



# Lid margin disease and CL wear

## Dr Sheetal Patel

describes a case study illustrating the important link between dry eye, lid margin disease (LMD) and contact lens success

**B**lepharitis is a common finding among most of our patients – contact lens wearers and non-contact lens wearers. Heated workplace environments, often combined with air-conditioning, can play havoc with our eyelids and the surrounding structures. As contact lens practitioners we can often underestimate how important maintaining a constant and suitable working environment is to improving contact lens comfort.

There is a common link between evaporative dry eyes and blepharitis – they very often coexist. A Spanish study showed that 50 per cent of subjects with dry eyes also had meibomian gland dysfunction.<sup>1,2</sup>

Up to half of all contact lens wearers report dry eye symptoms and chronic blepharitis is another cause of contact lens intolerance.<sup>3</sup>

### Case study

The patient is a 38-year-old personal assistant who is a daily computer user. Her general health is good, she has no allergies and takes no medication.

She attended for a routine contact lens review. She was wearing conventional hydrogel daily disposable contact lenses with 'more moisture'. She wore lenses 3-4 days per week, for a maximum of four hours. They were worn mainly for social purposes and horse riding. The wearing time at the appointment was two hours.

### Symptoms

Her symptoms were: chronic irritation and discomfort with and without contact lens wear, occasional soreness, and redness more so with contact lens wear. The symptoms were worse in the morning and at end of day when the eyes felt tired. Fluctuation in vision was also reported.

### History

The patient had been told by her previous optometrist that she had dry

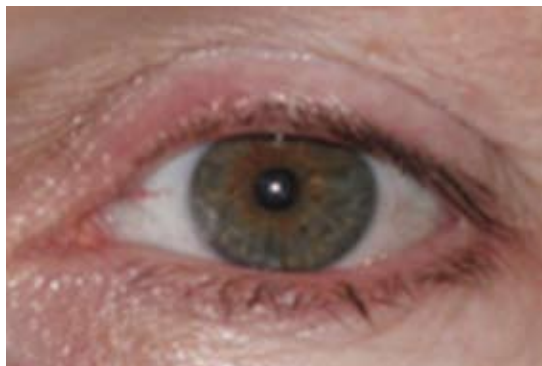


Figure 1 Hyperaemic and thickened lid margins



Figure 2 Telangiectasia of the irregular lid margin

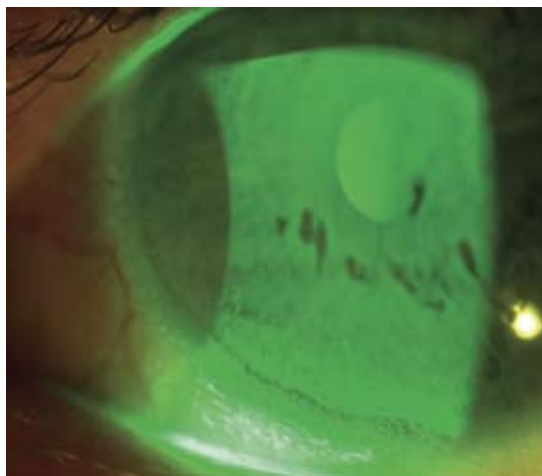


Figure 3 Break up of tear film with fluorescein

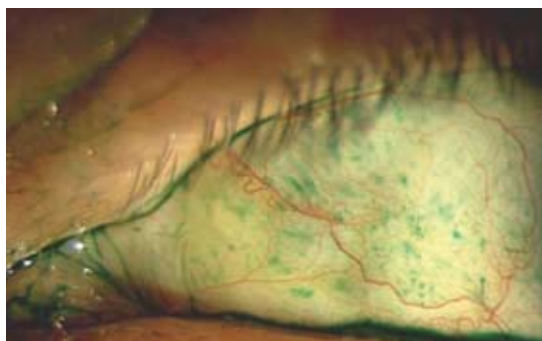


Figure 4 Lissamine green staining of the conjunctiva

eyes and various treatment regimes had been tried, ranging from using ocular lubricants (brand name unknown), to advising her to 'clean eyes thoroughly' as well as refitting the patient with silicone hydrogel lenses, which she was not happy with at all.

The patient wears eye make-up very occasionally. She had therefore become accustomed to the fact her 'eyes were this way' and it was normal for her.

### Vision with contact lens

R: 6/6 L: 6/6

### Fitting of contact lens

Good centration, movement minimal, push up test showed lenses difficult to displace, sluggish recovery and poor wettability.

On first glance, it could be assumed that this is a tight fitting lens and therefore the possible cause of some of the patient's symptoms. On further examination we uncovered this was not the case and in fact LMD can affect the fit of contact lenses, making them intolerable to wear.

It is important to look at eyelids without the use of a slit lamp initially and note down any obvious observations (Figure 1). The patient in this case had hyperaemic slightly thickened lid margins.

This was confirmed with closer examination using a slit lamp. Lid and lash anatomy was normal but there was slight telangiectasia of the lid margin vessels of both eyes as well as the presence of a scaly lash line (crusting along eyelashes) with the presence of an oily residue (Figure 2).

Expression of the meibomian glands revealed grade 1 obstruction with mildly opaque secretions inferiorly. Poor tear film and break up time was 3-4 seconds and trace superficial punctate keratitis (Figure 3). Lissamine green showed grade 1 staining diffusely over the conjunctiva (Figure 4).

### Diagnosis

Mixed anterior blepharitis and posterior blepharitis (meibomian gland dysfunction or MGD).

