The Journal of Laryngology and Otology
February 1998, Vol. **112**, pp. 150–153

Acute granulomatous myringitis

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Abstract

This case report describes five cases of acute granulomatous myringitis treated during the nine-year period from 1987 to 1996. Otorrhoea and slight otalgia were the two major complaints. Findings included the appearance of a granulomatous bulge along the handle of the malleus or on the eardrum. No cases displayed eardrum perforation. No similarities were noted in patient age, sex or affected side. Treatment consisted of removal of the granuloma with a small cup forceps plus cauterization with 20 per cent trichloracetic acid. Two or three treatments resulted in complete healing, and average time to healing was 30 days, with no recurrences. Because it differs so distinctly from the more common chronic myringitis – characterized by mild symptoms, erosion and perforation of the eardrum with little granulomatous change, and a longer time to healing with frequent recurrence – the authors conclude that acute granulomatous myringitis should be regarded as a separate entity.

Key words: Tympanic membrane; Granuloma

Introduction

Chronic myringitis, which has been called by various names such as granulating myringitis (Moffett, 1943), otitis externa granulosa (Punt, 1949), granulomatous otitis externa (Clark, 1946) and several others (Stoney *et al.*, 1992), is a peculiar disease entity, displaying erosion or thin granulation of the tympanic membrane. Meticulous debridement and cautery with a caustic prompts the healing of the lesion within a few weeks but recurrence is not rare. If the condition is misdiagnosed as chronic suppurative otitis media or chronic external otitis, however, treatment might continue for months, or even years, without effect. As the symptoms of the disease are mild or even absent, the exact duration and course of the disease are difficult to determine.

Compared to the rather commonly-appearing chronic myringitis, granulomatous changes confined to the tympanic membrane and displaying a rather acute course are rarely encountered. Only five cases of such acute granulomatous myringitis presented at our university hospital during a recent nine-year period. The characteristics of this disease and clinical procedures are discussed herein.

Materials and methods

Five cases of granulomatous myringitis presented at our clinic during the nine-year period from 1987 to 1996. The five cases are summarized in Table I. Of the three females and two males, aged 15 to 44 years of age (average 30 years), none had a history of otitis media during childhood. One case (*Case 2*) had had recurrences of similar symptoms once a year for the previous three years, and received treatment for 'granulation on the eardrum' at an ENT clinic. In the other four cases, the present episode was the first

TABLE I
CLINICAL DATA OF FIVE CASES OF ACUTE GRANULOMATOUS MYRINGITIS

Case No.	Age	Sex	Side	Initial symptoms	Site of granuloma	Air hearing level	Pneumatization	Microorganism detected	Time to recovery after treatment
1	31	M	L	Otalgia, otorrhoea fullness	Handle	10 dB		Fungi	18 days
2	44	F	R	Otalgia, otorrhoea	Handle, pars tensa	15 dB	Normal		1 month
3	18	F	R	Otalgia, otorrhoea	Pars tensa	10 dB	Poor	Fungi	10 days
4	42	M	L	Otorrhoea, fullness	Handle	65 dB*	Normal	*Staphylococcus* sp.	3 months
5	15	F	R	Otalgia, otorrhoea	Handle, pars tensa	22 dB**			14 days

*Mixed hearing loss; **Conductive loss.

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Accepted for publication: 5 January 1998.

https://doi.org/10.1017/S0022215100140162 Published online by Cambridge University Press

and the only one. The chief complaint appeared 20 days to two months (average 30 days) before visiting our clinic. All five patients had been treated in other clinics with topical use of ear drops and/or general administration of various antibiotics without effect. Resistance to these conventional therapies prompted doctors to refer them to our clinic.

Results

Initial symptoms experienced by the patients included otorrhoea (five cases), otalgia (four cases), a feeling of fullness in the ear (two cases). These symptoms abruptly occurred without any aetiology, except one case (*Case 1*), who bathed in the sea two days before the onset. Symptoms occurred in early winter (November and January) in two cases and late summer (August and September) in three cases. All occurrences were unilateral only.

