

E 1
F P 2
T O Z 3
L P E D 4
P E C F D 5
E D F C Z P 6



OCULO-PALPEBRAL PATHOLOGY RELATED WITH MEIBOMIAN GLANDS DISFUNCTION AND CONTACT LENSES

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Meibomian gland dysfunction (MGD)



- MGD is a common eyelid disorder that has widespread prevalence of 39% to 50%, with the incidence increasing with age.
- It is also a major cause of evaporative dry eye disease, with loss of glands resulting in decreased tear film lipid, unstable tear film and increased aqueous tear evaporation, leading to ocular surface changes and blepharitis.
- **MGD plays a major role in lid margin diseases. It is extremely common but yet often overlooked and not diagnosed. Iatrogenic factor ????**



CLINICAL SIGNS OF MGD



- Aberrant meibum production and/or composition due to:
 - Obstruction of the meibomian glands (a)
 - Gland dropout (b)
 - Change in gland secretion (c)
- Patients complaining of repeated 'styes'
- **Characterized by tear film instability and rapid TFBUT**





CLINICAL CHARACTERISTICS OF MGD: SYMPTOMS



Lid margin
neovascularization



Squamous metaplasia of
meibomian gland orifices



- Burning
- Itching
- Excessive tearing
- Granular sensation and scratchiness or foreign-body sensation due to crusted debris or dryness
- Decreased vision or changes in visual clarity due to poor tear film
- Eyelids stuck together upon waking
- Crusty debris around the eye lashes, especially upon waking
- Eyelids red, especially upon waking

Preferred Practice Pattern® Guidelines. Blepharitis. San Francisco, CA: American Academy of Ophthalmology; 2008. Available at: <http://www.aaopt.org/ppp>.



Meibum "alterations"
(color / composition)



Gland
drop out



Short
TFBUT

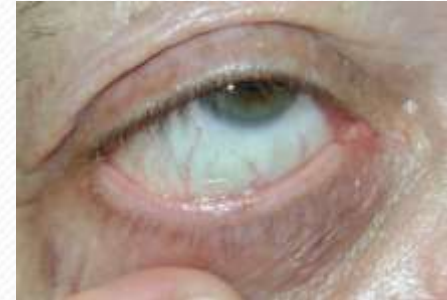
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F P	2
T O Z	3
L P E D	4
P E C F D	5
R D F C Z F	6

A diagnostic process for identification of MGD patients



S. →

= **SCAN** lid for plugged glands, injection, redness, foamy secretions



E. →

= **EXPRESS** lower / middle glands and evaluate meibum quantity and quality



T. →

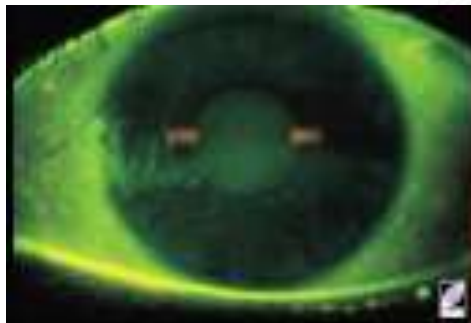
= **TREAT** dry eye symptoms with Lubricant Eye Drops + lid hygiene



MEIBOMIAN GLAND DYSFUNCTIONS AND ASSOCIATED OCULO-PALPEBRAL PATHOLOGY



- MGD symptoms are not specific and often are not correlated with the degree of Meibomian gland disease seen on examination - like foreign body sensation, burning, red eyes etc.
- MGD is frequently associated with dry eye disease as Meibomian kerato-conjunctivitis, chalazion, meibomitis, evaporative dry eye, **contact lens intolerance**, ocular rosacea / acne rosacea





BLEPHARITIS



- Blepharitis often coexist with other related conditions, most frequently dry eye diseases, seborrheic dermatitis, acne rosacea and atopy.
- Posterior blepharitis affects the Meibomian glands and the gland orifices (known as Meibomian gland dysfunction)



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CHALAZION



- It is generally characterized by a complication of posterior blepharitis, usually associated with Meibomitis or Acne Rosacea.
- Contact lens intolerance - to be discontinued





MEIBOMIAN KERATO- CONJUNCTIVITIS



- Meibomian Kerato-Conjunctivitis (MKC, primary meibomitis) is the most severe lid margin inflammation
- It is associated in all cases with some forms of skin disease such as seborrhea sicca, acne rosacea or seborrheic dermatitis, separately or in combination with atopy



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F P	2
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L P E D	4
P E C F D	5
R D F C Z F	6

CONTACT LENS INTOLERANCE



- Contact lens wear is associated (50%) with a decrease in the number of functional Meibomian glands, also proportional to the duration of contact lens wear.
- 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



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ACNE ROSACEA



- Rosacea is associated with sebaceous gland hypertrophy of the face



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P E C F D 5
R D F C Z F 6

OCULAR PEMPHIGOID



- Chronic bilateral conjunctivitis persisting for years
- Leads to increased scarring, symblepharon, increasingly shallow conjunctival fornix that may progress to total obliteration of the conjunctival sac between the bulbar conjunctiva and the palpebral conjunctiva.



