

A Prospective Study on Otitis Externa in Rims Hospital, Imphal

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Abstract: Otitis externa is a common ailment that affects approximately 3% of the out-patient in RIMS Hospital, Manipur. Water entering the ear and local injury to the ear canal were the main predisposing factors. Treatment usually consisted of local debridement where possible followed by topical ear drops with or without oral antibiotics and anti-inflammatories. Aural packing was done in those cases with canal obstruction. Incision and drainage was done in only approximately 2% of the cases where there was a furuncle or abscess.

Keywords: Otitis externa, incidence, furuncle, otomycosis.

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I. Introduction

Otitis externa is a painful condition involving the external auditory canal. Although it can potentially resolve spontaneously, topical medications lead to its speedy resolution. With the prevalent habit of bathing in the ponds or rivers, the incidence of otitis externa is quite high in the local population of Manipur.

By definition, otitis externa is a generalised condition of the skin of the external auditory canal that is characterized by generalised oedema and erythema associated with itchy discomfort and usually an ear discharge¹. Complications, although few, include perichondritis, chondritis, cellulitis, parotitis and/or erysipelas¹. Certain saprophytes present in the auditory canal actually help suppress pathogenic bacteria by competing for locally available resources². pH of the diseased ear became relatively alkaline during acute otitis externa. Reversion of the pH back to acidic once the disease was resolved was observed³.

Otomycosis is also a predisposing factor for otitis externa. Aspergillus and Candida are the commonest causes⁴. It presents as a black, grey, green, yellow or white discharge with debris. Severe itching is the hallmark for otomycosis.

In this study, the most common predisposing factors for otitis externa are water entering the ear canal and local injury to the ear canal caused either by finger nail or ear picks.

II. Objectives

- i) To study the prevalence of otitis externa in the ENT OPD of RIMS Hospital, Lamphelpat.
- ii) To study the clinical presentation of otitis externa in RIMS, Lamphelpat.
- iii) To analyse the different methods of treatment of otitis externa that are employed in RIMS, Lamphelpat.

III. Materials And Methods

STUDY DESIGN

The study is a prospective study which was carried out in the out-patient department of ENT of RIMS Hospital, Lamphelpat, Manipur from April 2016 to March 2018. The necessary permission and approval from ethics committee and authority, prior to starting the study was taken. Informed written consents were obtained from the patients involved in the study, according to the protocol approved by the ethics committee of our institution.

The study comprises of patients who presented with ear pain, itching, ear discharge or decreased hearing from all age groups. Patients were carefully followed up for charting the treatment response and progress.

CRITERIA FOR SELECTION

INCLUSION CRITERIA :

- i) All age groups
- ii) Either sex
- iii) Ear pain/ itch/ear discharge/ decreased hearing

EXCLUSION CRITERIA :

- i) History of middle ear discharge, prior ear surgery or traumatic tympanic membrane perforations
- ii) Patients with diabetes and other known immunocompromised status

METHOD OF DATA COLLECTION

- A detailed clinical history regarding the duration, onset and any predisposing factors or co-existing systemic disease was taken.
- Each patient was subjected to a detailed examination of ear, nose, throat and neck.
- Pinna, pre-auricular, post-auricular and infra-auricular areas were inspected and palpated. Tragal and auricular tenderness was elicited. External auditory canal was examined without speculum.
- Tympanic membrane visualisation was attempted with the help of an otoscope.
- Ear swab for culture and sensitivity was taken as and when ear discharge was present.
- X-ray mastoids were taken as and when ear discharge was present.
- Treatment employed was noted in detail.
- Number of subsequent follow-ups and time taken for the disease to resolve was noted.

IV. Results

1. Incidence :

Total Cases in ENT OPD in two years= 19680

Total number of ear cases in 2 years = 6982

Total number of otitis externa = 602

Prevalence of otitis externa in the total number of OPD cases = $(602/19680)*100 = 3.059$ cases per 100 ENT OPD cases. Otitis externa was seen in 8.62% of all the ear cases.

