

## Audit Article

# An audit of the management of acute otitis externa in an ENT casualty clinic

S. ALI RAZA, M.B., B.S., STUART W. DENHOLM, F.R.C.S.(ED), JIMMY C. H. WONG, F.R.C.S. (ED), D.L.O. (ENG), F.H.K.A.M.

### Abstract

The management of acute otitis externa is variable, despite the fact that it is one of the commonest otological emergencies. We formed the impression that many patients attending our ENT casualty clinic with otitis externa were being treated and followed up inappropriately. To test this hypothesis we performed a retrospective pilot study on our practice which revealed a lack of uniformity in the management and follow-up of these patients. And as a result of this, guidelines were developed to improve our management of otitis externa and decrease the number of unnecessary review visits. Our practice was then audited prospectively over a six-month period with the guidelines in place. An improvement in the overall management and a rationalization of follow-up for otitis externa was seen by applying basic audit principles to this common clinical problem.

**Key words:** Otitis externa; Peer review

### Introduction

Acute otitis externa is a common otological emergency encountered both by the GP and otolaryngologists. It has been found that up to 10 per cent of the population is affected at some time in their life. A GP can expect to see 16 new cases per year (Robertson and Bennett, 1992). This disease can be classified into two broad categories namely: (i) localized otitis externa (furunculosis); and (ii) diffuse otitis externa. Recognizable aetiologies include trauma to the external auditory canal (finger nail, match stick, paper, hair clip, etc), the irritant effect of certain chemicals and allergic reaction to certain topical medication. Otitis externa is also associated with aquatic activities. The aquatic environment adds the variable of moisture to the ear canal. Bacteria may be introduced with the moisture and in the warm environment of the canal multiply, generate debris, invade the canal lining and cause the symptoms of acute otitis externa. There is a direct relationship between the incidence of otitis externa and the amount of exposure to the water – the incidence of otitis externa in swimmers is five times more frequent than in nonswimmers giving rise to the common term 'swimmer's ear' (Strauss and Dierker, 1987). Occasionally otitis externa may be a part of a generalized skin condition such as psoriasis, seborrhoeic, allergic or atopic dermatitis. In many cases, however, no obvious reason can be found despite careful history and examination.

The normal commensal flora of the external auditory

canal includes *Staphylococcus epidermidis* and *Corynebacterium Spp.* (diphtheroids). *Staphylococcus aureus* and *Streptococcus viridens* may be present without causing any ill effects (Sipila *et al.*, 1981). However, in the acute stage of otitis externa, *Pseudomonas aeruginosa* is the most frequent organism to be cultured, particularly when associated with swimming (Feinmesser *et al.*, 1982; Agius *et al.*, 1992). *Staphylococcus aureus* tends to be associated with furunculosis. Fungal infection may supervene in chronic or inadequately treated cases.

The mainstay of management of acute otitis externa is meticulous and gentle removal of all exudate and debris. This can either be done by dry mopping or by microsuction where appropriate. Instillation of topical antibiotic is indicated when it is felt that simple aural toilet alone may not be adequate. If the external auditory canal is closed because of the oedema and the aural drops are unable to penetrate medially within the canal, an expanding wick may be placed within the ear canal to deliver the antibiotic drops deep into the canal. It is important to exclude middle ear disease by a careful history and examination including visualization of the eardrum, when possible. Auricular or facial cellulitis necessitate the prescription of oral or parental antibiotics (Graham and Kemink, 1986). Follow-up visits allow further aural toilet, removal of the wick and a more thorough aural examination. The patient is advised to keep the ear meticulously dry during the recovery period and to avoid scratching.

Ongoing audit of our ENT casualty clinic revealed that

around one in six of our new referrals were for otitis externa (approximately 240 cases per year) and that these patients formed almost 30 per cent of our daily follow-up patients at the clinic. This audit was therefore performed firstly to assess our practice with a pilot study and secondly to try and improve our management of the condition and rationalize the utilization of the clinic for such patients.

### Pilot study

#### Patients and methods

A retrospective study was carried out for all patients attending the ENT casualty clinic during the month of August 1993 with the diagnosis of otitis externa as assessed by the duty Senior House Officer or Registrar. A total number of 29 patients were included. There were 14 males and 15 females. Twenty-four patients were new referrals and five were follow-ups. The age range was 12 to 77 years and the median age was 35 years.

### Results and conclusions from the pilot study

Table I details the treatment and follow-up of these patients. It was clear that although aural toilet and the application of aural drops was generally being performed there was no uniformity in the management and in particular, follow-up was unstructured. There were no patients with middle ear pathology or associated medical problems and no referral to the outpatient clinic or admissions during the study period.