Otoscopic observation was sufficient for diagnosis in all cases. One or two red granulomatous bulges were found along the handle of the malleus (four cases) and/or nearby pars tensa (three cases) (Figure 1). The granuloma was rather soft and covered with a thin pus layer in three cases, but in the remaining two cases the granuloma was hard. Mastoid pneumatization was found to be normal in two of the three cases examined. Bacteriological checks had been performed on three cases at the previous clinics. *Staphylococcus aureus* was cultured in *Case 4*, while fungus was cultured *Cases 1* and *3*. No abnormal changes were seen in the outer ear canal.

After topical application of four per cent lidocaine (Xylocaine®), granulation was removed with a small cup forceps and treated with a swab of 20 per cent trichloracetic acid (Figure 2). Remaining acid was wiped away with a swab of 7.5 per cent povidone iodide solution. The above treatment resulted in rapid improvement, and two to four treatments healed the wound completely. In two cases the excised granulation was sent for pathological examination, and the resultant diagnosis was inflammatory granulation tissue. In the soft granulation, neutrophils were conspicuous as compared to round cells (*Case 2*). The epidermal layer attached to the granulation showed parakeratosis, indicating rapid growth of the tissue. In hard granulation tissue, on the other hand, plasma cells and lymphocyte infiltration were prominent (*Case 4*).

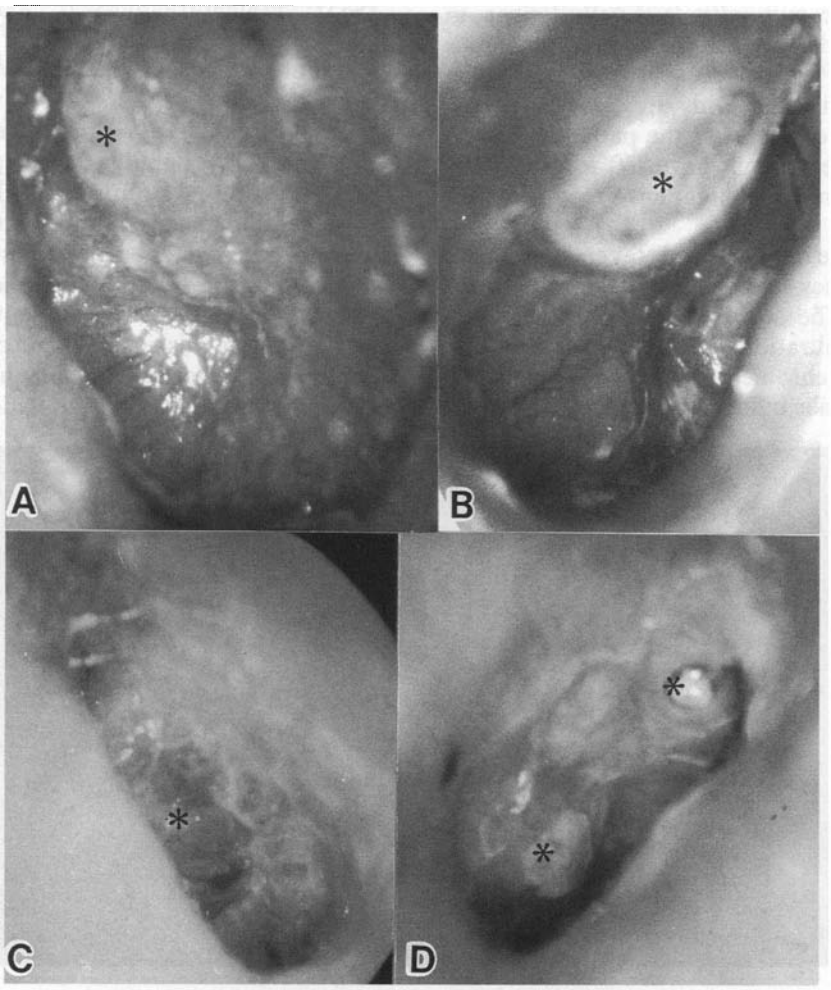


FIG. 1

Photographs of the tympanic membranes of four acute granulomatous myringitis patients taken on their first visit. Broad-based granulomatous bulging is seen along the handle of the malleus and pars tensa (*). A, B, C. D correspond to *Cases 1, 3, 4, 5* in Table I.