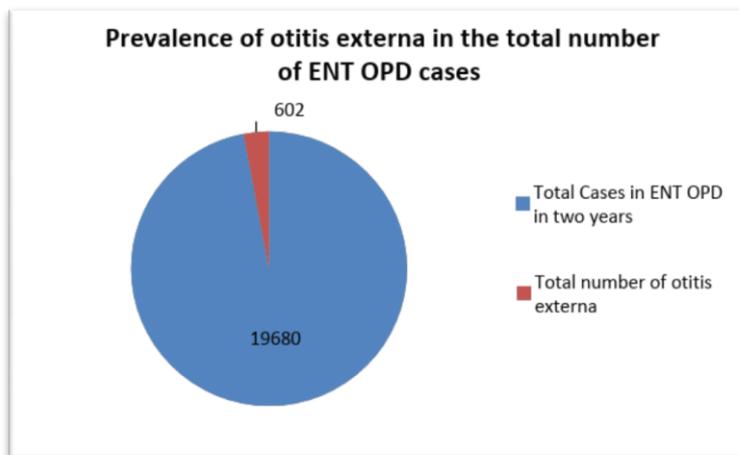


Fig 1 : Prevalence of otitis externa

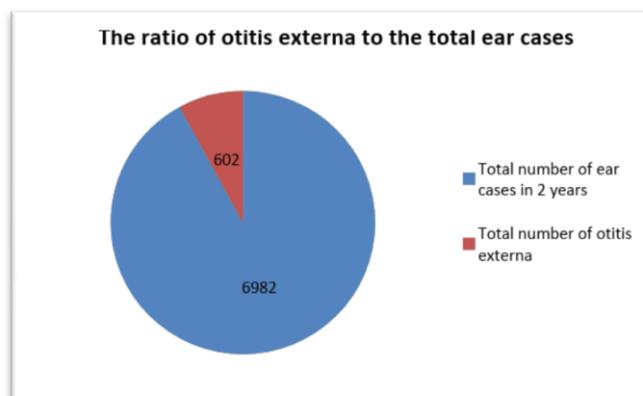


Fig 2: The ratio of otitis externa to the total ear cases = 602 : 6982

2. **Predisposing Factors :** Entry of water into the canal along with local injury to the ear canal were the main predisposing factors. Otomycosis was another predisposing factor. In the rest of the patients, there was no known predisposing factor.

Predisposing factors	Frequency	Percentage
Local injury to the ear canal	182	30.23
Entry of water into the ear canal	202	33.55
Otomycosis	147	24.42
No known predisposing factor	71	11.79
Total	602	100.00

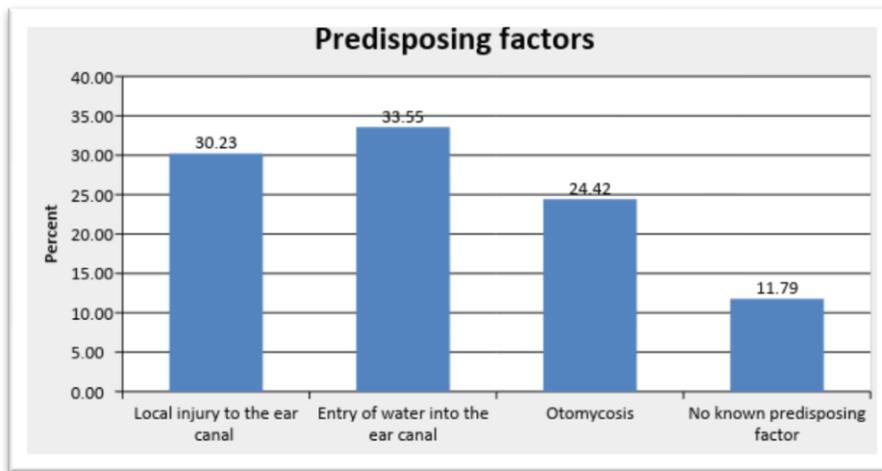


Fig 3: Showing the various predisposing factors.

