contact lens patients with MGD
- Thermotherapy is a complementary treatment in MGD with good results in contact lens wearers because it is significantly improving the drainage of these glands
- This new treatment method proved to increase the tolerance of the contact lens material and to improve the quality of life of the contact lens wearers.

