Hard contact lens migration into the upper lid: an unexpected lid lump

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SUMMARY Contact lens migration into the upper lid is a rare complication of wearing a hard contact lens. We present a case in which the only complaint was the cosmetically unacceptable appearance of a lump in the upper lid. The 76-month duration of the lesion is, we believe, the longest so far described. The histology and possible natural history of the cyst are also discussed.

A tumour of the upper lid is a rare but well described complication of hard contact lens wear. There have been 16 cases with similar features since the first report by Green¹ in 1963. We present a further case with several interesting aspects regarding the duration of the mass and histology of the cyst, which was removed virtually intact.

Case history

A 44-year-old woman was referred to the Department of Ophthalmology at the University Hospital of Wales in August 1985 with a five-year history of a non-tender, slowly enlarging swelling of her right upper lid which was becoming cosmetically unacceptable. Her general health was good and there was no history of trauma. She denied any previous ocular problems, in particular, no episodes of conjunctivitis. Interestingly, her referral to the ophthalmologists accompanied a referral to the dermatologists for an assessment of three nodules on her forehead. These were subsequently diagnosed as benign melanocytic naevi. The patient had worn contact lenses since 1968 to correct her myopia of, right, -3.0 dioptres, and, left, -3.5 dioptres. She had worn hard contact lenses up to October 1979, when she had changed to gas permeable lenses.

Examination revealed corrected visual acuity of 6/6 right and left. There was a 2 cm diameter, freely mobile, moderately firm mass in the upper medial aspect of the right upper lid, well above the tarsal plate. The mass was not tender, not fixed to skin, and did not appear to extend into the orbit. In February

1986 the cyst was excised under local anaesthesia. The lid was singly everted during infiltration with local anaesthetic, but no mass was seen. An approach was made via a curved horizontal incision 4 mm below the eyebrow. A pale yellow cystic mass was identified. Dissection from surrounding tissue proved fairly easy, apart from the inferoposterior aspect, which eventually had to be cut, resulting in the release of a small amount of purulent material, which yielded no growth on culture. Quite early on in the procedure a solid rim was noted within the translucent cyst and identified as a contact lens. The cyst was then removed virtually intact, and a probe passed through the small dehiscence left by cutting the inferior wall of the cyst passed freely into the superior fornix. The wound was closed in layers, and an examination of the lens revealed it to be an intact hard lens of strength -3.5 dioptres.

HISTOLOGY

Macroscopically the tumour consisted of a hard contact lens enclosed in a thin walled cyst measuring 1×1×0.2 cm (Fig. 1). Microscopically the cyst was lined by an epithelium of low cuboidal type which in places was several cells thick (Fig. 2), the more superficial cells being polygonal in shape. Scattered mucous secreting goblet cells were present (Fig. 3), consistent with a conjunctival epithelium origin. Elsewhere the lining was that of a stratified squamous epithelium (Fig. 4), with evidence of keratinisation in some parts. This appearance may reflect metaplastic change in conjunctival epithelium or could imply the inclusion of corneal epithelium, which might have adhered to the contact lens during its upward migration in the cyst wall.

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Fig. 1 *The contact lens within a thin walled cyst.*

Underlying the epithelium was a loose connective tissue containing areas of recent haemorrhage and a few lymphocyte-like cells, but there was no evidence of giant cells, or indeed of any significant inflammatory cell component. There was similarly no evidence of an excess of fibrous tissue round the cyst wall.