3. **Types of Otitis externa :** Diffuse otitis externa was found to be more prevalent accounting for 82.39% of the total otitis externa patients.

Types of Otitis externa	Frequency	Percentage
Localized	106	17.61
Diffuse	496	82.39
Total	602	100.00

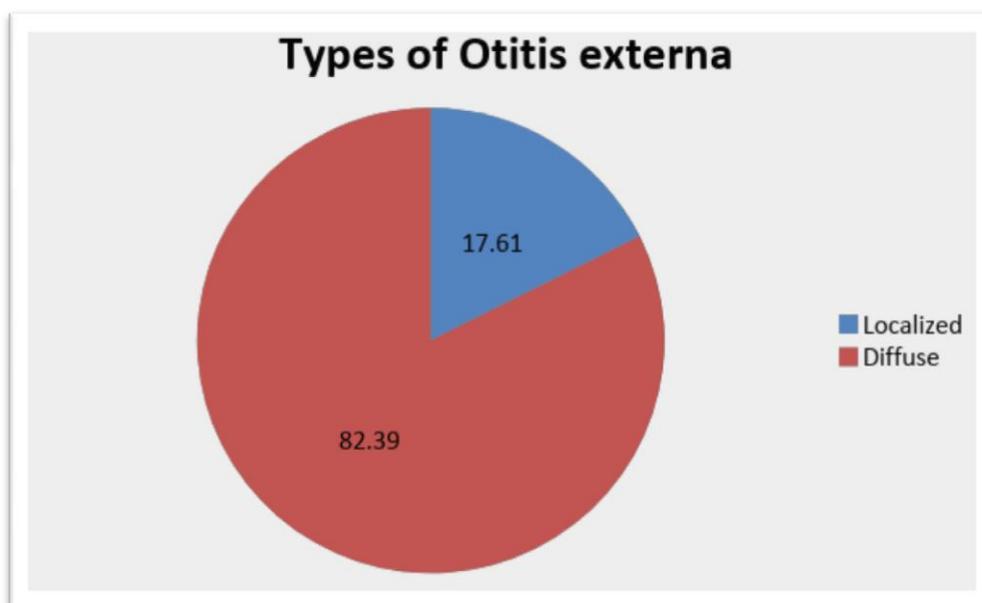


Fig 4 : Showing the ratio of the two types of otitis externa.

4. **Laterality :** Both right and left ear were more or less equally affected. Bilateral was seen in only 4.3%.

Laterality	Frequency	Percentage
Right	278	46.2
Left	298	49.5
Bilateral	26	4.3
Total	602	100.0

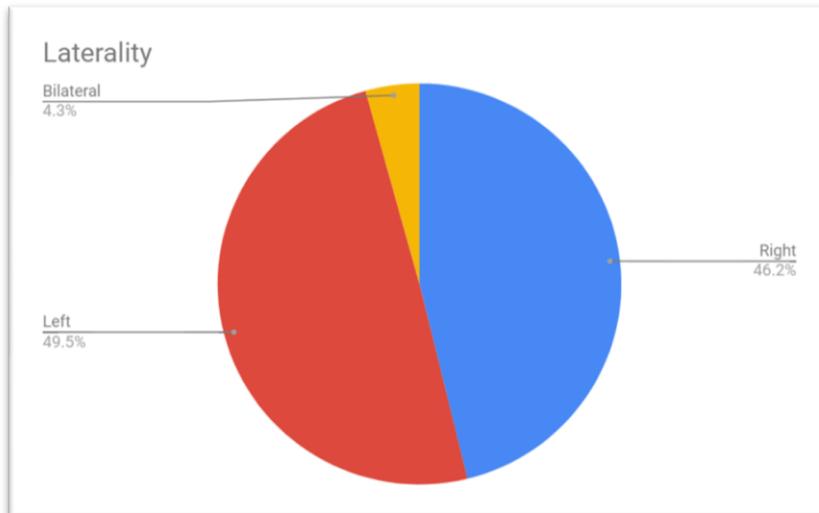


Fig 5 : Figure showing the laterality of otitis externa patients

5. **Associated Complications:** Complications didn't occur often. It occurred in 7.3% of the total otitis externa patients. Periauricular cellulitis formed 63.6% of the total complicated cases, followed by perichondritis which formed 31.82%. Trismus was seen in 4.55% of the total complicated cases.

