# Blepharitis: an approach to management

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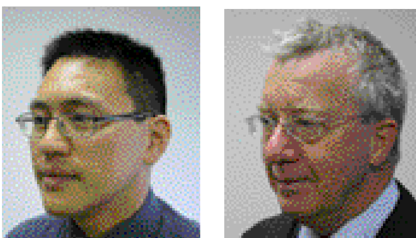
**Blepharitis leads to ocular surface discomfort and inflamed eyelids. Active management comprising a structured cleaning regimen controls up to 100% of cases. Occasionally, systemic tetracyclines are required.**

## Case presentation

### History and examination

A 48-year-old woman presented with a four-year history of irritation and redness in both eyes. She had tried nearly every artificial tear preparation listed in MIMS. Topical steroids had been used occasionally but had not proved beneficial, nor had mast cell inhibitors or antihistamines. She was carrying a large plastic bag containing her many bottles of eyedrops, and as she sat down in the consulting room she proceeded to line them up on the desk. She was sceptical that we could help her.



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Systems review revealed that the patient was in good general health and had no previous visual problems. She was taking no medications. Her vision was a clear 6/5 in each eye, and her visual system appeared intact. Examination of the ocular surface revealed that her tear film breakup time was slightly rapid (10 seconds in each eye), but there was no conjunctival or corneal staining with fluorescein. Schirmer's testing with anaesthetic showed her tear production to be within the normal range: wetted lengths of filter paper were 15 mm in the right eye and 16 mm in the left eye at five minutes. Examination of the everted eyelids was normal.

Positive findings of the ocular examination included scales on both the upper and lower eyelids (Figures 1a and b). In addition, the eyelids were congested and their margins red. On slit lamp examination, the meibomian glands were observed to be blocked with inspissated secretion.

### Diagnosis and management

A diagnosis of anterior and posterior blepharitis was made. A detailed explanation of the pathogenesis of the disease was provided to the patient, and she was warned that successful management of the problem would require much effort on her part.

Treatment was then commenced with a blepharitis management regimen, which encouraged the secretory products of the glands of the lash follicles and the meibomian glands to drain. This released bacterial breakdown products and fatty acids, making the eyelids temporarily redder and more uncomfortable. This deterioration lasted five days. However, the patient's assiduous and active blepharitis management ensured that at her review one month later her eyes and eyelids looked and felt better than they had for years.

## Discussion

Blepharitis is a common, annoying and chronic problem for many patients who present to the GP or ophthalmologist. These patients are miserable and embarrassed. They are miserable because they experience long term, bilateral, intermittent irritation, redness and discharge from their eyelids, with eyelid crusting. They are embarrassed because they are regularly asked if they have been imbibing the previous night: they have the 'big night out' look.

Blepharitis leads to ocular surface discomfort (itching, burning, stinging and irritable eyes) and inflamed eyelids. Patients often have red eyes and a destabilised tear film leading to dry eyes. Blepharitis is frequently associated with keratoconjunctivitis sicca. For these reasons, ocular lubricants are also usually prescribed.

### Types of blepharitis

There are two types of blepharitis: anterior and posterior. These often occur synchronously.

#### Anterior blepharitis

Anterior blepharitis is characterised by a reddened appearance of the anterior surface of the hair-bearing section of the eyelid. Often there are eyelashes matted with discharge, with crusts at the base and scales along the length of the lash itself. Lash loss (madarosis) occurs and styes may develop.



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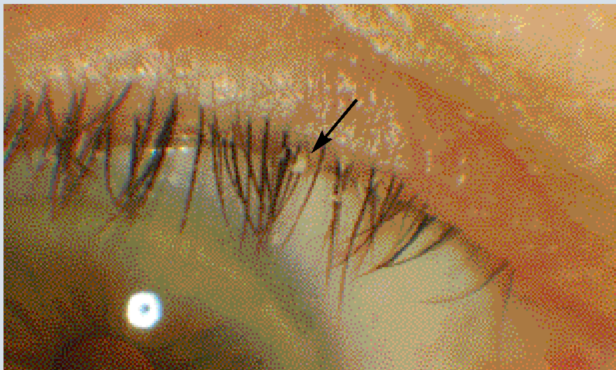
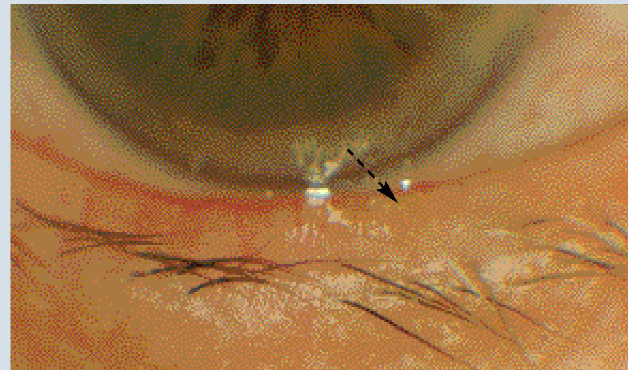
## Blepharitis: typical clinical examination findings





Figures 1a and b. A patient with anterior and posterior blepharitis in the upper (a, above) and lower (b, above right) eyelids. Note the crusts (solid arrow) and scaling around the lashes, blocked meibomian glands (dashed arrow) and generally red appearance of the eyelids.