### Management

Temporary cessation of contact lens wear was advised which the patient was happy to do. Lid hygiene was explained with commercially available preparations (lid wipes used). These



were recommended for use initially twice a day for one week, and thereafter every evening. Use of the EyeBag was advised (Figure 5) concurrent with regime for lid hygiene to help with the MGD present.

Use of ocular lubricants 4-6 times a day (in this instance non-preservative Systane) was recommended. Very viscous lubricants are best avoided with LMD from the first instance, particularly where the tear film already consists of a lot of lipid and grease as this will make the patient's symptoms worse.

If an infection were present then an antibiotic ointment would be added to the treatment regime once initial deposit removal on the lid margins was carried out. Chloramphenicol ointment (Chloromycetin) twice daily instilled into the eyes or rubbed into the lid margin with a cotton bud or clean fingertip should suffice.

Failing this, however, a systemic tetracycline, such as doxycycline, can be prescribed. Note that this is contraindicated in pregnancy, lactation and children under 12 years, as well as other at-risk patient groups.<sup>4,5</sup>

No comprehensive, universally accepted treatment approach exists as yet, but the treatment options commercially available are very effective. The holistic approach to lid hygiene through baby shampoo or bicarbonate soda has been very much replaced with these products on the market allowing for better patient compliance and more effective management. There is a view that detergent action of agents such as baby shampoo may further de-stabilise the lipid layer of an already compromised tear film.

Refitting the patient with a silicone hydrogel contact lens, as previously tried, is not a viable option when LMD is present. The interaction of the silicone material with excess lipid in the tears causes an exacerbation of the patient's symptoms and more fluctuations in vision due to lipid attraction onto the contact lens surface.

## Follow-up

The patient returned for follow up after three weeks. She reported a significant improvement in her symptoms and signs. Slit-lamp findings mirrored these observations. She was kept on a maintenance regime with regards to the lid hygiene and use of ocular lubricants. Furthermore she was advised that contact lens wear could be resumed and ocular lubricant use during contact lens wear was recommended. At this point, essential fatty acids may also be



**Figure 5** Use of the EyeBag can help with MGD

recommended (such as supplements containing omega-3 and omega-6 or flax seed capsules) to help with dry eye conditions.

Clinical trial research is limited regarding the efficacy of oral supplements for ocular surface and LMD, but a growing body of evidence is suggesting a link between natural dietary intake of fatty acids and an improvement in dry eye conditions. Flax seed capsules may help, but these do take some time to 'kick in' (not an immediate effect) due to the inflammatory component associated with blepharitis.

The patient was followed up again after one month – she was still very happy, the maintenance regime was still being followed and improvement in contact lens wearing time now reported.

## Discussion

Blepharitis is the inflammation of the lid margins.<sup>6,7</sup> It is divided into three categories:

- Anterior marginal blepharitis
- Posterior marginal blepharitis (meibomian gland dysfunction)
- Mixed anterior and posterior marginal blepharitis.

Anterior blepharitis can occur as a result of bacterial infection (usually staphylococcal), seborrhoea or *Demodex folliculorum* (mite infestation). The bacterial component to blepharitis can be as a result of direct infection, reaction to staphylococcal exotoxins or allergic response to staphylococcal antigens.<sup>5</sup>

In certain cases the bacterial and seborrhoeic can both be present.

Posterior blepharitis occurs as a result of bacterial lipases breaking down meibomian lipids, resulting in this secretion being abnormal both chemically and physically and therefore, the tear film becoming unstable.<sup>5</sup>

In many cases both anterior and posterior blepharitis can be seen.

Blepharitis is common, but we know very little about its precise incidence. Values range from as high as one in 10 for anterior and one in 100 for posterior blepharitis.<sup>8</sup> As clinicians, we should look at the lids in every routine examination, but we are likely to have a broad tolerance of how 'clear' lids and lashes should appear.

Common symptoms of blepharitis include irritation, redness, itching, oedema, tearing, foreign-body sensation, crusting, photophobia and fatigue. However, these symptoms can be low-grade, and in most cases only two or three are found at any one time.

Clinicians should schedule frequent follow-up visits for LMD patients to tailor treatment appropriately. Patient education and communication should be a priority, because successful treatment of LMD requires the ongoing co-operation of the patient.

Even in asymptomatic patients, identifying signs of dry eye associated with LMD is important. Managing these signs before the symptoms arise is a priority, particularly if our contact lens patients are to stay happy with their lens wear. ●

## References

- 1 Viso E, Gude F, Rodriguez-Ares MT. The association of meibomian gland dysfunction and other common ocular diseases with dry eye: a population-based study in Spain. *Cornea*, 2011 Jan;30(1):1-6.
  - 2 Arita R, Itoh K, Inoue K, *et al*. Contact lens wear is associated with decrease of meibomian glands. *Ophthalmology*, 2009;116:379-84.
  - 3 Nichols JJ, Sinnott LT. Tear film, contact lens, and patient-related factors associated with contact lens-related dry eye. *Invest Ophthalmol Vis Sci*, 2006; 47:1319-28.
  - 4 Jackson WB. Blepharitis: Current strategies for diagnosis and management. *Can J Ophthalmol*, 2008; 43: 170-9.
  - 5 College of Optometrists. Clinical Management Guidelines - Blepharitis. [www.college-optometrists.org](http://www.college-optometrists.org)
  - 6 Kaiser, Friedman. *The Massachusetts Eye and Ear Infirmary - Second edition.*
  - 7 Kanski JJ. *Clinical Ophthalmology - Fifth edition*, Butterworth-Heinemann.
  - 8 Bruce AS, Loughnan MS. *A-Z Anterior Eye Disease and Therapeutics*. Butterworth-Heinemann (2003).
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