Discussion

Up to August 1982 there had been 16^{2,3} reports of hard contact lenses being embedded in the tissues in the upper lid and fornix. This phenomenon appears to be twice as common in females as males, possibly reflecting the difference in prevalence of contact lens

Fig. 2 *Paraffin wax section of the cyst wall showing an epithelial lining and underlying loose connective tissue. Haematoxylin and eosin. $\times 12.5$.*

Fig. 3 *Paraffin wax section of the cyst wall showing epithelium of conjunctival type containing goblet cells (arrow). Haematoxylin and eosin. $\times 70$.*

wear.² As in the previous cases of long elapses between lens loss and removal from the lid (56 months³ and 69 months⁴), mucopurulent discharge was not a feature. However, in cases of shorter duration a chronic conjunctivitis has pointed to the true nature of the lesion.^{1,5,6}

Our patient changed from hard to gas permeable lenses in October 1979. It is likely therefore that the hard lens found in the cyst had been present for at least 76 months by the time of its removal. It is probable that the duration is even longer than this,

Fig. 4 *Paraffin wax section of cyst wall showing epithelium of stratified squamous type. Haematoxylin and eosin. $\times 77$.*

since the patient was unable to recall the exact date of loss, despite admitting retrospectively to several such occurrences. We believe that the above case represents the longest duration of a contact lens 'cyst' so far described.

The quiet nature of the lesion, with no symptoms other than the presence of a lump, together with the absence of any gross inflammatory cell reaction, bears witness to the extremely inert nature of polymethylmethacrylate, from which hard contact lenses are made.

Histopathological details have been reported only in six previous cases,^{1-3,7,8} one of which had a similarly non-inflammatory picture.⁷ Of the others, one had a granulomatous reaction without giant cells,³ and one other a chronic granulomatous tissue with structures suggestive of giant cells.² The remaining three reports mention granulation tissue but give no details. Significantly, three of the five patients with granulomatous change had symptoms, including irritation and a mucopurulent discharge.

Michaels and Zugsmith⁹ postulate that it is the action of the lid on the upwardly displaced contact lens which results in local abscess formation. Rupture of the abscess then allows insinuation of the lens by erosion of the lid tissue by its edge, the entrance eventually being sealed by granulation tissue. The absence of significant inflammatory changes in our case may reflect the extremely long duration of the lesion. However, the complete lack of any irritative symptoms or discharge in this and several other cases opens to the question the theory of local abscess formation in the natural history of this condition. Possibly lid action alone may induce invagination and subsequent encysting of these very

inert lenses, with no granulation tissue formation.

Finally, many authors have emphasised the need for double eversion of the lid in the examination of patients with upper lid masses and also before dispensing a new contact lens after losing an old one.¹⁻¹⁰ Like others we found single eversion remarkably unhelpful, and it must be pointed out that not all patients are tolerant of eversion with a Desmarres retractor in the outpatient department. In view of its rarity this condition may well remain one in which serendipity plays a large part in diagnosis.

References

- 1 Green WR. An embedded ('lost') contact lens. *Arch Ophthalmol* 1963; **69**:23-4.
- 2 Sebag J, Albert DM. Pseudochalazion of the upper lid due to hard contact lens embedding—case reports and literature review. *Ophthalmic Surg* 1982; **13**: 634-6.
- 3 Older JJ. Encysted corneal contact lens presenting as an eyelid mass. *Ann Ophthalmol* 1979; **11**: 1393-4.
- 4 Oshima T. A case of foreign body granuloma due to a contact lens retained long in the upper fornix. *Folia Ophthalmol Jpn* 1966; **17**: 103-6.
- 5 Shenken E. Traumatic dislocation of a contact lens into the eyelid. *Can Med Assoc J* 1969; **101**: 295.
- 6 Yassin JG, White RH, Shannon GH. Blepharoptosis as a complication of contact lens migration. *Am J Ophthalmol* 1971; **72**: 536-7.
- 7 Brinkley JR, Zappia RJ. An eyelid tumor caused by a migrated hard contact lens. *Ophthalmic Surg* 1980; **11**: 200-2.
- 8 Richter S, Sherman J, Horn D, Zelaznic S. An embedding contact lens in the upper lid masquerading as a mass. *J Am Optom Assoc* 1979; **50**: 372-3.
- 9 Michaels DD, Zugsmith GS. An unusual contact lens complication. *Am J Ophthalmol* 1963; **55**: 1057.
- 10 Nicolitz E, Flanagan JC. Orbital mass as a complication of contact lens wear. *Arch Ophthalmol* 1978; **96**: 2238-9.

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