

Myospherulosis as a complication of functional endoscopic sinus surgery: a double case report

J. Govaerts¹, J.-P. Vercruyse¹, K. Samoy², V. De Groot³, M. Jorissen² and J. Claes¹

¹Department of Otolaryngology and Head Neck Surgery, ²Department of Ophthalmology, University Hospital of Antwerp; ³Department of Otolaryngology and Head Neck Surgery, University Hospital of Leuven

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Abstract. *Myospherulosis as a complication of functional endoscopic sinus surgery: a double case report. Introduction:* Paraffinomas (also known as 'sclerosing lipogranulomas' or 'myospherulosis') are a widely acknowledged complication of cosmetic paraffin injections but they are rare following functional endoscopic sinus surgery.

Case presentations: Our first case features a 45-year-old woman presenting with a peri-ocular swelling two weeks after functional endoscopic sinus surgery. The procedure was complicated by a fractured lamina papyracea. A nasal packing with antibiotic ointment was left in situ. Initially, the inflammation was controlled successfully with corticosteroids but the swelling persists to this day.

Our second case is a 45-year-old man who suffered from a recurrent swelling of the right eyelid after endoscopic sinus surgery. Multiple treatments with oral antibiotics and corticosteroids brought about no improvement. Debulking surgery was performed and a PDS film was placed between the peri-orbita and the bony orbital floor but the swelling recurred. The patient finally consulted a plastic surgeon as a last resort, but the reconstructive procedure only exacerbated the clinical picture.

In both cases a biopsy was performed which established the foreign body reaction typical of a paraffinoma. At present, both patients still suffer from this condition.

Conclusion: The complete resection of a paraffinoma is seldom possible because of diffuse infiltration and recurrence is very likely. We therefore conclude that paraffin-based ointments should not be used with nasal packing after sinus surgery, especially when there has been a lesion involving the orbital wall.

Introduction

We present two separate cases of functional endoscopic sinus surgery (FESS) that were both complicated by the formation of a paraffinoma in the orbit. A paraffinoma (the terms 'sclerosing lipogranuloma' or 'myospherulosis' are also used) consists of a granulomatous foreign body reaction with soft tissue that develops after the injection of the non-absorbable components in paraffin, which is often used as an ingredient in ointment preparations.¹

This is a widely acknowledged complication of paraffin injections in dermatology and cosmetic surgery.² These lesions have also been described in the orbit, eyelids and lachrymal system after oculo-plastic procedures, paranasal sinus surgery and rhinoplasty involving the use of paraffin-based ointments.¹⁻¹⁰ An orbital paraffinoma after endoscopic sinus surgery is an infrequent but severe complication. Clinically, it presents as a firm and painless swelling of the upper and/or lower eyelid. The on-

set of clinical signs can vary from weeks to several years after the inoculation of paraffin.^{1,3,5,6,8,10}

Cases

Case 1

A 45-year-old woman presented with a right-sided peri-ocular swelling that appeared two weeks after functional endoscopic sinus surgery for chronic rhinosinusitis. The procedure was complicated by a fractured lamina papyracea (without manifest orbital fat exposition) and substantial peri-operative bleeding. A nasal packing drenched in antibiotic ointment (Fucidin® 2%) was left in place at the end of the procedure to prevent further bleeding and synechiae. In the immediate postoperative period, a right-sided peri-ocular swelling and ecchymosis were observed and both disappeared during the days that followed.

Two weeks after discharge, a firm, painless, peri-ocular swelling appeared on the right side



Figure 1
Right-sided peri-ocular swelling



Figure 2
MRI showing a contrast-enhancing soft-tissue mass anterolaterally.

