



Two-minute guide to lid wiper epitheliopathy

Lid wiper epitheliopathy (LWE) is a relatively recently described clinical entity associated with symptoms of discomfort and dryness both in contact lens wearers and dry eye. Contact lens wearers with dry eye symptoms are twice as likely to display LWE as asymptomatic wearers, although there does not appear to be a link between LWE and clinical tear film tests (tear break-up time, Schirmer's). In non-contact lens wearing dry eye patients 88 per cent have LWE (66 per cent at grade 2 and above) as opposed to only 16 per cent (14 per cent grade 1, 2 per cent grade 2) of those without dry eye. LWE is correlated with an increased number of lid parallel conjunctival folds (LIPCOF). The condition is revealed by lissamine green staining. It is more common in RGP and silicone hydrogel lens wearers. LWE explains contact lens intolerance in wearers that show no other signs.

How do I see it?

Instil a generous amount of lissamine green (Figure 1), wait two to three minutes and evert the upper lid. With the slit lamp, diffuse illumination, white light and low to medium mag (6-10X) examine the palpebral conjunctiva adjacent to the lid margin. LWE will show up as a band of green staining extending from the lid margin across the palpebral conjunctiva with a 'feathered' edge. Lissamine green staining can be made more visible by using a red filter in the observation pathway of the slit lamp. Although it does not stain well with fluorescein, instilling several applications of fluorescein and then observing the lid margin through a yellow filter may reveal uptake of the dye.

Symptoms

- Increased lens awareness
- Scratchiness especially on blinking
- Reduced wearing time
- In severe/advanced cases symptoms may persist on lens removal.

Signs

Lid wiper is the leading zone (1 to 1.5mm) of the palpebral conjunctiva and normally does not stain.

In LWE:

- Characteristic lissamine green (or

The two-minute guide series is a quick reference guide to commonly encountered conditions, their symptoms, signs, cause and management by

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Lid wiper epitheliopathy shown with lissamine green staining (courtesy of The Vision Care Institute)

rose bengal) staining near lid margin

- Can be associated with poor quality tear film and lenses with high coefficient of friction (rigid gas-permeables, some silicone hydrogels)
- Do not confuse with Marx line – on lid margin near meibomian gland orifices. It is normal for this to stain with lissamine green as a fine line of stain on the lid margin itself rather than on the margin of the palpebral conjunctiva.

Causes

It is suspected that when the upper lid palpebral conjunctiva is subject to higher than normal frictional forces it undergoes structural changes. The compromised cells, which then stain with lissamine green, traumatise the cornea and lead to increased corneal sensitivity. The increased frictional forces may be either intrinsic (tear related) or extrinsic (lens related):

- Lack of lubrication as the lid passes over the ocular surface/contact lens surface. This is supported by evidence of reduced mucin activity in wearers with LWE. It explains the correlation with LIPCOF, which also has a frictional aetiology. Contact lens wear decreases conjunctival goblet cell numbers, so less mucin is produced

- High coefficient of friction between lid and lens surface may then aggravate the lack of lubrication available.

Management

Initial management is to improve comfort to allow the wearer to enjoy better quality lens wear. This may reduce the signs of LWE but may not address the root of the problem.

- Regular, daily use of lubricant drops reduces symptoms and friction between lid and lens, allowing the conjunctiva to recover normal function
- If the wearer has a poor quality tear film (meibomian gland dysfunction, aqueous deficiency etc) then this must be managed, otherwise the following recommendations will be of limited benefit
- Refit with more lubricious (slippery) lens surface
- Maintain good lens cleaning (rub and rinse) or daily disposables
- Refit from silicone hydrogel to hydrogel
- Replace RGP regularly three to six monthly to ensure good surface quality
- Refit from RGP to silicone hydrogel or hydrogel
- If severe or does not resolve with above, discontinue CL wear until clear then refit with a lens with good biocompatibility, deposit-resistant material and naturally slippery surface.

Prognosis

LWE causes loss of tolerance to contact lenses if it is not managed. Once the wearer has been refitted with an appropriate lens and is using a suitable care system, good comfortable lens wear can be achieved. However, if related to poor quality tear film then it may recur. Careful selection of contact lenses, solutions, replacement schedules and lubricating drops, lid hygiene etc may allow reasonable, comfortable wearing times.

Differential diagnosis

The staining pattern is very distinctive. The only time I have seen anything similar is from mechanical trauma to the lid margin from a foreign body (MDF fibres). ●

- Optometrist **Andrew Elder Smith** runs Contact Solutions Consultants which offers in-practice training to all team members from optometrists to front of house. Training is tailored to individual requirements and encompasses clinical and non-clinical aspects of patient and customer care