

Chronic suppurative otitis media in Gombe, Nigeria

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Abstract

Background: Chronic suppurative otitis media is a common problem in developing countries and it is necessary to determine the local epidemiology and bacteriology for adequate treatment.

Method: A retrospective study of 206 patients with chronic suppurative otitis media (COSM).

Results: All the patients presented with ear discharge and tympanic membrane perforations with 57 (27.7%) had associated nasal symptoms. The most common tympanic membrane perforation was the central type seen in 125 (60.7%) of the patients. Of the 206 patients studied, using standard microbiological methods 87.4% patients had positive bacterial culture. These were staphylococcus aureus 37.8%, pseudomonas aeruginosa 28.9% and Proteus species 18.3%. Children within the age group of 0-10 years were the most affected. Antibiotic sensitivity result showed that gentamicin (88.5%), cefuroxime (63.7%) and cephalexin (61.7%) were active against majority of the isolates.

Conclusion: Gentamicin, cefuroxime and cephalexin are recommended as first line antibiotics in the treatment of COSM. Other modalities of the treatment are further highlighted.

Key word: Chronic otitis media, tympanic membrane perforation, Gombe.

Introduction

Middle ear infection was first described by Hypocrates in 450BC.¹ Chronic Suppurative otitis media (CSOM) occur as a complication of untreated or inadequately treated acute otitis media. This is typically a persistent disease and capable of causing severe destruction and irreversible changes. The incidence of

CSOM appears to be highest in the Eskimos followed by the American Indians, especially the Navajos and Apaehes, whites and Blacks.² It was observed that nine out of 1000 British school children suffer from otitis media at the periodic medical inspection of the school health services.³ In Nigeria COSM constituted the commonest condition presenting in the otolaryngology clinics.^{4,6}

Fifty percent of the patients were aged less than 10 years^{4,7} whereas a bimodal age distribution was shown in Lagos.⁸

Two clinico-pathologic types of COSM exist: the tubotympanic (safe) and the attico-antral (unsafe).³ In our environment the former is said to be more common.^{4,9} Organisms isolated were gram negative bacteria like pseudomonas, proteus and klebsiella species by some workers^{5,10,11} while other studies showed staphylococcus aureus being commonly isolated.^{7,8,9,12} The diagnostic criteria depends upon the otoscopic findings, culture of ear discharge and radiologic findings. Most patients in this region see general practitioners, physicians and paediatricians before being referred to the Otolaryngologist. This study is to determine the clinical features of the disease and identify the bacterial isolates in this environment. Drugs sensitivity patterns of these isolates will suggest possible therapy where such facilities do not exist.

Patients and Methods

Two hundred and six patients with actively discharging ears attending the ENT clinic of the Federal medical centre Gombe were seen between April 2000 to December 2001 (one year nine months). All patients were subjected to history taking and complete ENT examination. Ear swabs were collected from discharging ears using sterile applicators and specimens sent immediately to the microbiology laboratory. These specimens were plated on blood Agar and Mc conkey Agar plates for 24-48 hours. All specimens were examined microscopically by gram-staining procedures. The criteria for identification of the bacterial isolates were as described by Lennette et al.¹³.

Anti microbial sensitivity test on the bacterial isolates were carried out by diffusion method using single disc (oxid USA) and the isolates were considered

sensitive or resistant in accordance with the National committee of clinical laboratory standards (NCCLS).¹⁴

Results

A total of 206 patients were studied out of which 121 (58.7%) were males and 85 (41.3%) females. Fifty-seven (27.7%) had associated nasal symptoms in the form of nasal discharge or obstruction. Tympanic membrane perforations were seen in all patients, with the central type in 125 (60.7%) and the marginal type in 13 (6.3%) patients.

Out of the 206 patients studied, 180 (87.4%) patients had positive culture of their ear discharge while 26 (12.6%) had no growth. The 0-10 years age group was the worst affected accounting for 42.2% (76) of the patients while the > 51 age group was the least affected as shown in table 1.

The most common bacteria isolates were *S. aureus* 68(37.8%), *pseudomonas* 52 (28.9%) and *proteus* Sp 33 (18.3%). *Candida albicans* was isolated in 4(2.2%) patients. The anti microbial sensitivity was high to gentamicin (88.5%), cefuroxime (63.7%) and cephalexin (61.7%). Very low sensitivity was seen to cotrimoxazole (2.5%) Ampicillin (2.8%), tetracycline (10.2%) and no sensitivity in penicillin as shown in table 2.

