Extratarsal chalazia

RUSSELL S GONNERING

From the Departments of Ophthalmology, University of Wisconsin, Madison, Wisconsin, and St Luke's Hospital, Milwaukee, Wisconsin, USA

SUMMARY Three cases of atypical, extratarsal chalazia are presented. All three patients initially presented with a history of an inflammatory mass close to the lid margin. Inferior migration subsequently occurred, with loss of connection to the tarsus, causing confusion in the diagnosis. The basis for this migration is postulated to be the anatomical relationships of the tarsus, postorbicular fascia, and lower eyelid retractors. A good response was obtained with standard surgical therapy.

Although it is one of the commonest benign tumours of the eyelid,^{1,2} the lowly chalazion does not stir much interest or excitement in most ophthalmologists. Because the presentation is usually common and characteristic, of more importance are other lesions, such as sebaceous gland carcinoma, masquerading as chalazia.^{3,4} The following three cases represent the opposite circumstance, where an atypical presentation of a chalazion with an extratarsal location caused concern.

Case reports

CASE 1

A 4-year-old girl developed a small mass slightly

Correspondence to Russell S Gonnering, MD, 2600 North Mayfair Road, Milwaukee, Wisconsin 53226, USA.

Fig. 1 Case 1. Violaceous 5×10 mm mass at level of inferior orbital rim in a 4-year-old girl.

inferior to the margin of her left lower lid. She was seen by her ophthalmologist and the diagnosis of a chalazion was made. Treatment consisted of application of warm soaks. Over the ensuing three months the lesion enlarged and appeared to migrate inferiorly. It became tender, and stabilised in size.

When the child was referred for examination, she presented with a 5×10 mm violaceous mass located at the level of the inferior orbital rim, at the junction of the medial and middle thirds of the left lower lid (Fig. 1). The lesion was covered by thin, atrophic skin, with scale formation and dilatation of surrounding capillaries. There was no evidence of fixation to deeper tissues. The rest of the ocular examination was normal.

At surgery a large collection of necrotic-appearing tissue was located within the substance of the orbicularis muscle anterior to the orbital septum. Frozen-section examination revealed florid granulation tissue. No connection to the tarsus was seen. The abnormal tissue was removed and the wound closed with advancement flaps.

Examination of fixed tissue showed a mixture of diffuse acute and chronic inflammatory cells. Neutrophils, lymphocytes, plasma cells, fibroblasts, and histiocytes were seen (Fig. 2). A granulomatous reaction corresponding to probable lipid globules was also present.

The patient's postoperative course was uneventful. When seen eight months after surgery the lid was healed with no evidence of recurrence.

CASE 2

A 39-year-old woman developed a lesion she described as a 'sty' three months prior to examina-

Fig. 2 Case 1. Diffuse acute and chronic inflammation with granulomatous reaction. Haematoxylin and eosin.

tion. It was treated with a combination of oral penicillin and topical sulphacetamide eye drops, with the application of moist heat. Over the next three months the lesion remained relatively stable in size, but proceeded to migrate inferiorly from its initial location near the lid margin. The lesion would periodically drain purulent material.

When examined the patient had a 15×7 mm mass located in the mid portion of the right lower lid, at the level of the inferior orbital rim. The overlying skin was thin and of a violaceous hue. A central ulcer or fistula was present, with a dried purulent plug. With the exception of mild follicular hypertrophy of the inferior tarsal conjunctiva in both lower lids nothing else abnormal was noted.

At surgery a friable necrotic-appearing mass was found within the substance of the preseptal orbicularis muscle. The mass extended to the level of the orbital septum but did not penetrate it. No connection with the tarsus was found. Frozen sections at the time of surgery showed an inflammatory mass. It was excised and the resulting defect closed with a small rotational flap. Betamethasone sodium phosphate/betamethasone acetate suspension was injected into the area.

Examination of the permanent sections showed a chronic granulomatous response, with giant cell formation. The postoperative course was uneventful, and when the patient was seen seven months after surgery no recurrence was noted.