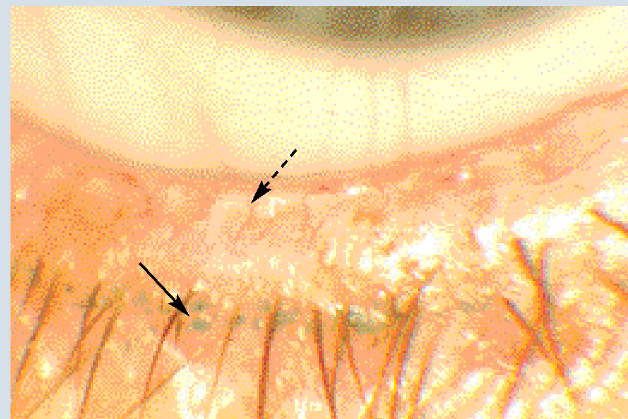


Figure 2 (right). A normal lower eyelid. Note the open orifices of the meibomian glands (dashed arrow). Eyeliner pigment is visible at the base of the eyelashes (solid arrow).

### Posterior blepharitis

Posterior blepharitis is characterised by meibomian gland dysfunction, in which each gland is observed to have stagnant secretions that are inspissated at the duct orifice.[1] This is visible in Figure 1b; for comparison, the normal egress of oil from the meibomian glands is shown in Figure 2.

The natural outcome of this kind of meibomianitis is the development of a tarsal cyst (chalazion). Rosacea is often associated with posterior blepharitis, but it may not always be clinically obvious, particularly if the consulting room is darkened or if artificial lighting is used. Rosacea patients will typically develop recurrent chalazia.

The bacteria commonly isolated from the plugged secretions of the meibomian glands include *Staphylococcus epidermidis, Propionibacterium acnes* and *Staphylococcus aureus*. These organisms lead to a number of lipid abnormalities associated with blepharitis. Bacterial lipase causes breakdown of nonpolar and polar lipids and release of free fatty acids, leading to eyelid inflammation. Tetracyclines have an action on reducing bacterial lipase activity (especially in rosacea patients) that is independent of their antibiotic effect in reducing bacterial flora.[2,3]

## Differential diagnoses

The differential diagnoses of blepharitis with red crusting eyelids and associated red eyes should be kept in mind. The major disorders and their predominant discriminating features are listed in the Table.

## Sequelae

The sequelae of chronic untreated blepharitis are not only the cosmetic and symptomatic features already described. Excessively rubbing the irritated eyelid may contribute to the development of lower eyelid ectropion. Recurrent inflammation at the base of the lash follicles may lead to trichiasis (lashes abrading the cornea), which can result in corneal abrasion, ulceration and infection.

## Treatment and compliance

Active management of all types of blepharitis requires a structured regimen of heating, massage and cleaning. Compliance is



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# Blepharitis: a guide to active management

Blepharitis is a common inflammatory condition that affects the eyelids. Usually it is a chronic problem, but it can be controlled with extra attention to hygiene using the cleaning protocol described below. Successful treatment will depend on your dedication to the cleaning program.

You may notice that massaging and scrubbing the eyelids initially worsens the inflammatory response so that the eyelids become redder and more uncomfortable. This will last only for the first week – persistence with treatment will lead to an improvement in your symptoms and in the appearance and function of the eyelids. At your four-week visit, your doctor may advise you to reduce the frequency of cleaning to just two to three times a week, but you may need to keep it up for many months in order to control the problem.

The complete cleaning protocol described below should be performed morning and night for the first week. Steps 1 to 3 should be continued at night until your four-week visit.

## Step 1. Heat the eyelids (2 minutes)

Using water as hot as you can reasonably stand, wet a washer and place it against your closed eyes for two minutes. The heat will melt the oils in your eyelids.

## Step 2. Massage the eyelids (2 minutes)

The glands in the eyelids drain towards the margin, and massaging them in the direction of flow will improve drainage (Figure A). Using one finger on each hand, massage the upper eyelids in a downward direction. Then, massage the lower eyelids in an upward direction, towards the open eye. Spend one minute on the upper eyelids and one minute on the lower eyelids.