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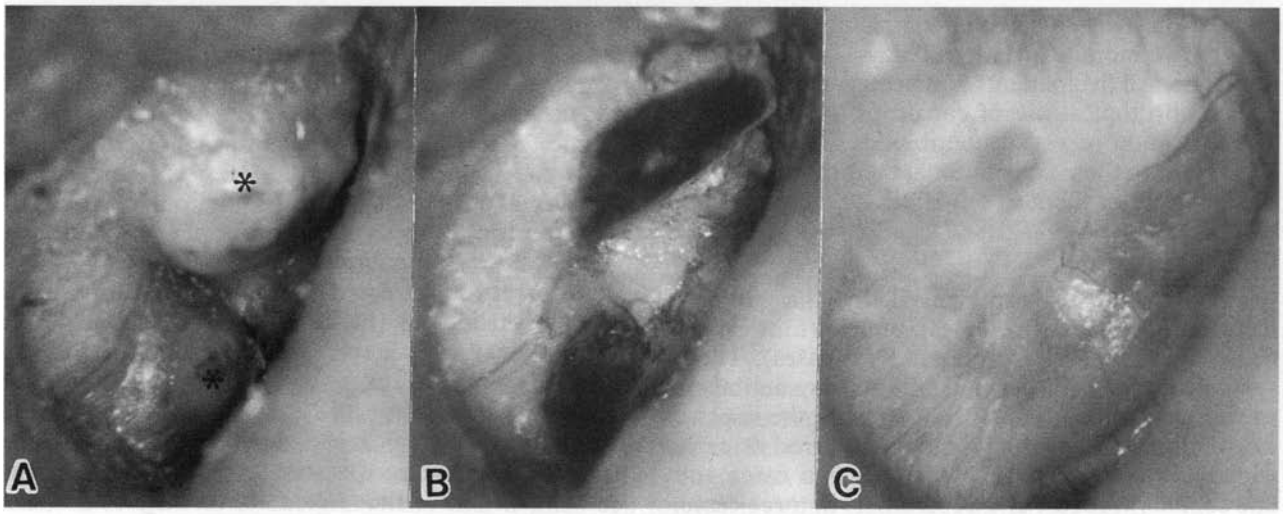


FIG. 2

Granulomatous myringitis, *Case 2*.
(A) Granulomatous bulging is seen on the malleolar handle (*) and on the pars tensa (*) (B) After removal by cup forceps. (C) The healed tympanic membrane looks quite normal after four weeks.

Discussion

In the present study the average duration of symptoms was 30 days from the onset. As the duration of chronic myringitis is usually longer, in the order of months or years, the granulomatous myringitis treated in the present study may be termed acute myringitis. Only in *Case 2*, was a similar episode cited as part of the patient's history. Incomplete treatment might have left a part of the granuloma, and symptoms might have recurred after a year.

Histology of the granulomas taken from two tympanic membranes revealed two different stages of inflammation: The so-called 'acute' stage, characterized by the infiltration of numerous neutrophils; and the so-called 'chronic' stage, with lymphocytic instead of neutrophilic infiltration. Infiltrating cells at the infection focus are known to rapidly change from neutrophil dominant to macrophage and lymphocyte dominant in experiments with mice (Miura *et al.*, 1985). Polymorphonuclear leukocytes, predominantly neutrophils, appeared one hour after subcutaneous casein injection, with further increase from two to 18 hours, after which the number gradually decreased. At the same time macrophages and lymphocytes gradually increased up to 60 hours after injection. Therefore the 'chronic' appearance, with the dominance of lymphocytes, observed in one of our cases does not necessarily preclude our referring to the situation as clinically 'acute'.