Associated Complications	Frequency	Percentage
Periauricular cellulitis	28	63.64
Trismus	2	4.55
Perichondritis	14	31.82
Abscess	3	6.38
Total	47	100.00

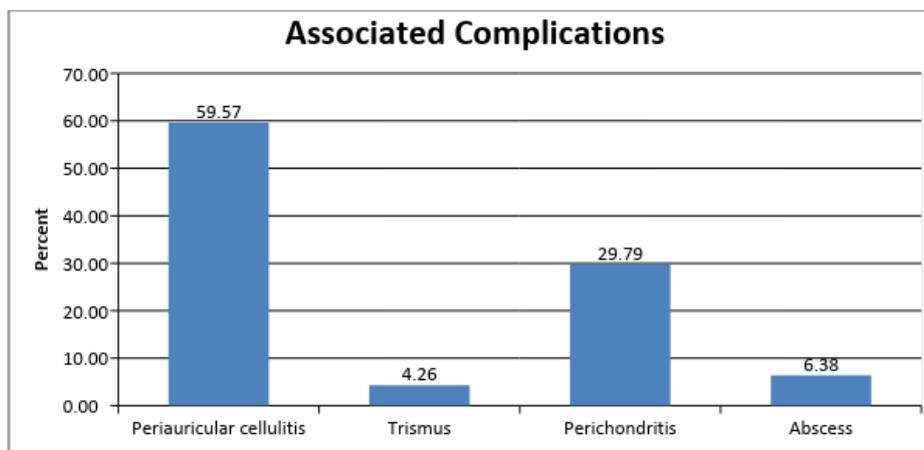


Fig 6 : Showing the prevalence of the different complications.

6. Treatment

i) Antibiotics : The topical antibiotics used contained ofloxacin, dexamethasone and benzalkonium chloride solution. Oral antibiotics used were usually fluoroquinolones or cefpodoxime. Majority of the patients needed both topical and systemic antibiotics.

Antibiotics	Frequency	Percentage
None	142	23.59
Topical	182	30.23
Systemic	0	0.00
Topical & Systemic	278	46.18
Total	602	100.00

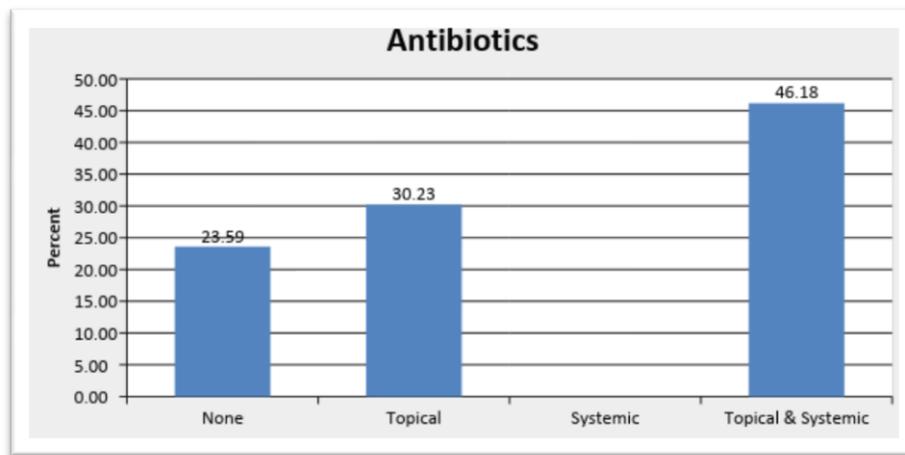


Fig 7 : Showing the usage of antibiotics.

ii) Antifungals : Out of the 602 otitis externa patients, 147 were treated with topical antifungals. None of the patients needed systemic antifungal therapy. Topical ear drops with anti-fungal agent used contained lidocaine 2%, beclomethasone 0.025%, clotrimazole 1% and chloramphenicol 5%.