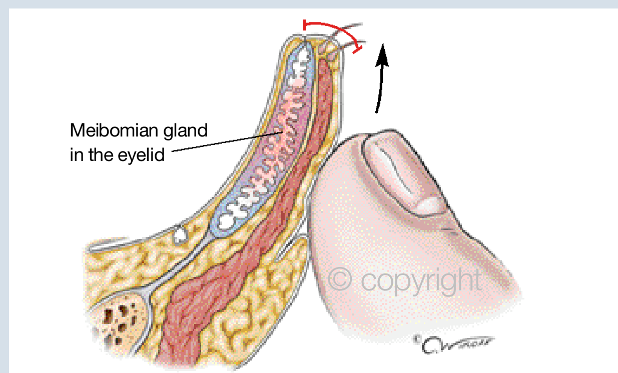


*Figure A. Cross-sectional view through the lower eyelid showing the meibomian gland and the region to be cleaned (marked in red). The eyelid should be massaged towards the margin (arrow), which is in the direction of meibomian gland drainage.*

## Step 3. Remove scales and discharge from the gland openings (4 minutes)

Prepare a cleaning solution by dissolving a pinch of bicarbonate of soda in a glass of water that is as hot as you can safely handle. The lower eyelids are easier to clean than the top eyelids, so start with these. Dip a cottonbud into the solution and, without touching the eye, rub the cottonbud along the eyelid margin in the region of the lashes or a little behind. Imagine you are removing scale and other debris from this region (Figure B). The procedure is easier if you maximise the distance between the cornea and cleaning activity by looking up while cleaning the lower eyelid and looking down while cleaning the upper eyelid. Repeat the procedure for the other eyelids, using a new cottonbud for each one. Each eyelid should be cleaned for about one minute.

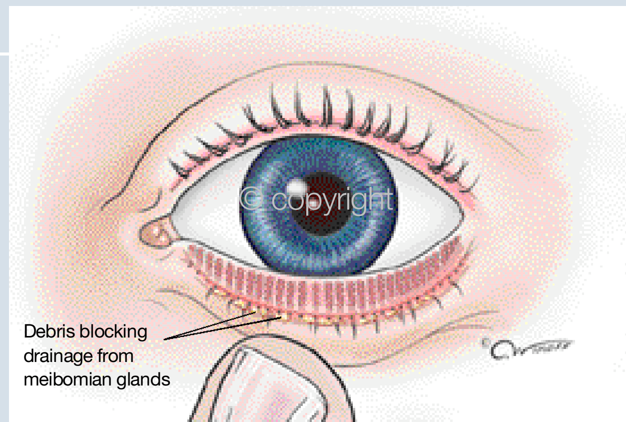


*Figure B. The location of the meibomian glands and their blocked openings. The area around the eyelashes to be cleaned is red.*

If you find you cannot see your eyelids clearly, consider using cosmetic makeup glasses (Figure C).

*Figure C. Using cosmetic makeup glasses to carry out blepharitis management.*

## Step 4. Apply antibiotic ointment (1 minute)

You will be given a prescription for a tube of chloramphenicol ointment to use for the first week of your cleaning schedule. Chloramphenicol is an antibiotic that kills bacteria in the eyelids and will help to eradicate any local infection. About 70% of eyelids contain golden staph (*Staphylococcus aureus*).

Apply a small amount of ointment to the clean end of your first cottonbud and massage it over the openings in the glands of the one of the eyelids. Repeat for the other eyelids.

Remember that this step is required during the first week of treatment only.

This patient handout was prepared by Dr Derek Chan and Dr Ian Francis.

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## Table. Blepharitis: differential diagnoses

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| **Dry eye syndrome** |
| Symptoms worse at end of day |
| Symptoms generally helped by artificial tear preparations |
| **Allergy (cosmetics, chemicals, contact lens solutions, eyedrops)** |
| Itching is the prime symptom |
| History of exposure to allergens essential |
| **Microbial conjunctivitis** |
| Frequently purulent discharge |
| Generalised conjunctival inflammation |
| History of brief duration |
| **Atopic dermatitis** |
| Systemic features evident |
| **Herpes simplex blepharokerato-conjunctivitis** |
| History of recent labial or nasal infection |
| Typical dendritic staining appearance with fluorescein, usually unilateral |
| **Meibomian carcinoma** |
| Usually unilateral, with minimal discharge |
| Localised lid thickening and madarosis |

often a problem. However, as soon as patients understand that their eyelid disease can be controlled by improving hair follicle drainage and tarsal gland drainage, a major inroad has been achieved. A detailed explanation and demonstration by the doctor is essential so that the patient understands and can carry out each step – if patients are simply told to 'clean the eyelids' then the results are usually poor. Use of the four-step approach outlined in the patient handout on page 58 is almost always successful. It is inexpensive, as bicarbonate of soda is the only medication required in the long term.[4] Further, patients must be made aware that the success of treatment is directly proportional to their dedication to the management plan.

Reports in the popular press suggest omega-3 fatty acid supplementation may benefit patients with blepharitis. However, there have been no controlled clinical trials showing improvement.

Recurrent or recalcitrant disease may be associated with poor treatment compliance or the presence of rosacea. In this situation, doxycycline can help – start with 50 mg twice daily for one week and reduce to 50 mg daily or second daily for two to three months. It should be emphasised that topical corticosteroids in eyedrop or ointment form are not required – both may be associated with the development of glaucoma, cataracts and the reactivation of herpes simplex keratitis.[5,6]

## Follow up

We have found it encouraging for the patient – and essential for successful treatment – to perform a review four weeks after commencing treatment. The frequency of blepharitis treatment at that point in the management can be reduced to two to three times a week, but treatment may need to be carried out for many months. MT

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DECLARATION OF INTEREST: None.



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