

## Clinical Records

# Foreign body reaction to an oil-based ointment: a cause of persistent otorrhoea following mastoid surgery

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### Abstract

Foreign body reactions and myospherulosis are rare complications of using oil-based ointments in otological surgery. A case of persistent otorrhoea following mastoid surgery is presented. Histology showed a foreign body reaction, with some features of myospherulosis.

**Key words:** Foreign Body Reaction; Ear; Surgical Procedures, Operative; Occlusive Dressings

### Introduction

It is common practice in otological surgery to pack the external auditory canal and mastoid cavity with ribbon gauze or resorbable gelatin coated with an oil-based antibiotic ointment. Foreign body reactions to oil-based preparations, including bismuth-iodoform-paraffin-paste (BIPP) and antibiotic ointments, and resorbable gelatin preparations can occur. Myospherulosis is a rare disease resulting from the action of oil-based substances on extravasated erythrocytes. Foreign body reactions and myospherulosis are unusual complications in otological surgery and result in a discharging ear. We present such a case.

### Case report

A 22-year-old man underwent revision mastoid surgery for recurrent cholesteatoma following a previous right atticotomy. At operation residual cholesteatoma was removed and a modified radical mastoidectomy was performed with the use of a vascularized temporalis fascia flap (Hong Kong flap)<sup>1</sup> to line the cavity. At the end of the procedure a resorbable gelatin preparation coated with Terra-Cortril® (Pfizer), containing oxytetracycline, hydrocortisone, liquid paraffin and white soft paraffin, was placed over the flap. This was followed by a BIPP impregnated ribbon gauze dressing.

Post-operatively there was no otalgia nor otorrhoea prior to removal of the packs at three weeks. Subsequently the ear developed a persistent discharge. No obvious cause for this was identified. There was an adequate meatoplasty, low facial ridge, no residual cholesteatoma and the flap appeared healthy. A microbiology swab was sent that grew scanty *Candida albicans*, but no improvement occurred following a course of clotrimazole.

This discharge persisted for several months and became troublesome for the patient, so the ear was re-explored under general anaesthesia. At operation a large granuloma was present in the posterolateral aspect of the mastoid cavity. This area was not visible on otoscopy. The

macroscopic appearance was of inflamed tissue containing a dark brown paste. No other cause was seen to account for the pre-operative discharge, and the ear was closed after excision of the tissue.

Histological examination identified fibrous tissue within which there were numerous spaces in the submucosa giving a 'Swiss cheese' appearance (Figure 1). The spaces were surrounded by foreign body giant cells and contained small fragments of birefringent foreign material. The findings were consistent with a foreign body reaction to the oil-based ointment, with some features of myospherulosis.

Post-operatively the ear settled without problem until six weeks later when minimal discharge was noted. A small amount of Terra-Cortril® was used topically at this stage. The patient developed pain, swelling and severe erythema within 24 hours of this application, in what was clinically an

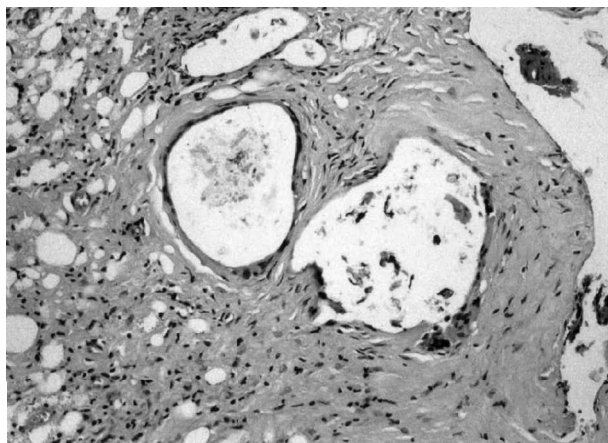


FIG. 1

Photomicrograph of inflamed mastoid tissue (H&E ×240).

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allergic reaction. This settled within 48 hours after cleaning the ear and topical application of hydrocortisone one per cent. The ear remains dry, 12 months following surgery.

### Discussion

There are some well-documented factors in attaining a dry ear following mastoid surgery. These include meatal opening size, mastoid cavity size, facial ridge level, middle-ear space closure and absence of residual disease. Foreign body reactions and myospherulosis should also be recognized.

Myospherulosis is a pathological entity first reported in 1969 by McClatchie, Warambo and Bremner,<sup>2</sup> who described histological findings from peripheral soft tissue lesions from six East African patients. They reported cystic spaces in fibrous tissue involving the muscle and subcutaneous tissue. Some of the cysts contained round bodies or spherules giving an appearance 'like partly filled bags of marbles'.<sup>2</sup> Histiocytes and giant cells surrounded the spherules. The aetiology was unknown but the possibility of the introduction of a foreign body or native medicine was considered, but not established.

Experiments have shown myospherulosis to result from a reaction between erythrocytes and lipid.<sup>3,4</sup> This may be endogenous or exogenous lipid, the latter resulting in iatrogenic disease.

Most reported cases of myospherulosis have resulted from periodontal or paranasal sinus surgery using cavity packing coated with an oil-based ointment. The common use of an oil-based ointment to pack the external auditory canal and mastoid cavity can result in a foreign body reaction or myospherulosis, resulting in persistent otorrhoea. There are three previous reported cases of myospherulosis following middle-ear or mastoid surgery.<sup>5-7</sup> Histological examination in the presented case identifies the submucosal spaces with surrounding foreign body giant cells, but did not reveal the sac-like structures within the tissue spaces, which is typical of myospherulosis. The unusual post-operative allergic reaction may suggest an underlying hypersensitivity precipitating the disease process. Otolaryngologists should be aware that using oil-based ointments, such as Terra-Cortril®, in middle-ear surgery may cause a foreign body reaction or myospherulosis and result in persistent otorrhoea.

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- **This paper is a case report describing a persistent discharge from a mastoid cavity that is attributed to an oil-based ointment used as part of the post-operative dressing**
- **Three similar cases have been previously reported in the literature**
- **The paper acts as a reminder that oil-based ointments inserted in the ear at surgery may lead to persistent otorrhoea due to a foreign body reaction**

### References

- 1 Van Hasselt CA. The Hong Kong vascularised temporalis fascia flaps for optimal, mastoid cavity reconstruction. *Rev Laryngol Otol Rhinol* 1995;**116**:57–60
- 2 McClatchie S, Warambo MW, Bremner AD. Myospherulosis: a previously unreported disease? *Am J Clin Pathol* 1969;**51**:699–704
- 3 Rosai J. The nature of myospherulosis of the upper respiratory tract. *Am J Clin Pathol* 1978;**69**:475–81
- 4 Kakizaki H, Shimada K. Experimental study of the cause of myospherulosis. *Am J Clin Pathol* 1993;**99**:249–56
- 5 Kyriakos M. Myospherulosis of the paranasal sinuses, nose and middle ear. A possible iatrogenic disease. *Am J Clin Pathol* 1977;**67**:118–30
- 6 Gillespie CA, Clark WB, Finkelstein E, Devaney K. Myospherulosis of the mastoid antrum: a case report. *Auris Nasus Larynx* 1990;**16**:199–207
- 7 Manni JJ, Schaafsma HE, Vennix PP. Myospherulosis in the operated temporal bone. *Eur Arch Oto-Rhino-Laryngol* 1992;**249**:231–2

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