Antifungals	Frequency	Percentage
None	455	75.6
Topical	147	24.1
Total	602	100.0

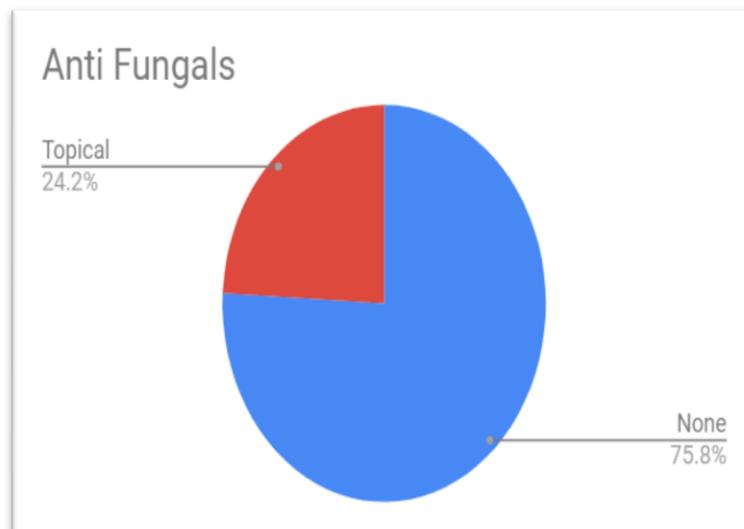


Fig 8 : Showing the total number of patients treated with antifungals.

iii) Anti-inflammatories : Out of the 602 patients with otitis externa, 285 were treated with NSAID therapy.

NSAIDs	Frequency	Percent
None	182	30.2
Yes	420	69.8
Total	602	100.0

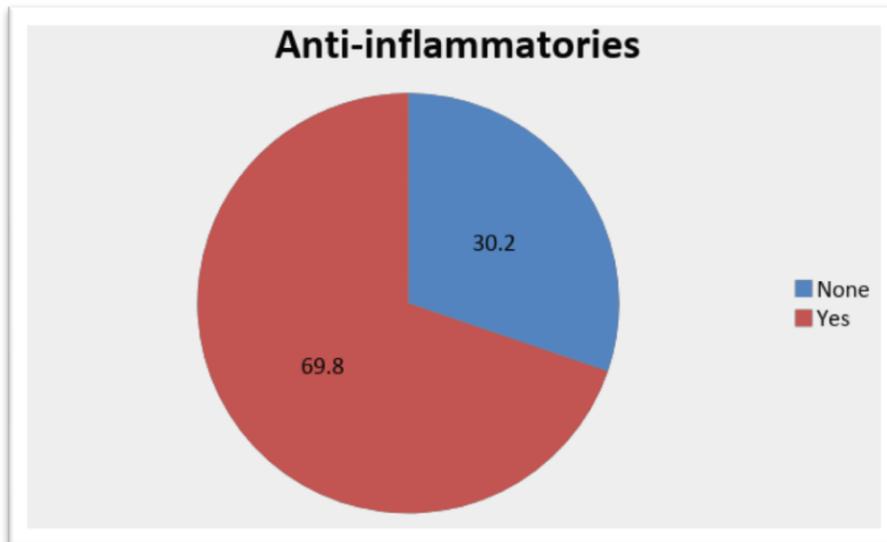


Fig 9 : Showing the number of patients treated with anti-inflammatory therapy.

iv) Aural Packing: Majority of the patients that underwent aural packing required daily revision aural packs (46%) for 3 days, consisting of topical antibiotic Nadifloxacin (1%) with steroid mometasone (0.1%). 15.8% required aural packing only once.