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EVAPORATIVE DRY EYE



- MGD is the most common cause of increased evaporation of the tear film
- MGD is associated with a reduction of the tear film thickness due to an excessive evaporation of the lachrymal film by deficiency of lipid secretion. This affects the corneal metabolism and increases the desquamation of epithelial cells, creating a potential site of bacterial invasion.

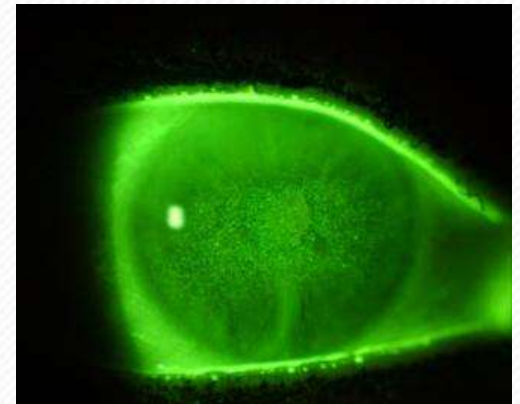
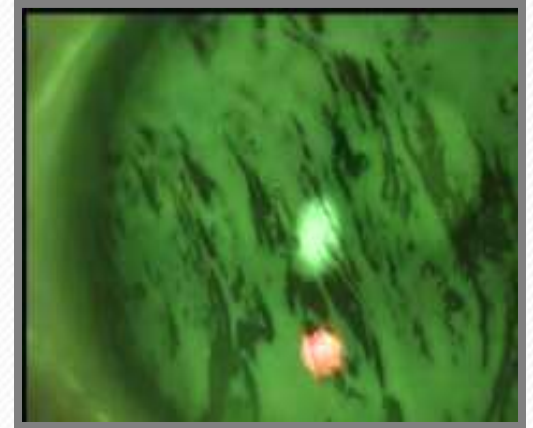




Management Strategy for MGD



- Supplement and stabilize the lipid deficient tear film
- Protect the ocular epithelium
- Provide symptomatic relief of dry eye





Therapy Goals



- Improve posterior lid margin environment
 - Minimize risk of progressive MG orifice obstruction
- Enhance tear stability
 - Artificial tears specially designed to restore the lipid layer
 - Lid thermo massage
- Decrease lid margin and ocular surface inflammation
 - Corticosteroids (oral and/or topical)
 - Tetracycline (oral and/or topical)
 - Azithromycin (oral and/or topical)
 - Omega-3 essential fatty acids
 - Cyclosporine



Therapy Goals: artificial tears



Artificial tears specially designed to restore the lipid layer are formulated to:

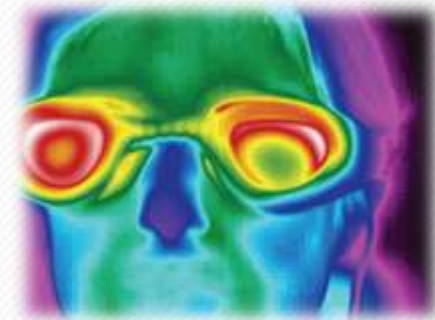
- Stabilize the tear film
- Supplement inadequate meibomian gland secretions with natural lipid
- Restore the deficient lipid layer
- Provide relief of dry eye symptoms related to MGD



Therapy Goals: thermotherapy



- Historically MGD is considered one of the most difficult disease to treat because we don't have an effective ethiological therapy.
- Beside classical treatment with local drops and ointments, local hygiene, warm compress, glands massage and thermotherapy – with some special devices

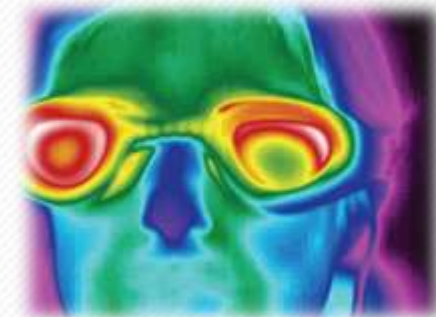


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Therapy Goals



- The Meibomian lipids melt between 32 – 40⁰ Celsius, not at a fixed temperature. However, Meibomian secretion in subjects with MGD start melting at 35⁰ Celsius, versus 32⁰ 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 significantly improved through thermotherapy. This is most likely explained by a change in the Meibomian oil viscosity





CONCLUSIONS



- **MGD** is a very **frequent chronic condition** in the general population, but yet often overlooked in ophthalmic practice with the result of an important number of patients who are not really cured and satisfied.
- The **patients with oculo-palpebral pathology should be always examined closely to evaluate connection with MGD**, because complications of MGD are common and may involve severe ocular surface damage and contact lens intolerance.
- New treatment methods proved to accelerate healing, increase the tolerance of the contact lens material and improve patients quality of life.

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THANK YOU FOR YOUR KIND ATTENTION!