CASE 3

A 47-year-old man gave a history of surgical incision of multiple lid lesions consistent with chalazia in the past. Four months prior to examination he developed

an apparently similar lesion on his left lower lid. It arose approximately 3 mm inferior to the lower lid margin and was treated initially with warm compresses. When it did not disappear, he saw his ophthalmologist, who added topical antibiotics to the treatment regimen. There was still no improvement, and oral antibiotics were prescribed. Finally the lesion was incised and drained. The patient was referred for evaluation when there was still no improvement.

On examination a 10×24 mm mass was seen to occupy the medial two-thirds of the left lower lid (Fig. 3). The central part of the mass was violaceous, contained a fistula, and was located at the level of the inferior orbital rim. Medially the lesion extended up to the level of the inferior border of the tarsus.

Fig. 3 Case 3. 10×24 mm mass occupying the medial two-thirds of the left lower lid in a 47-year-old man.

Fig. 4 Case 3. Chronic inflammation with focal granulomatous reaction and giant cell formation. Haematoxylin and eosin.

However, no abnormality of the pretarsal part of the lid was present. The lesion was limited to the superficial part of the lid, with no deep fixation. Inspissated material was seen in the orifices of the meibomian glands on both lower lids. The rest of the ocular examination showed nothing of note.

At surgery a quantity of friable material was found to occupy the plane of the preseptal orbicularis muscle, extending down to but not through the orbital septum. The septum itself was moderately thickened. The lesion was followed up to the inferior border of the tarsus, but no direct connection with the tarsus could be seen. Frozen-section examination was consistent with chronic inflammatory tissue. The necrotic tissue was excised and the wound closed with small advancement flaps after the injection of beta-methasone sodium phosphate/betamethasone acetate suspension.

Permanent sections showed chronic inflammatory cells with focal granulomatous reaction and aggregated histiocytes. Giant cells were seen, along with intra- and extracellular empty spaces consistent with lipid material (Fig. 4). When the patient was seen two months following surgery, no recurrence was noted.

Discussion

A chalazion is a chronic lipogranulomatous inflammation of the eyelid associated with retention of meibomian gland secretions. Histologically it is characterised by granulation tissue composed of lymphoid, epithelioid, and plasma cells, with the addition of giant cells with intra- and extracellular lipid.^{5,6}

The exact pathogenesis of this lesion is still

uncertain. A chalazion normally presents as a firm nodular mass extending from the tarsus either anteriorly towards the skin or posteriorly towards the conjunctiva.^{5,7} Groenvall, in a study of 1693 chalazia, found a predilection for the lesion to occur more often in adults than in children and most often to involve the upper lid.⁸ Unfortunately in terms of the present report his study did not consider distance from the lid margin.

A variety of therapies have proved to be effective against this lesion. Conservative therapy, consisting of the application of moist heat either alone or in conjunction with lid scrubs or topical antibiotics, has been associated with cure rates of 25–80%.^{9–11} Persistent lesions respond to either surgical removal or intralesional steroid injection.^{12–15}

The lesions presented in this paper are somewhat unusual. Although when referred none of the patients showed any abnormality of the tarsal portion of the eyelid, in all the cases a history of the antecedent presence of a more typical chalazion was given. All the patients described an inferior migration of the lesion until the mass assumed its final location at the level of the inferior orbital rim. At surgery no connection with the tarsus was seen, though the lesions extended up to the level of the inferior border of the tarsus in the preseptal plane. Pathological examination showed typical mixed inflammatory cells with granuloma formation.

The mechanism for the inferior migration and final location is most probably explained by anatomical considerations of the lower eyelid. Hawes and Dortzbach have described the anatomy of the lower eyelid retractors.¹⁶ In the lower eyelid the orbital septum fuses to the capsulopalpebral fascia some

distance from the inferior tarsal border. The main insertion of this complex is the inferior border of the tarsus, though there is some extension on to the inferior one-third of the posterior aspect of the tarsus and a rudimentary extension for a very short distance on to its anterior inferior surface.