### Development of guidelines for the management of otitis externa

Our pilot study highlighted the problems of haphazard treatment with the use of multiple aural preparations. After discussion at our audit meeting a consensus was obtained and the following guidelines subsequently developed (Figure 1). The guidelines aimed to enable junior staff to be able to deal with patients with otitis externa and to be alert to recognize those patients with potentially complicated conditions e.g. middle ear pathology, diabetes. Such patients were referred on to senior staff as appropriate. The majority of the remaining patients were dealt with by aural toilet (after adequate instruction in the technique) and local treatment with gentisone HC (GHC) eardrops. GHC was chosen because of the predominance of *Pseudomonas aeruginosa* and *Staphylococcus aureus* in this condition (Feinmesser *et al.*,

1982; Agius *et al.*, 1992). Patients were reviewed at 48 hours for further aural toilet and otoscopic inspection to allow discharge of those who responded well and further care of those who did not.

Cases which failed to settle after two follow-up visits were referred to a consultant clinic and at this stage aural swabs were taken to determine the sensitivities of the infecting organisms. All patients were instructed to keep the ear(s) dry and to avoid scratching. Those patients with more severe infections e.g. cellulitis of the pinna or face were admitted for intravenous antibiotics and treatment. The guidelines were widely distributed throughout medical (and nursing) staff and further audit of our practice undertaken.

### Audit with guidelines in place

#### Patients and methods

The second stage of the audit took place between November 1993 and April 1994. It included all the patients with otitis externa seen at the ENT casualty clinic, referred both by GPs and the accident and emergency department. Eighty patients were seen (48 males and 32 females). The age range was 20 months to 82 years, the median age being 40 years. Data was completed by the doctor on a standard form and these were collected by one of authors (SAR) at the end of each month.

### Results

Table II shows the results of the 80 patients seen in this audit period with the guidelines in place. It was possible to deal with the majority of first attenders within the guidelines with 51 patients (63 per cent) being symptomatically and clinically improved sufficiently to allow discharge after one follow-up visit. Seven patients required more than two visits in order to perform further aural toilet and to exclude middle ear pathology. Five patients were referred to the ENT outpatient department (OPD) (having had swabs taken showing mixed growth of *Pseudomonas aeruginosa* and *Staphylococcus aureus* in all cases) for further management. Two patients were admitted to the ward because of severe cellulitis of the pinna and face requiring parental antibiotics. Fifteen patients did not turn up for their second follow-up which may have indicated that they were improved sufficiently not to be bothered further about their painful condition. Five patients had aural drops other than GHC because of contact sensitivity. All patients not referred to the OPD were discharged within 12 days of initial presentation. In the three months

TABLE I  
RETROSPECTIVE PILOT STUDY OF PATIENTS ATTENDING ENT CASUALTY FOR ONE MONTH

No. of patients	Treatment offered	No. of discharges on first visit	No. of follow-up visits	Duration between follow-ups	Discharge time after first visit
New referrals (n = 24)	Very variable including: dry mopping; suction clearance; Pope's wicks; TAC wicks; ear drops including GHC; Sofradex; Locorten; Otosporin	1	1-6 (median = 3)	2 days to 2 weeks	2 days to 25 days (average 12 days)
Follow-ups of previous months (n = 5)	Same as above	None	2-4	2 days to 1 week	Average of 20 days

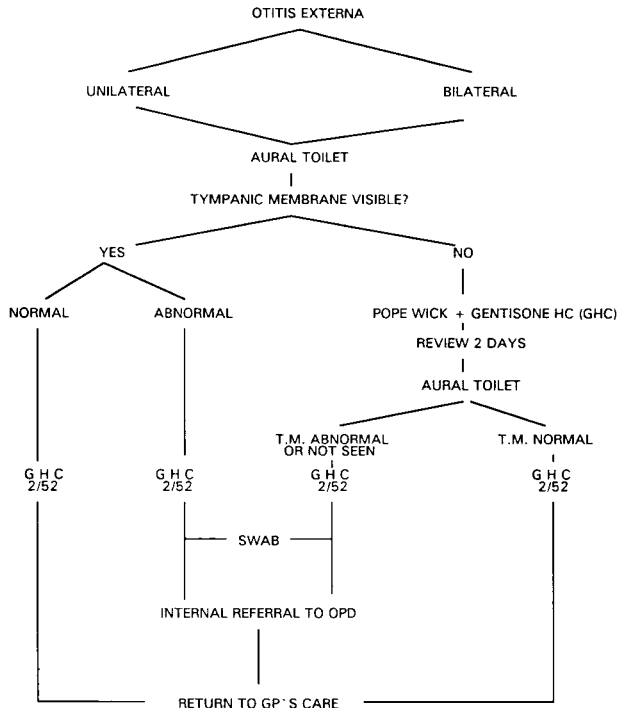


FIG. 1

Guidelines for management of otitis externa.

subsequent to the audit only four patients have been re-referred for a recurrence of their symptoms.