(Figure 1). Further ophthalmologic evaluation revealed preseptal cellulitis with intact extra-ocular movements, equal pupils reactive to light and normal visual acuity (20/20). IV antibiotics (cefuroxim 3×1.5 g/d and ornidazol 1×1 g/d) were started but failed to improve the clinical picture. An MRI scan was performed which showed a contrast-enhancing soft-tissue mass anterolaterally in the right orbit suggestive of an inflammatory process (Figure 2). The administration of high-dose IV corticosteroids (methylprednisolon 3×1 g/d) led to significant improvement but the swelling recurred two weeks after discontinuation. A biopsy was performed, resulting in a histopathological picture of granulomas with multinucleated foreign body giant cells with numerous polymorphic spaces (lipid vacuoles) and fibrocellular tissue with lymphocytic and plasma cell infiltrates (Figure 3). The patient was diagnosed with peri-ocular paraffinoma. Initially, control of the inflammation was achieved with slow tapering of oral steroids, although a subcutaneous mass and skin discoloration still persist

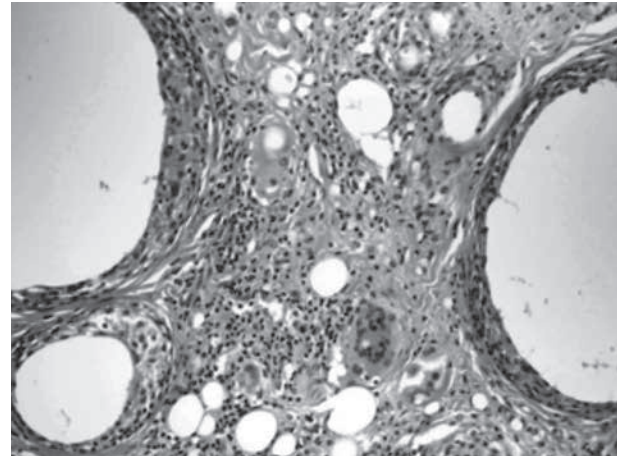


Figure 3
The histopathology of myospherulosis: granulomas with giant cells, lipid vacuoles, and lymphocytic and plasma cell infiltrates.

to this day. After eight years of follow-up the patient still has a localised swelling that can only be controlled with corticosteroids, which she refuses because of the side-effects.

Case 2

A 45-year-old man underwent sinus surgery of the maxillary and ethmoidal sinuses bilaterally, in combination with a septoplasty and a conchotomy of the lower turbinates because of chronic nasal obstruction and nasal decongestant abuse. After the procedure a dissolvable nasal dressing (Sinu-Knit®) with a combined corticosteroid and antibiotic ointment (Terra-Cortril®: hydrocortisone + oxytetracycline) was placed in the middle nasal passages. In the immediate postoperative period, a swelling appeared on the medial side of the right lower eyelid. During the months that followed, the right eyelid swelled repeatedly and multiple treatments with oral antibiotics and corticosteroids were initiated, without improvement. Surgery was therefore performed and a PDS film was placed between the peri-orbita and the bony orbital floor. Unfortunately, the patient continued to suffer from the recurrent but painless swelling of the right eye. Further ophthalmologic examination revealed normal vision and normal extra-ocular movements. Endoscopic examination of the nose and paranasal sinuses showed a discrete mucosal prolapse at the level of the right maxillary sinus.

Further investigation consisted of an ultrasound, an MRI and a biopsy. The ultrasound showed a

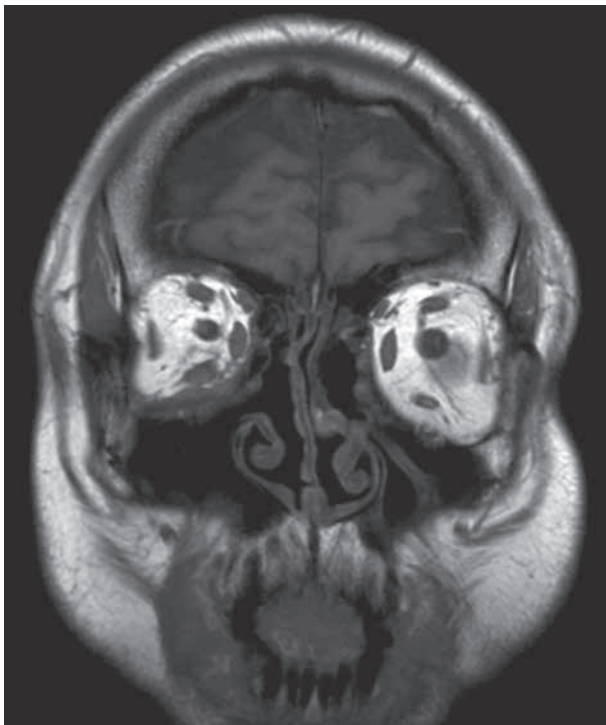


Figure 4

MRI showing inflammatory tissue swelling and granulation tissue at the right orbital floor.

