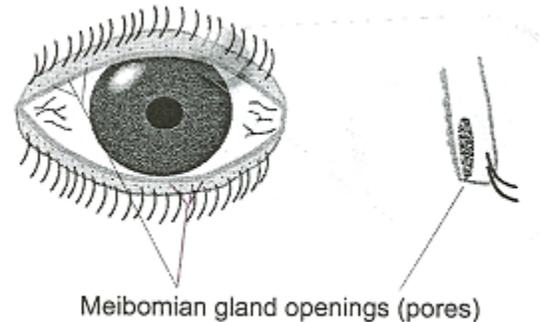


Blepharitis, Meibomian Gland Dysfunction (MGD), & Ocular Rosacea

What is Blepharitis?

Blepharitis is a common condition involving chronic inflammation of the edges of the eyelids. It can cause irritation, matting, itching, red eyelids, and dry eyes. It has several causes that vary between individuals:

- plugging up of the eyelid *meibomian glands*. The meibomian glands open on the edge of each eyelid through about 30 orifices (pores). They secrete *meibum*, which is an oily fluid that coats and lubricates the eye.
- hardening and buildup of meibomian gland secretions resulting in matting and flaking.
- inflamed blood vessels on eyelids (Ocular Rosacea)
- possible low-grade infection from bacteria or microscopic parasites on eyelids.



Treatment of Blepharitis

1. **Warm Compresses:** helps unclog the meibomian gland pores

- take a soft, clean washcloth and soak in warm water, drape over both eyes for at least 5 minutes. Re-warm the washcloth with additional warm water if needed, taking care not to burn the skin
- purchase a reheatable, custom shaped gel pack (can purchase from Methodist Eye Associates) and warm in microwave oven as per instructions. Note: this method retains heat better on the eyes

2. **Lid Hygiene:** reduces buildup of secretions on eyelids.

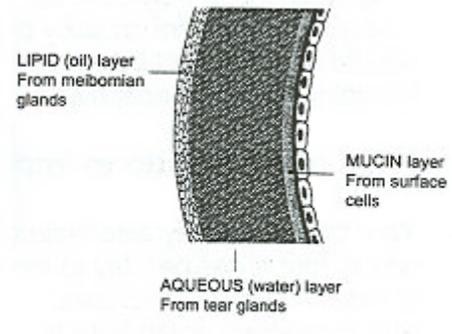
- Traditional method: wrap your finger in a clean washcloth, put a few drops of "No Tears" baby shampoo (e.g., Johnson's Baby Shampoo) on the washcloth. With eyes gently closed, brush the eyelids (where the eyelashes come out) for 15 seconds on each eye.
- Modern method: above lid hygiene can be done with commercially available, over-the-counter prepackaged lid scrubs, including Ocusoft.
- The non-irritating eyelid cleanser from Ocusoft is available in a bottle and can be pumped onto your clean fingertips or on a clean washcloth and used to perform the above eyelid cleansing. These bottles are available online or can be purchased from Methodist Eye Associates. Varieties include:
 - Ocusoft: traditional scrub, apply and wash
 - Ocusoft Plus Platinum: advanced scrub, leave-on formula does not need to be washed away from eye
 - Ocusoft HypoChlor: contains 0.02% Hypochlorous acid which is a natural antibacterial agent
 - Ocusoft HypoChlor gel: same as above, but thicker gel formula that soothes irritated eyelids

These treatments work best if performed 2-3 times a day. Often, people need to continue the above treatment indefinitely to control their symptoms.

3. **Omega 3 Fatty Acid supplementation**

Omega 3 fatty acids as found in fish oil and flaxseed oil have been found to be helpful in treating blepharitis by softening the meibum. These supplements may have additional health benefits to the body.

- A diet high in these oils is the best treatment but would require daily intake of foods high in these oils
- Liquid fish and flaxseed oil supplements are absorbed the best. ½ tablespoon of fish oil or 1 tablespoon of flaxseed oil daily, either straight or mixed with other foods, works best. A good brand of oils is Barleans, which can be found in most healthy food/grocery stores and online (www.Barleans.com) or at Amazon.
- Gel capsules—usually require 4 pills (4 grams) daily. Certain brands of oils may be better than others, such as Hydroeyes (<http://www.sciencebasedhealth.com/HydroEye-Powerful-Dry-Eye-Relief-P43.aspx> or at Amazon).



The 3 layers of the tear film

If the above options don't work, the following medications can be considered:

4. Topical drops or ointments

- **Azasite** – one drop at bedtime every day for one month, then every other day, or intermittently one week at a time
- The drop concentrates in the eyelids and helps the meibomian gland secretions soften and flow better, which also helps with dry eye
- other drops or ointments may be prescribed

5. Oral medications

- **Azithromycin (Z-pack)** 5 day course, or occasionally erythromycin
- **Doxycycline** (or minocycline)
The medication is used for several reasons that are not related to its normal use as an antibiotic:
 - i. By concentrating in the meibomian glands (lipid- or oil-forming glands at the edge of each eyelid), a more stable tear film is achieved. This can improve sensations of scratchiness and dryness.
 - ii. Altering the lipid with doxycycline may reduce free fatty acid formation by bacteria on the eyelids. Free fatty acids are similar to household detergents and may cause a burning sensation of the eye.
 - iii. Doxycycline blocks or inhibits some of the body's responses to infection and inflammation. Inflammation makes the eye and eyelids red and irritated. By reducing excessive inflammation, delicate tissues such as the cornea may be spared from scarring and/or destruction.

DOSAGE

Doxycycline is usually started at one pill (20 - 100 mg) once or twice a day. It can be gradually reduced or stopped over time. It should be taken with meals, but not with dairy products.

SIDE EFFECTS

As with all medicines, serious side effects are possible. The most common side effects with doxycycline are upset stomach and increased sensitivity to sunlight (possibly leading to sunburn). Less frequently, skin rashes and hypersensitivity

reactions have been reported. If you experience any unusual symptoms while on this medication, you should notify your physician promptly.

PRECAUTIONS

Doxycycline should not be used in pregnant women, infants, and children under the age of 8 because it may cause permanent discoloration of the teeth (yellow, gray, and brown). Nursing mothers should not take doxycycline as it may be transmitted to the infant in human milk. It may also interact with other medicines, including oral contraceptives, making them less effective.