Table 1: Age and sex of 180 patients with positive culture

Age (Years)	M	F	Total (%)
0 - 10	50	26	76 (42.2)
11 - 20	7	15	22 (12.2)
21 - 30	26	17	43 (23.9)
31- 40	9	7	16 (8.9)
41 - 50	7	6	13 (7.2)
>50	6	4	10 (5.6)
Total	105	75	180 (100)

Table 2: Bacterial isolate and in-vitro antibiotic sensitivity pattern

Isolates	No. (%)	Ge	C	Ce	Er	St	Ch	Te	Am	Co	Pe
S. aureus	68(37.8)	89	61	60	65	47	41	18	7	9	0
Pseudomonas	52(28.9)	95	51	55	0	10	8	0	0	0	0
Proteus sp.	33(18.3)	96	52	66	9	33	0	3	0	6	0
Klebsiella sp.	10(5.5)	93	70	65	0	60	60	20	10	0	0
Streptococcus	10(5.5)	92	70	60	50	80	80	20	10	0	0
Candida	4(2.2)	-	-	-	-	-	-	-	-	-	-
E. Coli	3(1.7)	66	66	66	0	0	0	0	0	0	0

Ge: Gentamicin, C: Cephalexin, Ce: Cefuroxime, Er: Erythromycin, St: Streptomycin, Ch: Chloramphenicol, Te: Tetracycline, Am: Ampicillin, Co: Cotrimoxazole, Pe: Penicillin

Discussion

Chronic suppurative otitis media constitutes the commonest ENT condition presenting to the general practitioner, paediatrician and the ENT surgeon in Nigeria; therefore, it has important economic and health care implications. In this study, it was found that more males 121 (58.7%) than females 85(41.3%) were seen which is in keeping with the reports from other center.^{7,9,10,15} Children, especially those between 0-10 years were the most affected persons as seen in previous studies.^{4, 7} The short and patent Eustachian tube in children make them more vulnerable to ascending Ear infections in repeated attacks of rhinitis and pharyngitis.

The disease shows a variety of features out of which the tympanic membrane perforation and varying degree of ear discharge are the constant features. Most of our patient had central perforation (60.7%) making them to have the tubotympanic variety of the disease, previous studies by Ibekwe⁹ and Coker et al¹⁰ showed a similar finding. Nasal symptom in the form of discharge and obstruction were observed by 27.7% of the total patients, which also worsen the ear discharge. The relationship between upper respiratory tract infection and discharging ear had also been noted by

some authors^{9,15} it is therefore prudent for the general practitioner and other physicians alike to take this into cognisance.

With regard to bacterial culture, the no bacterial growths in 12.6% of the discharges could be due to obligate anaerobic bacteria, hence the need for anaerobic culture.

The most common bacteria isolates in this study agree with other reports^{7-9,12} but at variance with those of Bhattia et al,⁵ Coker et al¹⁰ and Amadasun.¹¹ On the average, gentamicin, Cefuroxime, and Cephalexin appeared to have 88.5%, 63.7% and 61.7% sensitivities, to various organisms tested respectively.

In the rural tropical areas where antibiotics are not available or inadequate and such practice as application of herbs may further delay patients from seeking medical treatment, complication of CSOM are bound to occur. The complication rate in this study is 5.9% mostly in the form of post auricular abscess, post auricular sinus and facial nerve paralysis. However, slightly higher complication rates were reported by Ibekwe⁹ and Okafor¹⁶ to be 8% and 10.9% respectively. The high rate in the coastal region may be due to humid coastal climate, which allows bacteria to thrive in the ear canal leading to the persistence of disease and complication.

General practitioners, physicians and pediatricians forget the need for additional treatment modalities apart from antibiotics. The role of aural toileting using cotton wool before instillation of eardrops helps to reduce the purulent matter and allow quick drying in children. In adults, aural wick dressing is achieved by impregnating a strip of gauze with the antibiotic eardrop and inserting it into the external auditory canal. This allows enough contact of the antibiotic with bacteria as the wick soaks away the purulent material. Systemic or local (nasal drops) decongestants reduce secretion, which may block the pharyngeal orifice of the Eustachian's tube. This improves middle ear ventilation. Most patients will have their ears dry within a month of the first visit. However, a few patients may need mastoid exploration.

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