structure that was compatible with an organised haematoma in the right lower eyelid. The MRI showed pronounced inflammatory tissue swelling and granulation tissue around the inserted PDS film and signs of preseptal oedema and/or cellulitis in the right eyelids (Figure 4).

A week after the cessation of corticosteroid therapy, an anterior orbitotomy was performed under local anaesthesia. Large amounts of scar tissue were found in all layers from the dermis into the orbit and resected until healthy orbital fat was visualised. A biopsy of the mass around the orbital implant was also taken but the PDS film itself was left in place. The result of the histopathological investigation showed granulomas with numerous multinucleated giant cells in a dense inflammatory cell infiltrate of lymphocytes and lipid vacuoles. The diagnosis of myospherulosis was made. Unfortunately, the swelling recurred months after the debulking procedure and is still present after two years of follow-up.

Discussion

Myospherulosis is a rare complication, but a comparison of the two cases presented allows us to

conclude that, even in the absence of any significant trauma to the orbital wall, it should be considered as a complication when there is postoperative periocular swelling. Nasal packing impregnated with paraffin-based ointment is often used after endoscopic sinus surgery to control bleeding and prevent synechiae.¹¹ This may cause the inoculation of ointment in the orbit when the lamina papyracea has been injured. A postoperative intra-orbital haematoma may then spread ointment droplets through small defects in the lamina papyracea into the eyelids and cause a local foreign body reaction.

In the first case, there are sound reasons to argue that the damage sustained by the lamina papyracea and the subsequent haematoma were the chief causes of paraffin inoculation in the orbit. The volume of the paraffinoma was more pronounced anterolaterally to the eye while the 'porte d'entrée' was medial to the eye, suggesting that the spreading haematoma did indeed function as a vector.

In the second case, however, no specific culprit can be identified. We can only assume that minor damage to the orbital wall that is undetectable by the human eye caused this complication. Several authors have reported on the possible role of an idiosyncratic host response in the development of those foreign body reactions, possibly through the lack of enzymes which metabolise mineral oils.^{3,8}

Both of the therapeutic strategies we adopted proved unsuccessful. The first case was treated rather conservatively, by contrast with the aggressive removal in the second case. Revision surgery complicated by poor cosmetic results has been reported and our experiences only confirm this grim outcome since both patients still suffer from this condition to this day.^{1,5,8}

Histologically, myospherulosis is characterised by giant cell foreign body granulomas with large paraffin-containing vacuoles formed after deparaffination and multinucleated giant foreign body cells, epithelioid histiocytes and variable lymphocytes infiltration.^{4,8}

Conclusion

We conclude that paraffin-based ointments should not be used with nasal packing after paranasal sinus surgery, especially in the presence of an intraoperative lesion of the orbital wall. The use of nasal packs should probably be avoided for several reasons and we definitely suggest abandoning the

use of ointments after endoscopic sinus surgery.¹² Peri-orbital myospherulosis should be suspected in all cases of intra-operative peri-orbital injury with a peri-orbital haematoma, when paraffin ointment has been used, and when peri-ocular swelling persists or recurs. The diagnosis is confirmed by the characteristic histological picture of a granulomatous foreign body reaction to non-absorbable components of paraffin.¹ The complete surgical excision of a paraffinoma is effective, but this is seldom possible due to diffuse microscopic infiltration and even migration. We suggest leaving these lesions untreated because of the potential mutilating effects, and avoiding the use under any circumstances of ointments containing paraffin.

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Jos Claes
 University Department of Otolaryngology and
 Head Neck Surgery
 Antwerp University Hospital
 Wilrijkstraat 10
 2650 Edegem
 Tel.: ++3238213385
 Fax: ++3238250536
 E-mail: jos.claes@uza.be