

DISCHARGING EAR (OTORRHEA), A CLINICO-MICROBIOLOGICAL STUDY**Zahra Kadum Saeed* & Ahmed M Al-Abbasi@**

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Abstract

This study aimed to assess the causes of otorrhea and causative organisms. A prospective clinico-microbiological study of 153 discharging ears of 148 patients in Basrah General Hospital during 2 years period. This study showed that most commonly affected age group was below 10 years (44 patients=30%), the most common type of otorrhea was the purulent (127 ears=86%), the most common cause of purulent otorrhea was chronic otitis media (77 ears=61% of purulent discharging ears). Staph. aureus was the commonly isolated organism from purulent discharging ears (39 ears). It is concluded that otoscopic and otomicroscopic examination plus carefully and accurately taken swabs for cultures are essential for accurate diagnosis and precise treatment in all cases of ear discharge.

Introduction

Otorrhea (ear discharge) is a common symptom and sign of patients seeking examination in an E.N.T. department of different hospitals.

Watery odourless discharge with ear irritation usually associated with otitis externa, while a clear fluid discharge after trauma may be indicative of cerebrospinal fluid leak through a dural tear^{1,2}.

When discharge contains mucus, it must have arisen from glands within the middle ear cleft, passing into the external ear through a tympanic membrane perforation or from an open mastoid cavity^{1,3}.

A thick brown discharge of liquefied wax may occur in an otherwise healthy ear but often heralds an acute otitis media, especially if it contains blood and pus¹. In chronic otitis media, the discharge is often long-standing and characterized by a foul smell due to saprophytic organisms⁴. Cholesteatomatous debris may be discharged, such patients frequently presenting because of embarrassing nature of the smell⁵. In chronically discharging

ear, the onset of bleeding is an ominous sign, indicating the possibility of neoplastic changes¹. Bleeding from the ear usually follows trauma but in rare cases may occur from glomus tumors or vascular anomalies in the middle or external ear¹.

Patients and Methods

This is a prospective study done at Basrah General Hospital, department of Otolaryngology in the period from 2004 to 2006 including 148 patients, whose main symptoms and signs was discharging ear. Five of them presented with bilateral discharging ears that is the reason we review 153 ears discharging some kind of fluid.

Detailed medical history and examination of ear, nose and throat was taken, emphasizing on otoscopic examination. In every case that the diagnosis of otorrhea was established, the findings were recorded to be able to compare with future examination. Swabs from the inner part of external canal were taken from the patients

had not used antibiotics in any way during the last three days, these swabs were immediately sent to laboratory within minutes, the isolation and identification of bacteria done by following the conventional methods, while direct microscopic examination of specimen by use of 10% KOH performed to determine the presence of fungal elements (spores, hyphae, and blastospores), the positive results were cultured on 2 sets of media, Sabouraud Dextrose Agar (SDA) and SDA with chloramphenicol. Identification of fungi was based on colonial morphology and a

small sample of each isolated colony was placed on a drop of lactophenol cotton-blue mounting fluid and examined under microscope.

Results

The distribution of patients with otorrhea according to age and sex is shown in figure I, males nearly equal to females involved in this study (77, 71 patients respectively), 44 patient, equal to 30% of the studied patient belong to age group 10-19 years, but the frequencies of patient with otorrhea more or less decline with age.

Figure 1: Distribution of patients with otorrhea according to Age and sex

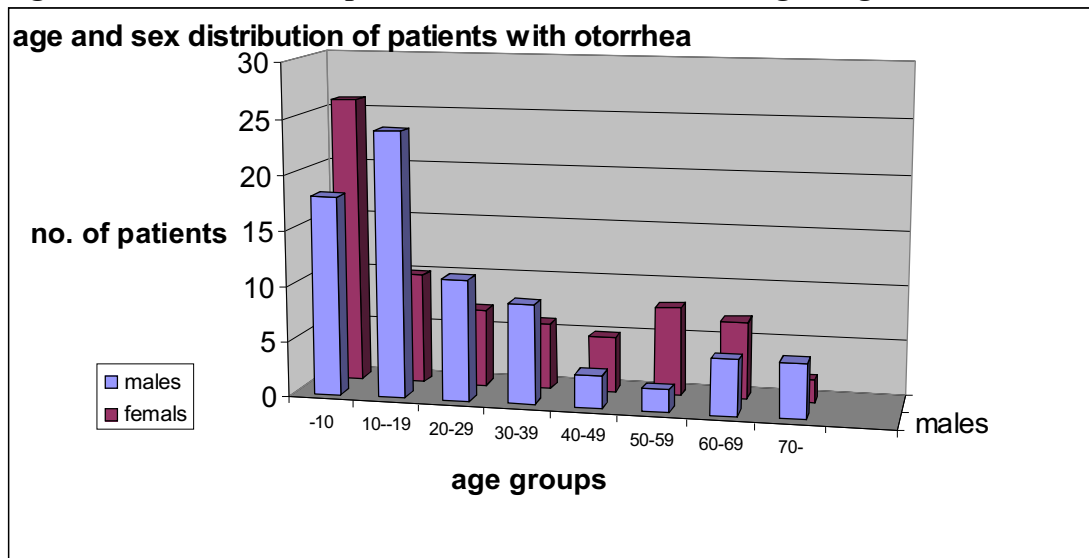


Table I, shows the type of discharge in the studied patients, the most common type of discharge was the purulent (127 ears = 86%). The causes of bloody otorrhea are shown in table II, all of these causes are traumatic, such as head injury (6 patients =33%), slap on ear (5 patients = 28%). The

causes of serosanguinous otorrhea are shown in table III, six patients (75%) caused by perforation of tympanic membrane, the remaining 2 patients (25%) were due to bullous myringitis after upper respiratory tract infections.