**Discussion**

Acute otitis externa is a common reason for urgent referral to the ENT clinic. Ongoing audit of our departmental figures showed that it constitutes one-sixth of our new casualty referrals (approximately 240 cases per year) representing a significant work load for the ENT casualty clinic. Our pilot study showed that our management of this common condition was haphazard. The basic principles of aural toilet and installation of topical antibiotic eardrops were apparently being applied but many patients were being followed up on several occasions either because of initial inadequate management or due to a variety of relatively junior doctors dealing with these cases.

*Aural toilet*

Aural toilet is the mainstay of management and it is important that staff performing this are aware of how to do it correctly and to pay special attention to the deep antero-inferior meatal recess where a sump of pus and debris may collect (Browning, 1987; Brooks, 1988; Reilly, 1991; Robertson and Bennet, 1992).

*Value of aural swabs*

Difference of opinion exists, as regards the importance of routine ear swabs in the management of otitis externa. Hicks (1983) in his study of otitis externa, concluded that the swab results were unhelpful and difficult to interpret in terms of possible pathogens. We did not do routine aural swabs, but reserved these for resistant and recurrent cases. However, the results of those five swabs taken did show the predominance of *Pseudomonas aeruginosa* and *Staphylococcus aureus*, which is in accordance with the previously described pathogens in this condition (Smith and Lucente, 1986; Browning, 1987; Ludman, 1988; Agius *et al.*, 1992; Holsgrove *et al.*, 1992).

TABLE II

THE INFLUENCE OF GUIDELINES ON THE MANAGEMENT OF OTITIS EXTERNA

Total number of patients	80
Treatment	
Aural toilet	80
Gentisone HC (GHC) alone	39
Pope's wick and GHC	36
Other topical eardrops	5
Discharges	
After initial visit	32
After two visits	19
More than two visits	7
Patients not attending for second scheduled visit	15
Total duration of follow-up	2-12 days
Referrals to OPD	5
Admitted to ward	2
Re-referrals	4

GHC = gentisone HC; OPD = ENT outpatient department.

*phylococcus aureus*, which is in accordance with the previously described pathogens in this condition (Smith and Lucente, 1986; Browning, 1987; Ludman, 1988; Agius *et al.*, 1992; Holsgrove *et al.*, 1992).

*Topical antibiotic ear drops*

Many topical antibiotic ear drops are available and in most instances, the choice depends on the personal preference of the doctor concerned. A survey done by Robertson and Bennett (1992) showed that 18 different types of ear preparations were being prescribed by local GPs. An antibiotic-steroid combination was the commonest first choice and the commonest agent was GHC ear drops because of the frequency of *Pseudomonas aeruginosa*. In our study, GHC ear drops were used in the majority of patients (93.6 per cent) and were generally well tolerated. However, five patients were found to be sensitive to these drops and were prescribed other ear preparations including sofradex and locorten vioform ear drops.

*Instructions to the patients*

Successful treatment of otitis externa depends not only on the medical management but also on the patient's compliance. Patients were instructed to prevent water from entering into the external auditory meatus during the recovery period and to avoid scratching the external auditory canal as it has been shown to flare-up the condition (Graham and Kemink, 1986).

*Follow-up visits to the casualty clinic*

An analysis of our pilot study showed that many patients were having multiple follow-ups. Continuing audit of our figures showed that these patients comprised 20-30 per cent of the follow-up cases seen daily at the ENT casualty clinic. This was felt to be unnecessary. With the implementation of the new guidelines, the number of such patients was dramatically reduced with only seven patients requiring more than two visits for control of their condition. This has reduced much of the unnecessary work load at the casualty clinic and minimized the inconvenience for patients of multiple hospital visits.

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Address for correspondence:  
Mr S. W. Denholm, F.R.C.S., Ed.,  
Department of Otolaryngology,  
Singleton Hospital,  
Sketty,  
Swansea,  
West Glamorgan SA2 8QA.