Acute granulomatous myringitis is different from chronic myringitis in many respects. Chronic myringitis is characterized by a plaque of erosion, or else such an extremely thin granulation on the tympanic

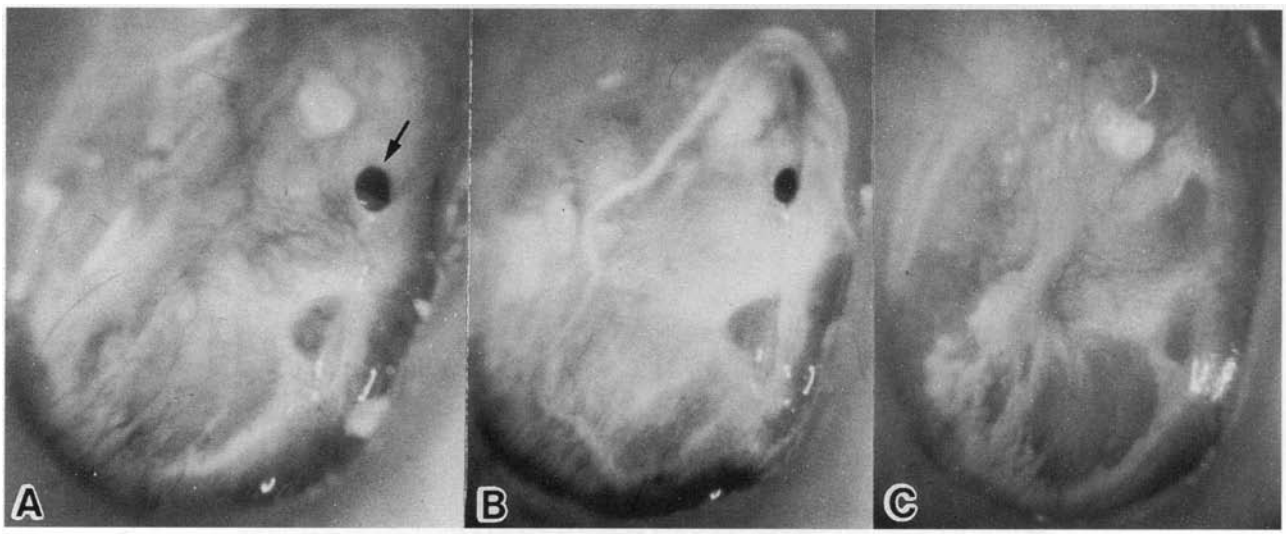


FIG. 3

Typical eardrum of a chronic myringitis patient (right ear, 31-year-old female).
(A) Surface of the eardrum is thinly covered with a fluid, shows a small perforation (arrow) and no recognizable granulation. (B) Application of 20 per cent trichloracetic acid made the erosion white and clearly delineated its border. (C) After three months the eardrum is completely epithelialized and no perforation is seen.

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membrane (Figure 3) that it is hard to obtain enough specimen for histological examination. In some cases of chronic myringitis granulation is polypoid with stalks, large portions of which are not epithelialized (Stoney *et al.*, 1992). The granulomatous changes seen in the present cases, however, were broad-based and almost entirely covered by a stratified squamous epithelium. While chronic myringitis appears mostly on the pars tensa and is occasionally accompanied by slight eardrum perforation (Hoshino *et al.*, 1982) (Figure 3), the present cases of acute granulomatous myringitis occurred along the handle of the malleus without eardrum perforation.

Otalgia is often the initial complaint in acute granulomatous myringitis, but is rare in chronic myringitis. Myringitis is not a common disease as such, but more cases of chronic myringitis are observed (34 cases in a four-year period (Hoshino *et al.*, 1982)) than acute myringitis. No recurrence has been experienced after thorough removal of granulation in acute myringitis but chronic myringitis sometimes recurs.

Conclusion

The tympanic membrane seems to be largely resistant to acute inflammatory insult, caused perhaps by bacteria, and rarely shows such granulomatous changes as observed in the present cases. The causes of chronic myringitis are as yet unknown, and it is usually characterized by different eardrum findings. Therefore the authors conclude that these two eardrum pathologies should be considered as entirely different entities. An acute course accompanied by otalgia, a granulomatous bulge along the malleus, and no signs of middle ear infection would indicate the presence of acute granulomatous myringitis.

Acknowledgements

The authors are deeply indebted to Mr David Telke for his help in English compilation.

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https://doi.org/10.1017/S0022215100140162 Published online by Cambridge University Press