Aural Packing	Frequency	Percent
Not done	230	38.2
Once	95	15.8
Multiple	277	46.0
Total	602	100.0

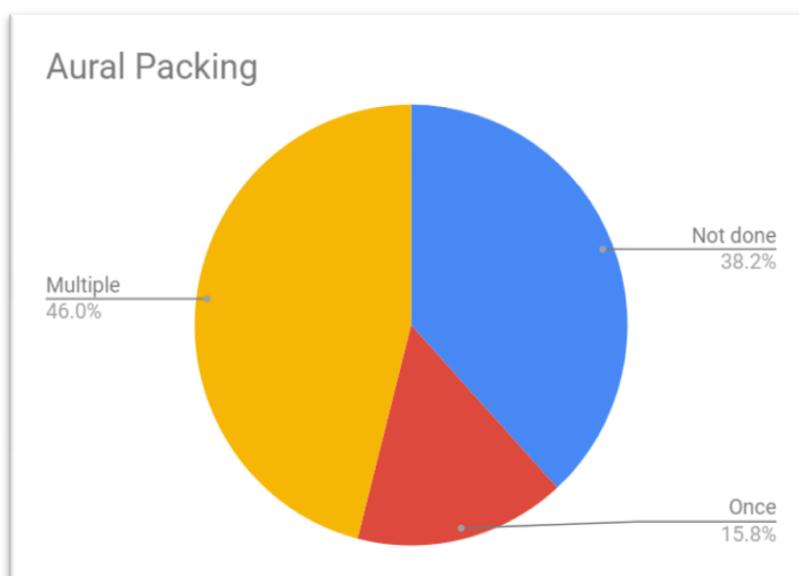


Fig 10 : Showing the number of patients treated with aural packing.

v) I & D (Incision and Drainage) : This was very rarely done in cases of Furunculosis with abscess formation.

Incision & Drainage	Frequency	Percent
Not done	599	99.5
Done	3	0.49
Total	602	100.0

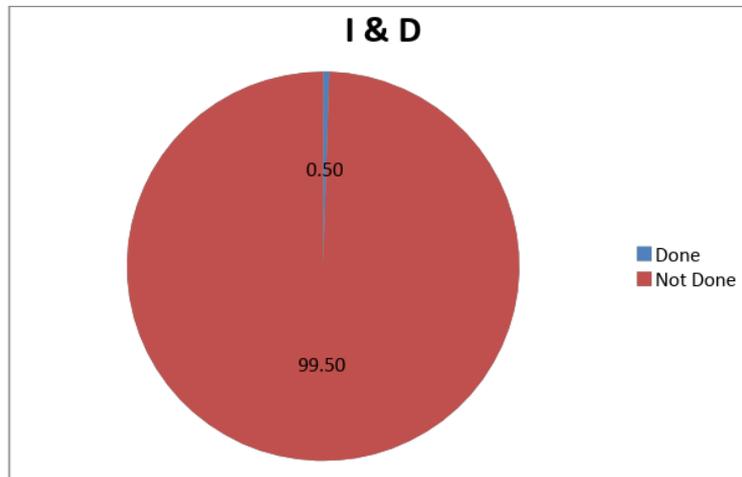


Fig 11 : Showing the percentage of I&D done

V. Discussion

Otitis externa is quite common in the RIMS Hospital out patient department. In the present study, we observed a prevalence rate of 3.059 cases per 100 ENT OPD cases. The ratio of otitis externa to the total ear cases was 0.0862. In 2015, Abdelazeem M, et al. studied the epidemiology, causative agents and risk factors affecting human otomycosis infections and concluded that *Aspergillus niger* was the most common fungus causing otomycosis at their hospital in Egypt and found the incidence to be higher in spring and summer seasons⁵. In 2018, Hlavsa MC, et al. studied the outbreaks associated with treated recreational water and concluded that pathogens able to evade chlorine inactivation have become leading outbreak etiologies⁶. According to Wiperman J, et al. 1-3% of the population are affected every year⁷. Almost 10% of the population suffer from this disease at some point in their lives⁸.

