CASE REPORT

Sclerosing lipogranuloma of the eyelid: unusual complication following nasal packing in endoscopic sinus surgery

Balakrishnan Ramaswamy,¹ Rohit Singh,¹ Manusrut Manusrut,¹ Manali Hazarika²

¹Department of Otorhinolaryngology, Kasturba Medical College, Manipal University, Manipal, India
²Department of Ophthalmology, Kasturba Medical College, Manipal University, Manipal, India

Correspondence to

Dr Rohit Singh,
 rohit.singh.dr@gmail.com

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SUMMARY

An eyelid or orbital lipogranuloma can occur following nasal packing with liquid paraffin, petroleum jelly or an antibiotic-based cream. It usually presents a few weeks or months after the initial procedure. We present a report of three such cases of sclerosing lipogranuloma involving the eyelid, which occurred following a sinonasal surgery where nasal packing using petroleum jelly was performed. The typical clinical course and the classical histopathological features are highlighted. All cases were diagnosed by histopathological examination as sclerosing lipogranuloma. Complete surgical removal resulted in complete resolution on 1 month follow-up. The diagnosis is based on a high degree of suspicion following a detailed history of prior use of lipid-based products for nasal packing following endonasal surgery. Histopathology is diagnostic. Surgical excision is the treatment of choice, however, due to its infiltrative nature, it may be difficult to obtain a complete cure.

BACKGROUND

The common complications involving the eyelid following sinonasal surgery include emphysema, ecchymosis and haematoma. There have been reports of lipogranuloma involving the eyelids and orbit following nasal packing with paraffin and vaseline.^{1–4} Even lipid-based antibiotic creams have been found to be a causative factor. The diagnosis is based on a detailed history of the use of lipid-based products in the eye, lacrimal system and/or sinonasal region.^{5–9} Histopathological examination is confirmatory. These case reports highlight the typical clinical course, the possible aetiology and the classical histopathological features.

CASE PRESENTATION**Case 1**

A 46-year-old woman presented with a swelling over her right upper eyelid of 8 years' duration (figure 1A). There was associated pain for the past 3 months. The swelling appeared after the patient had undergone septoplasty and endoscopic sinus surgery following which Vaseline gauze was used for nasal packing; the packing was removed after 48 h. On clinical examination, the swelling was 2×0.5 cm in size, firm and tender, and located just inferior to the superior orbital margin. The ocular movements and ophthalmological assessment were normal. A CT scan revealed a minimally enhancing preseptal soft tissue lesion, with a few fat pockets within, at the junction of roof and medial wall of

the orbit with intact bony orbital margin (figure 2). The swelling was excised under general anaesthesia. Intraoperatively, two separate masses were found, one attached to the tarsal plate and the other posteromedial to it (figure 1B). Histopathological evaluation showed fibrofatty tissue with scattered congested blood vessels, patchy foci of lymphoid aggregates forming follicles, ill formed lipogranulomas composed of central lipid filled spaces rimmed by foam cells and foreign body giant cells. There were aggregates of epithelioid histiocytes, foamy histiocytes, lymphocytes and plasma cells. The aggregates of foreign body giant cells had microvacuoles (figure 3). The description was consistent with the diagnosis of a sclerosing lipogranuloma.

Case 2

A 60-year-old man presented with a painless swelling over his right lower eyelid of 10 months' duration. He had also undergone functional endoscopic sinus surgery following which his nose was

Figure 1 (A) Right upper eyelid swelling. (B) Fibrofatty mass attached to tarsal plate.

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Figure 2 Coronal CT scan showing a few fat pockets at the junction of roof and medial wall of the orbit with intact bony orbital margin (marked by pointer).

packed with Vaseline. His eye examination was otherwise normal. He had a history of breach in lamina papyracea during his surgery. On examination, there was a 3×1 cm lesion over the tarsal plate, which was firm and non-tender; the lesion was excised by making a subciliary incision. The histopathology was consistent with paraffin-induced sclerosing lipogranuloma.

Case 3

A 41-year-old man presented with a 2-year history of a painless swelling over his right lower eyelid. The swelling appeared and persisted after postoperative oedema had subsided following septoplasty and endoscopic sinus surgery performed under general anaesthesia. The patient had no ocular problems and his eye examination was normal. He also had a history of breach in lamina papyracea during uncinectomy. The lesion was surgically excised and histopathological analysis reported it to be a lipogranuloma.

