

Blepharitis: Fakten und Mythen

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Ophtag 2016

St. Gallen

Definition & Classification

Definition

- **Blepharitis**
 - Inflammations involving the eyelids and particularly the lid margins

- **Prevalence**
 - 8 - 20% of caucasian population

Classification

Anterior

- Staphylococcal
- Seborrhic
- Mixed

Posterior

- Primary meibomitis
- Mixed

Pathophysiology

- Bacterial colonisation of the eyelids
 - Direct microbial invasion of tissues
 - Immun system mediated damages
 - Damage caused by production of
 - Bacterial toxins
 - Waste products
 - Enzymes
- Colonisation is increased in presence of seborrheic dermatitis or MGD

Symptoms & Signs

Symptoms

- Burning
- Watering
- Foreign body sensation
- Crusting and mattering of lashes and medial canthus
- Red lids and eyes
- Photophobia
- Pain
- Decreased vision

Associated symptoms

- Seborrheic dermatitis
 - Scalp itching, flaking, oily skin
- Rosacea
 - Rhinophyma, facial flushing, teleangiectasia in the face, pustules, oily skin

Sings

- Erythema and crusting of lashes and lid margin
- Eyelid margin ulcers
- Teleangectasias and lid irregularity

- Madarosis (loss of lashes)
- Poliosis (whitening of lashes)
- Trichiasis (misdirection of lashes)

- Plugging of meibomian orifices

Sings



Symptoms & Signs

- Staphylococcal blepharitis
 - Predominantly affects young to middle-aged women
 - Exarbatations and remissions
 - Lid margin erythema with
 - Fine ulcerations at the base of the lashes
 - **Collarettes of fibrin along the lashes**

Symptoms & Signs

- Seborrheic blepharitis
 - Somewhat older age group, men = women
 - More chronic course
 - **Greasy scales** on the lid margins and lashes
 - Associated meibomian seborrhea with **foamy tears** and teleangiectatic lid margin vessels

Symptoms & Signs

- Primary meibomitis
 - Episodic inflammation of the posterior lid
 - Teleangectasias and lidmargin irregularity
 - **Plugged meibomian orifices** with thick secretions
 - Enlarged and distorted glands
 - Drop-out of glands over time

Symptoms & Signs

- Related corneal findings
 - Punctate epithelial erosions, marginal infiltrates, ulcers and pannus
 - Most commonly at the positions where the limbus is crossed by the lid margins (2h, 4h, 8h and 10h)

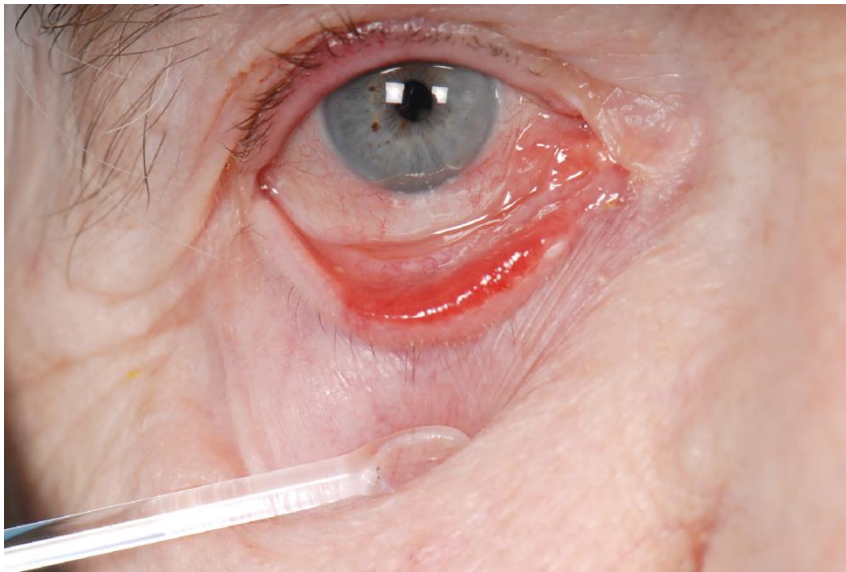
Symptoms & Signs

- Demodex mites
 - Demodex folliculorum
 - Anterior blepharitis with sleeves around the lashes
 - Demodex brevis
 - Posterior blepharitis with meibomian gland dysfunction and keratoconjunctivitis

Differential diagnoses

Differential diagnoses

- **Basal cell carcinoma**
- Contact dermatitis
- Cellulitis
- Conjunctivitis, bacterial, viral
- Keratoconjunctivitis
- Keratitis
- Contact lens complications





Workup

- Biopsie!

Treatment

Treatment

- Systematic and long-term programm of eyelid margin hygiene
- 3 essential steps
 - 1: application of heat (and massage)
 - 2: the eyelid margin is washed mechanically
 - 3: AB ointment is applied to the lid margin

Treatment

- The Moorfields Manual of Ophthalmology and The Wills Eye Manual recommend:
 - Warm compresses and lid massage up to 4 times per day for 15 minutes (KSSG 2x/d)
 - Topical antibiotic ointments for moderates to severe cases
 - Adjunctive use of lubricants in cases of additional dry eye disease
 - Systemic tetracycline for 6 weeks to several months in recurrent cases
 - To consider topical steroids for a short term in severe cases

Evidences

- Metaanalysis of 34 studies (RCTs and CCTs) with 2169 participants
 - Topical AB provide some symptomatic relief and are effective in eradicating bacteria in anterior blepharitis
 - Lid hygiene provides symptomatic relief for anterior and posterior blepharitis
 - The effectiveness of other treatment (topical steroids and oral AB) were inconclusive!