Local injury to the ear canal and entry of water into the ear canal were the main predisposing factors in our study. Otomycosis with diffuse otitis externa were also common. In the rest of the patients, there was no known predisposing factor.

Localised otitis externa in the form of a furuncle formed 17.61% of the total cases in our study.

46.2% of the cases suffered in the right ear while 49.5% suffered in the left ear. 4.3% suffered in bilateral ears.

Complications didn't occur often. It occurred in 7.3% of the total otitis externa patients. Periauricular cellulitis formed 63.6% of the total complicated cases, followed by perichondritis which formed 31.82%. Trismus was seen in 4.55% of the total complicated cases. In 1994, Hopkin RJ, et al. studied the presentation of otitis externa resembling mastoiditis⁹. Block SL also wrote about six cases of children who presented with peri-auricular redness, out of which some had protuberant ear and retro-auricular cellulitis¹⁰. Nitzan DW studied the acute facial cellulitis and trismus originating in the external auditory meatus¹¹.

Otitis externa can be self limiting but most patients require regular cleaning of the external auditory canal and topical antibiotics or antifungals. Systemic antibiotics are required at times. In 2014, Lorente J, et al. analysed ciprofloxacin plus flucinolone acetonide versus ciprofloxacin alone in the treatment of diffuse otitis externa and concluded that the combination therapy is more effective than ciprofloxacin alone¹². In 2015, Zhou Z, et al. studied the fungal culture of 60 patients with otitis externa and concluded that ear endoscopy was sufficient for diagnosis of otomycosis and also a thorough debridement of the ear and usage of compound resorcinol solution is an easy and effective treatment approach¹³. In 2018, Walker DD, et al. studied the in vitro susceptibility of ciprofloxacin-resistant methicillin-resistant *Staphylococcus aureus* to ototopical therapy and concluded that the practice of ototopical monotherapy for such patients was sufficient¹⁴. Heward E, et al. studied the microbiology and antimicrobial susceptibility of otitis externa and demonstrated the increasing resistance of *P aeruginosa* to aminoglycosides while remaining sensitive to quinolones¹⁵. Brennan TE et al in 2012 reviewed

the medical records of 209 patients who presented to their ENT clinic with acute Otitis Externa that was resolved with oral and/or topical antibiotics and concluded that that fluid is often present in the Middle Ear or mastoid in patients with acute Otitis Externa whose symptoms will resolve with oral and/or topical antibiotics¹⁶. Fusconi M et al in 2011 conducted a prospective, double-blind, controlled study in two stages to evaluate the role of biofilm in chronic otitis externa and concluded that Chemical Ear Peeling is a simple and effective method for the treatment of chronic external otitis. The removal of the bacterial biofilm has a high correlation with a long-term clinical remission¹⁷.

Sander R, et al. advocated the use of 2% acetic acid to acidify the EAC and hydrocortisone to control the inflammation. He also added that 2% acetic acid is useful as prophylaxis after exposure to moisture¹⁸. Kuczowski observed that the most common bacteria were *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Proteus mirabilis*; which showed the best susceptibility to ciprofloxacin and amikacin¹⁹.

Such patients require systemic antibiotics. In our study, 46.2% of the patients required systemic antibiotics. 46% of the patients in our study required aural packing for 2-3 days with daily change of packs. 15.8% required aural packing only once. Incision and drainage were done in only 2.2% of the patients in our study.

VI. Conclusion

Otitis externa is a common, painful and potentially dangerous condition. Timely consultation with an ENT specialist and starting the appropriate treatment is key to its management. In RIMS Hospital, otitis externa is mainly treated with topical antibiotics or antifungals. Oral antibiotics are required whenever complications are present or patient discomfort is severe. Aural packing helps in reducing pain and canal oedema. Incision and drainage is reserved for furuncle and abscess formation.

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