INVESTIGATIONS

A CT scan was carried out in all cases, revealing a minimally enhancing preseptal soft tissue lesion with a few fat pockets within, at the junction of roof and medial wall of the orbit with intact bony orbital margin.

TREATMENT

In all cases the lesion was surgically excised and sent for histopathological analysis.

Figure 3 H&E stain (×10) showing granulomas lined by foreign body giant cells.

OUTCOME AND FOLLOW-UP

The histopathology was consistent with paraffin-induced sclerosing lipogranuloma. All cases have been on follow-up for over 1 month and are asymptomatic.

DISCUSSION

Sclerosing lipogranulomas (also known as myospherulosis or paraffinomas), which have been reported in the orbit, are lipid rich lesions representing an inflammatory reaction to exogenous lipids. Their source is liquid paraffin, petroleum jelly, ointments or lipid-based contrast.^{1–4} The primary site from where they spread is commonly the adjacent sinonasal region. However, they have also been seen following the use of ophthalmic ointments locally, and following a dacrycystogram with a lipid-based contrast.⁶

An eyelid or orbital lipogranuloma may occur following nasal packing with gauze soaked in lipid-based cream. This mainly occurs due to postoperative haemorrhage in the operated site, which may push the lipid-based material into the surrounding tissues. This spread would require pathways or dehiscences that may be developmental or postsurgical. In one of our cases, a breach in the lamina papyracea might have been one of the possible routes of spread. The presentation is usually a few months or sometimes a few years after the sinonasal surgery. Cases present as an eyelid swelling with or without pain. Chemosis and recurring granulomas can lead to considerable cosmetic and functional impairments.¹ Neuro-ophthalmic impairment may occur due to infiltration of the oculomotor structures.

The diagnosis is based on a high degree of suspicion following a detailed history of prior use of lipid-based products in the eye, lacrimal system or sinonasal region. On CT scan, periorbital lipogranuloma usually shows homogeneous isoattenuation relative to the adjacent extraocular muscles with multiple locules of fat deposits around the eyelid or orbital space. Any discontinuity in lamina papyracea can also be noted.¹⁰

The histopathological findings show lipid vacuoles of various sizes surrounded by epithelioid and multilamellate giant cells with adjacent muscle and fibrous tissue. Nuclear MR spectroscopy may show a high concentration of paraffin, which may aid in the diagnosis. Attenuated total reflection F17R spectra have proven to be a definitive characterising tool for surgical extracts. They detect mineral products more efficiently than does histology.¹¹ Merkur AB *et al*¹² suggest that in order to avoid confusion with non-specific cases of lipogranulomatous inflammation, the terms ‘ointment granuloma’ or ‘orbital paraffinoma’ should be used to refer to patients presenting with orbital/eyelid lesions caused by ointment use.

It is difficult to achieve a complete cure in most paraffinomas. As there is diffuse infiltration of the surrounding tissues, the surgical treatment may pose a risk to aesthetic and functional defects in healing.¹³ Hintschich *et al*¹⁴ reported that surgical excision was difficult due to diffuse cellular infiltration and intracutaneous deposits, requiring reoperations in all patients.

However, complete surgical removal should be attempted due to the possible long-term carcinogenic effect of some lipid-based products.³ Early treatment is unfavourable as there is a high tendency for recurrence. Surgical removal is preferably delayed until the granuloma formation has presumably come to an end. Prior to this, any surgery is limited to biopsy when diagnosis is in doubt, which helps to confirm it.² The use of ointment-based packing containing paraffin should be avoided to prevent such complications.¹⁵

Learning points

- ▶ An eyelid or orbital lipogranuloma may occur following nasal packing with gauze soaked in lipid-based cream.
- ▶ The diagnosis is based on a high degree of suspicion following a detailed history of prior use of lipid-based products in the eye, lacrimal system or sinonasal region.
- ▶ Complete surgical removal is required, however, due to its infiltrative nature it is difficult to obtain a complete cure.
- ▶ The practice of ointment-based packing containing paraffin should be avoided to prevent such complications.

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