The apparent sequence in these cases would seem to be the following: (1) The process began in the usual fashion in the tarsus. (2) The inflammatory mass extended anteriorly and inferiorly, beneath the junction of the pretarsal and preseptal parts of the orbicularis. Although the pretarsal segment of the orbicularis is tightly adherent to the tarsus, less of an adherence is present between the preseptal portion of the muscle and the underlying septum.¹⁷ A potential space thus exists between the preseptal orbicularis and the orbital septum, normally occupied by a loose layer of suborbicular fascia.¹⁸ (3) With little fibrous barrier anterior to the tarsus because of the limited anterior insertion of the orbital septum/capsulopalpebral fascia complex, the inflammatory process easily entered the potential space between the preseptal orbicularis and the orbital septum. There the inflammation expanded with subsequent loss of the original connection to the tarsus. Although the resulting atypical appearance delayed the diagnosis, the lesions responded to standard therapy with good results.

References

- 1 Welch RB, Duke JR. Lesions of the lid: a statistical note. *Am J Ophthalmol* 1958; **45**: 415–6.
- 2 Tesluk GC. Eyelid lesions: incidence and comparison of benign and malignant lesions. *Ann Ophthalmol* 1985; **17**: 704–7.
- 3 Doxanas MT, Green WR. Sebaceous gland carcinoma. *Arch Ophthalmol* 1984; **102**: 245–9.
- 4 Shields JA, Guibor P. Neurilemoma of the eyelid resembling a recurrent chalazion. *Arch Ophthalmol* 1984; **102**: 1650.
- 5 Duke-Elder S, MacFaul PA. The ocular adnexa. In: Duke-Elder S, ed. *System of ophthalmology*. St Louis: Mosby, 1974: **13**: 242–7.
- 6 Hagedoorn A. Chalazion: lipogranulomatosis. *Am J Ophthalmol* 1935; **18**: 424–5.
- 7 Abrahamson IA. Chalazion. *GP* 1968; **38**: 83–7.
- 8 Groenvall H. Statistics relating to the occurrence and location of 1693 chalazia. *Acta Ophthalmol (Kbh)* 1951; **29**: 329–38.
- 9 Cottrell DG, Bosanquet RC, Fawcett IM. Chalazions: the frequency of spontaneous resolution. *Br Med J* 1983; **287**: 1595.
- 10 Bohigian GM. Chalazion: a clinical evaluation. *Ann Ophthalmol* 1979; **11**: 1397–8.
- 11 Perry HD, Serniuk RA. Conservative treatment of chalazia. *Ophthalmology* 1980; **87**: 218–21.
- 12 Pizzarello LD, Jakobiec FA, Hofeldt AJ, et al. Intralesional corticosteroid therapy of chalazia. *Am J Ophthalmol* 1978; **85**: 818–21.
- 13 Dua HS, Nilawar DV. Nonsurgical therapy of chalazion. *Am J Ophthalmol* 1982; **94**: 424–5.
- 14 Watson AP, Austin DJ. Treatment of chalazions with injection of steroid suspension. *Br J Ophthalmol* 1984; **68**: 833–5.
- 15 King RA, Ellis PP. Treatment of chalazia with corticosteroid injections. *Ophthalmic Surg* 1986; **17**: 351–3.
- 16 Hawes MJ, Dortzbach RK. The microscopic anatomy of the lower eyelid retractors. *Arch Ophthalmol* 1982; **100**: 1313–8.
- 17 Duke-Elder S, Wybar KC. The anatomy of the visual system. In: Duke-Elder S, ed. *System of ophthalmology*. St Louis: Mosby, 1961: **2**: 512–5.
- 18 Putterman AM, Urist MJ. Surgical anatomy of the orbital septum. *Ann Ophthalmol* 1974; **6**: 290–4.

Accepted for publication 7 January 1987.