Table I: Types of discharge in the studied patients

Type of Discharge	No. of patients	%	No. of ears	%
Bloody	18	12.1	18	11.8
Serosanguinous	8	5.4	8	5.2
Purulent	122	82.4	127	83
Total	148	100	153	100

Table II: The causes of bloody otorrhea

causes	No. of patients	No. of ears
Head injury	6	6
Slap on ear	5	5
Ear syringing	4	4
Self inflicted	3	3
total	18	18

Table III: The causes of serosanguinous otorrhea

Causes	No. of patients	No. of ears
Perforation of T.M	6	6
Bullous myringitis	2	2
Total	8	8

Table IV, presents the causes of purulent otorrhea, the commonly found cause was chronic otitis media (72 patient, 5 of them had bilateral disease) which equal to 59% of patients with purulent otorrhea or 61% of purulent discharging ears, while only two

patients with purulent otorrhea were caused by discharging mastoid cavity. Table V, shows the bacteriological testing results of 77 ears with chronic otitis media, Staph. aureus was isolated from 29 ears (38%), while E. coli isolated from only three ears.

Table IV: The causes of purulent otorrhea

Causes	No. of patients	No. of ears
Chronic otitis media	72	77
Otitis externa	38	38
Acute otitis media	10	10
Discharging mastoid cavity	2	2
Total	122	127

Table V: Bacteriological testing results of 77 ears with chronic otitis media

Isolated microorganism	No. of ears	%
Staph. Aureus	29	38
Strept.pneumoniae	15	19
Proteus sp.	12	16
Pseudomonas aerogenosa	11	14
Klebsiella sp.	4	5
E. coli	3	4
No growth	3	4
Total	77	100

Bacteria and fungi isolated from 38 ears with otitis externa are shown in table VI, Staph. aureus was isolated from 16 patients

(42%), six of them associated with Aspergillous species of fungi, pseudomonas aerogenosa was isolated from 11 patient

(29%), four of them combined with *Candida albicans*. Bacteriological results of swabs taken from patients with acute otitis media are presented in table VII, the commonly isolated bacteria were strept.

pneumoniae (6 patients out of 10) which equal to 60%. The last cause of purulent otorrhea was discharging mastoid cavity, bacteriological results in both of these patients were negative (i.e. no growth).

Table VI: Bacteria and fungi isolated from 38 ears with otitis externa

Isolated microorganism	No. of ears	%
Staph. Aureus	10	26.3
<i>Pseudomonas aerogenosa</i>	7	18.4
Proteus sp.	5	13.1
<i>Klebsiella</i> sp.	5	13.1
Staph. Aureus+ <i>Aspergillus</i> sp.	6	15.7
<i>Pseudomonas aerogenosa</i> + <i>Candida albicans</i>	4	10.5
<i>Klebsiella</i> sp.+ <i>Penicillium</i> sp.	1	0.2
Total	38	100

Table VII: Bacteriological testing results of 10 ears with acute otitis media

Isolated microorganism	No. of ears	%
Strept.pneumoniae	6	60
<i>H. influenzae</i>	2	20
<i>Pseudomonas aerogenosa</i>	1	10
No growth	1	10
Total	10	100

Discussion

Schloss⁶ stated that the most commonly encountered otorrhea was purulent type, this is agreeable with the present study, it comprise 83% of discharging ears.

Chronic otitis media presents the most common cause of purulent otorrhea in the present study (61%), this against Bardanis et al⁷ results, they found that otitis externa form the common cause of purulent otorrhea. The cause behind the predominance of chronic otitis media as a cause of purulent otorrhea probably the low socioeconomic state of our population which relates to general health, diet and overcrowding, together with mismanagement of repeated attacks of acute otitis media or probably that allergy which is common in our population which postulated that it associated with increase incidence of chronic otitis media⁸.

Staph.aureus is the commonly isolated bacterium in chronic otitis media (29 out of

77 ears) which comprise 38%, this result are with agreement to many studies⁹⁻¹², but different from another studies with stated that *pseudomonas aerogenosa* is the most prevalent etiological agents in chronic otitis media¹³⁻¹⁵.

Otitis externa form the second commonly encountered cause of purulent otorrhea (38 out of 127 ear = 30%), probably due to high humidity and high temperature which act as cofactors that many predispose a patient to bacterial otitis externa¹⁶.

Staph. aureus was the commonly isolated bacterium from patients with otitis externa in the present review (16 out of 38 ear = 42%), followed with *pseudomonas aerogenosa* (11 out of 38 = 29 %), these result, comparable with Cassasi¹⁷, Hawake¹⁸, and Skevas¹⁹ studies.

But it is disagreeable with two studies^{20,21} which reported that *pseudomonas* species are the commonly isolated organisms in otitis externa.

Furci were isolated from eleven ears out of 38 ears with otitis externa (30%), all of them combined with bacterial infection, Aspergillus was the commonly isolated fungus which is agreeable with many studies²²⁻²⁵.

Regarding the bacteriological results of cases of acute otitis media, Strept. pneumoniae found in 6 out of 10 ears (60%) followed by H. influenza, this result comparable with many studies in the east

and west²⁶⁻²⁹, while Gehanno et al³⁰ found that H. influenzae is the predominant organism responsible to acute otitis media.

Otitis media organisms are presented in table VII; the commonly isolated bacteria were strept. pneumoniae (6 patients out of 10) which equal to 60%. The last cause of purulent otorrhea was discharging mastoid cavity, bacteriological results in both of these patients were reactive (i.e. no growth).

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