

**Bacteriological Profile of Cerumen in Patients with Recurrent Otitis Externa & Open Mastoidectomy Cavity.**¹Dr Souvagini Acharya, Associate Professor, Dept of ENT, Vimsar, Burla²Dr Himanshu Mishra, Post Graduate, Dept of ENT, Vimsar, Burla³Dr Nilamadhava Prusty, Senior Resident, Dept of ENT, Vimsar, Burla**Correspondence Author:** Dr Nilamadhava Prusty, Senior Resident, Dept of ENT, Vimsar, Burla**Conflicts of Interest:** Nil**Abstract****Introduction**

Infection of external auditory canal is relatively uncommon due to protective mechanism of cerumen. In this study we compare the bacteriological profile and protective effect of cerumen in patients with recurrent otitis externa & case with open mastoidectomy cavity.

Material & Method

It is a hospital based observational study done in department of ENT VIMSAR Burla from July 2016 to December 2016, comprising 90 individuals who are divided into 3 groups, Group-A: 30 patients with recurrent otitis externa and Group-B 30 open mastoidectomy cavity individuals & Group-C: 30 normal individuals. Prior ethical approval taken from ethical approval committee VIMSAR, Burla.

Conclusion

Polymicrobial growth was seen in 60% in group A while in group B it was found to be mostly monomicrobial (70%).

The most common organism grown in all 3 groups was staphylococcus epidermidis followed by pseudomonas aeruginosa in group A and staphylococcus aureus & diptheroids in group B & C respectively.

Result

Predominant organism found in all the groups is staphylococcus epidermidis. Amount of cerumen

comparatively less in patients with recurrent otitis externa which also show polymicrobial growth.

Keyword: Bacteria, Cerumen, Otitis externa, Mastoidectomy cavity

Introduction

Cerumen is produced by ceruminous glands and sebaceous glands present in cartilaginous part of external auditory canal. It is also known as ear wax. It is composed of watery secretions of ceruminous gland, fatty secretions of sebaceous gland, desquamated epithelium and dust particles. Two types of human cerumen, wet and dry, are controlled by two autosomal alleles (1). However, some differences have been observed between cerumen components such as amino acids, cholesterol, triglyceride, lysosome based elements, immunoglobulin, glycopeptides, copper and other components which are the constituents of cerumen (1). Wet cerumen, which is light or dark brown and sticky, is characterized by a relatively high concentration of lipid and pigment granules. Dry cerumen, which is grey or tan and brittle, tends to express lower levels of these components. (2) Cerumen has antimicrobial property due to its acidic pH and it traps dust & foreign body in it. Besides providing a physical barrier against infection, it is believed that cerumen has antibacterial and antifungal properties. (3)

Acute diffuse otitis externa is an inflammatory & infectious process of the EAC. The acidic pH changes due to Accumulation of moisture from a warm humid climate,

Retention of water from swimming, bathing, snorkeling or scuba diving or due to Removal of cerumen.

After an open cavity mastoidectomy operation the anatomy of EAC is altered because Self cleansing mechanism of EAC is impaired , It Needs a frequent cleaning of the cavity ,Failure leads to bacterial over growth.

AIM

To investigate the common flora of human cerumen in patients with recurrent otitis externa and open mastoidectomy cavities.

To compare the results of the groups with each other & with the flora of healthy adults.

Material & Methods

It is a observational study done in department of ENT, VIMSAR, Burla from July 2016 to December 2016. 90 subjects in age group 11 to 60 yrs attending ENT-OPD without any systemic disease like type-2 DM, HTN ,Sickle cell disease are included in this study. Patients with otomycosis are excluded from the study. The subjects were divided into 3 groups. GROUP A (n=30) patients with recurrent otitis externa (2 or more attacks of acute otitis externa attacks in the current year & symptom free for at least 3 months). GROUP B (n=30)- Patients with an open mastoidectomy cavity (at least 1 year since operation). GROUP C (n = 30)- Healthy subjects (without any ear complain). Cerumen samples were collected from the patients using a sterile ear hook, transferred to a culture tube & sent to the microbiology department of VSS Medical College , Burla for bacteriological study . The amount of cerumen present in each case was noted. The organisms present in each group was studied.

Result

Most of the patients with recurrent otitis externa and post mastoidectomy cavities studied were in 31-40 years of age group.

Maximum number of patients with recurrent otitis externa was male.

Post mastoidectomy cavity patients were mostly from rural areas while those with recurrent otitis externa were from urban areas.

Microbial growth was found in all but 2 cases in group B whereas it was found in 80% & 66.7% in group A & C respectively.

Polymicrobial growth was seen in 60% in group A while in group B it was found to be mostly monomicrobial(70%).

The most common organism grown in all 3 groups was staphylococcus epidermidis followed by pseudomonas aeruginosa in group A and staphylococcus aureus & diptheroids in group B & C respectively.

Amount of cerumen was found to be very less in group A as compared to group B & C.

Discussion

Low amount of cerumen with recurrent external otitis , may be due to an alteration in the glandular activity resulting from chronic infection.

In other hand the absence of cerumen may be a predisposing factor for otitis externa as Cerumen has antimicrobial role providing acidic PH & production of antimicrobial compounds like lysozymes and Trauma induced to the EAC skin leading to secondary infection.

Maximum number of samples in group a revealed polymicrobial growth. This may be due to lack of cerumen, Local & systemic predisposing factors, Previous local medications use.

Similar to our study, in Pata's study (4), monobacterial and polybacterial isolates in the control group were 65% and 35%, respectively. In Clark et al study (5), monobacterial and polybacterial flora of the patients were 57% and 43%, respectively.

Predominant micro-organism isolated in all 3 groups was staphylococcus epidermidis.

The most common organism grown in all 3 groups was staphylococcus epidermidis followed by pseudomonas aeruginosa in group A and staphylococcus aureus & diptheroids in group B & C respectively. These results conform to those of Dibb (6), Stroman, Campos (7,1) and Pata's studies (4).

Conclusion

Cases with recurrent otitis externa & post mastoidectomy cavity have less cerumen than healthy individuals. All most all cases of above mentioned diseases show increase microbial growth. Case with recurrent otitis externa shows mostly polymicrobial growth.

Table: 1.

Groups	Mono microbial	Polymicrobial
Group A (n=30)	12(40%)	18(60%)
Group B n=30)	23(76.6%)	7(23.4%)
Group C (n=30)	21(70%)	9(30%)
Total (n=90)	56(62.2%)	34(37.8%)

Table 2: Micro-Organism Species Grown

Species	Group A	Group B	Group C
S.Epidermidis	14	16	21
S. Aureus	4	6	2
Diptheroid	5	2	5
P.Aeruginosa	8	—	2
S.Saprophyticus	—	—	1
Micrococcus spp.	—	—	1

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