Lindsley et al. Interventions for chronic blepharitis, Cochrane Database Syst Rev. May 2012

Evidences

- Topical Azithromycin (Azyter Thea Pharma EU)
 - Phospholipidosis-inducing AB
 - Accumulation of Cholesterol and Phospholipids in MG epithelial cells
 - Significant improvement in
 - MG plugging and secretions
 - Eyelid redness
 - Overall symptomatic relief

Luchs J. Efficacy of topical azithromycin ophthalmic solution 1% in the treatment of posterior blepharitis. Adv Ther. Sep 2008

Fadlallah A et al. Azithromycin 1,5% ophthalmic solution: efficacy and treatment modalities in chronic blepharitis. Arq Bras Ophthalmol. June 2012

Liu Y et al. One man's poison is another man's meat: using azithromycin-induced phospholipidosis to promote acular surface health. Toxicology June 2014

Zhang L. et al. Effects of azithromycin on gene expression profiles of proinflammatory and anti-inflammatory mediators in the eyelid margin and conjunctiva of patients with meibomian gland disease. JAMA Ophthalmol. Oct 2015

Evidences

- Tetracyclines
 - First proposed for the treatment of the cutaneous manifestations of acne rosacea in 1966
 - Are mainly used for their anti-inflammatory and lipid-regulating properties
 - Minocycline 100 mg has been shown
 - to reduce the population of lid flora in rosacea patients
 - And to inhibit their production of lipases hence the release of proinflammatory free fatty acids and diglycerides at the lid margin and ocular surface

Sneddon IB. A clinical trial of tetracycline in rosacea. Br J Dermatol. 1996

Ta CN et al. Effects of minocycline on the ocular flora of patients with acne rosacea or seborrheic blepharitis. Cornea 2003

Aronowicz JD et al. Short term oral minocycline treatment of meibomianitis. Br.J Ophthalmol. 2006

Shine WE et al. Minocycline effect on meibomian gland lipids in meibomianitis patients. Exp. Eye Res. 2003

Evidences

- Tea tree oil (50% lid scrub or 5% lid massage)
 - shows promising potential to treat Demodex blepharitis
 - By reducing demodex counts
 - Additional antibacterial, antifungal and antiinflammatory actions

Liu et al. Pathogenic role of demodex mites in blepharitis, Curr Opin Allergy Clin Immunol. Oct 2010

Evidences

- Oral ivermectin (200 ug/Kg, 1 Dose at day 1 and 8)
 - Noncomparative interventional case series
 - Reduction in the absolute number of D. Folliculorum in the lashes
 - Improvement of Schirmer test and BUT

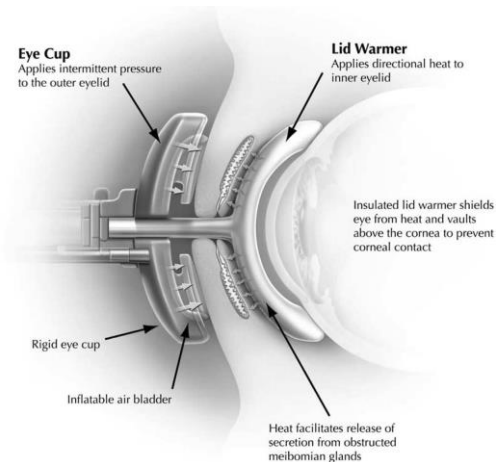
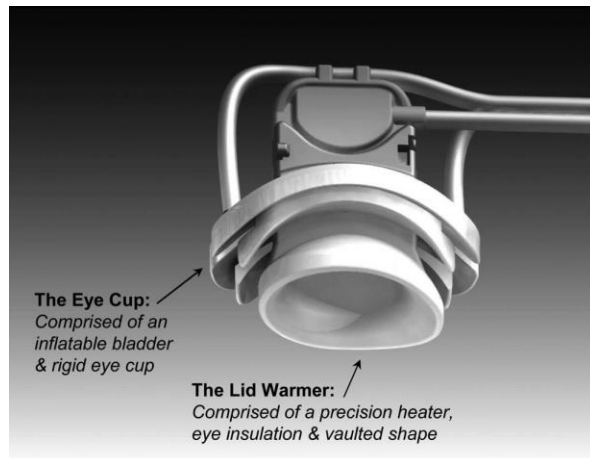
Holzchuc et al. Clinical treatment of ocular demodex folliculorum by systemic ivermectin, Am J Ophthalmol. Jun 2011

Evidences

- While there are several published treatment options available, none of these options seem to be clearly effective in Demodex blepharitis
 - TTO 5% vs. TTO 0.02% vs. metronidazole ointment vs. ivermectine vs. oral metronidazole

Hirsch-Hoffmann S et al. Treatment options for demodex blepharitis: patient choice and efficacy. Klin Monbl Augenheilkd. Apr 2015

Evidences



- LipiFlow (thermal pulsation system)
 - FDA-approved Juli 2011
 - Applies heat to the palpebral inner surface of upper and lower lid
 - While simultaneously delivering graded pulsatile pressure to the outer eyelid surface
 - 12min.in-office procedure
 - Relieved meibomian gland obstruction
 - Improved
 - Meibomian gland secretion quality
 - Tear film stability
 - Patient comfort
 - Sustained long-term efficacy of up to 9 months following a single LipiFlow treatment

Lane et al. A new system, the LipiFlow, for the treatment of meibomian gland dysfunction, Cornea 2012

Geiner JV. A single LipiFlow thermal pulsation system treatment improves meibomian gland function and reduces dry eye symptoms for 9 months, Current Eye Res 2012

Conclusions

- Heat
- Lid margin hygiene (ev. Tea tree oil)
- Local AB (anterior blepharitis)

- Oral AB in Patients with Rosacea
- Lokal AB-Steroid combination for chalazia or corneal involvement

Thank you!

