

MALIGNANT OTITIS EXTERNA – OUR EXPERIENCE

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ABSTRACT

Objective: In this study, we aim to find out different symptoms and treatment outcomes of patients who are diagnosed with malignant otitis externa according to Levenson's criteria, attending ENT OPD in a tertiary care hospital.

Methods: This is a prospective study, conducted over 18 months from August 2018 to February 2020 in the Department of ENT, GITAM Institute of Medical Sciences and Research, Visakhapatnam. Patients typically presented with nocturnal otalgia, persistent otorrhea, hearing loss, and aural fullness. Consent from patients for participation in the study has been taken. Complete history and thorough clinical examination were made, along with relevant investigations.

Results: Out of the 15 patients selected, MOE is more common in males (60%) than females (40%). The most common organism isolated is *Pseudomonas aeruginosa*. Nocturnal otalgia was the presenting complaint in all the patients. The age group commonly affected with MOE is 60–75 years. Facial nerve palsy is seen among 46% of the patients. Dry mopping and application of betadine wick after the scrapping of granulations and reasonable glycemic control was helpful in-patient recovery in 50% of the cases.

Conclusion: Malignant otitis externa (MOE) is an aggressive infection representing a life-threatening condition. In our patients, a prolonged topical and oral antibiotic treatment and strict control of glycemic levels permitted to control the disease, but the surgical approach by debridement of granulations appeared essential for the resolution of the disease.

Keywords: Malignant otitis externa, Granulations, Nocturnal otalgia, Persistent otorrhea.

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INTRODUCTION

Malignant otitis externa (MOE), also known as necrotizing otitis externa, is an unusual but severe and potentially fatal condition. It is an invasive Pseudomonas infection of the external auditory canal and deep periauricular tissues that characteristically involve bone and adjacent cartilage, leading to osteomyelitis of the base of the skull. Otitis externa is typically seen in elderly diabetic patients. Diabetes has an increased pH in the cerumen, which facilitates the growth of Pseudomonas species. People with diabetes are more vulnerable because of associated endarteritis, microangiopathy, and small vessel obliteration. *Pseudomonas aeruginosa* is the causative organism in 95% cases. Malignant otitis externa was coined by Chandler [1,2]. The patient presented with nocturnal otalgia, persistent ear discharge not responding to medication, external auditory canal granulations, and cranial nerve palsies. They are commonly seen in elderly and immunocompromised patients. The treatment consists of debridement of granulations in the external auditory canal and anti-pseudomonal drug therapy. Before the advent of antibiotics, the mortality rate was around 50%. In this study, we aim to find out different symptoms and treatment outcomes of patients who are diagnosed with malignant otitis externa according to Levenson's criteria, attending ENT OPD in a tertiary care hospital.

METHODS

This prospective study was conducted over 18 months from August 2018 to February 2020 in the Department of ENT, GITAM Institute of Medical Sciences and Research, Visakhapatnam. Patients typically presented with nocturnal otalgia, persistent otorrhea, hearing loss, and aural fullness. Consent from patients for participation in the study has been taken. Complete history and thorough clinical examination were made, along with relevant investigations.

Inclusion criteria

The following criteria were included in the study:

1. Patients of all age groups have persistent ear discharge as the main complaint.
2. People with diabetes complaining of nocturnal otalgia
3. The patient came with some other ear symptoms and was diagnosed with hearing loss.
4. Patients are given consent for study on them.
5. Patients are willing to undergo all types of investigations to diagnose the cause of hearing loss.
6. The patient coming for regular follow-up.

Exclusion criteria

The following criteria were excluded from the study:

1. Patients not giving consent for study on them.
2. The patient not willing for different investigations prescribed.
3. The patient was not coming for regular follow-up.

Laboratory examination

An erythrocyte sedimentation rate (ESR), white and red blood cell counts, glucose and creatinine levels, and ear secretion culture are all required laboratory tests. Because the ESR is usually raised in necrotizing external otitis, it's a good measure of how well the treatment is working. Ear secretions should be cultured before starting topical or systemic antibiotic therapy because susceptibility patterns may alter after treatment begins (i.e., bacteria might become resistant to an antibiotic during treatment).

RESULTS

The total number of patients attending ENT OPD is 15,000 from August 2018 to February 2020. Of these, 5,800 presented with ear complaints, 1,000 people presented with ear discharge, and 15 patients who presented with persistent otorrhea and nocturnal otalgia were

Table 1: Age- and sex-wise distribution of patients

Age in years	Female	Male	Total	Percentage
50-60	2	4	6	40
60-75	4	5	9	60
Total	6	9	15	100

Table 2: Clinical presentation of cases

Presentation	Number	Percentage
Nocturnal otalgia	15	100
Persistent discharge	15	100
Granulations	9	60
Facial nerve palsy	6	40
Diabetes mellitus	15	100

Table 3: Micro-organisms isolated

Organisms	Number	Percentage
<i>Pseudomonas aeruginosa</i>	11	73.33
<i>Staphylococcus</i>	2	13.33
<i>Klebsiella</i>	1	6.66
<i>Proteus</i>	1	6.66
Total	15	100

selected for the study. Out of 15 patients, nine patients are male (60%), and six are female (40%) (Table 1). Among 15 patients, six patients (40%) belong to the age group of 50-60 years, and 9 patients (60%) belong to the 60-75 age group, which indicates otitis externa incidence increases in the elderly (Table 1). Out of the 15 patients, all 15 patients (100%) have nocturnal otalgia, persistent otorrhea, and associated immune-compromised state of diabetes. Only 60% presented with granulations in the external auditory canal, and 40% presented with facial nerve palsy (Table 2). Among the 15 patients, in 11 patients, *Pseudomonas aeruginosa* was isolated as the primary pathogen (73.33%), followed by *Staphylococcus aureus* (13.33%), and 6.66% of *Proteus* species and *Klebsiella* species were isolated (Table 3).

DISCUSSION

Malignant otitis externa is common in immunocompromised individuals. Diabetes remains to be the most common predisposing factor. Most of the ENT OPD patients complained of persistent ear discharge even after repeated topical antibiotic drop application and nocturnal otalgia. On examination, ear discharge was foul-smelling, and external auditory canal granulations were present. After performing culture and sensitivity with the pus sample, *Pseudomonas aeruginosa* was a commonly isolated microorganism. In our study, all 15 patients have diabetes mellitus, which correspond to the study conducted by Yang *et al.* (2020) [3]. In our study, males are more commonly affected than females, and our results correlate to a survey conducted by Musa *et al.* (2015) [4]. Whereas in the study conducted by Rowlands *et al.* (2001) [5], there is a female preponderance. *Pseudomonas aeruginosa* is the most typical organism isolated in our study, whereas in a study

conducted by Musa *et al.* (2015) [4], only 6% of the cases had isolated the *Pseudomonas aeruginosa*. In our study, facial nerve palsy was recorded in 40% of the cases. This result corresponds to the study conducted by Soudry *et al.* (2007) [6] and Matthew *et al.* (2008) [7], but that will not determine the prognosis of disease outcome.

CONCLUSION

Malignant otitis externa is an aggressive infection that can represent a life-threatening condition. In our patients, a prolonged topical and oral antibiotic treatment and strict control of glycemic levels permitted to control the disease, but the surgical approach by debridement of granulations appeared essential for the resolution of the disease. The aural toilet with the elimination of the necrotic and granulation tissue and betadine wick lead, in fact, to the aeration of the tympanic cavity, helping the resolution of the disease. In our patients, we obtained the complete resolution of the infection without any recurrence over a year, confirming, according to the literature, that the presence of facial paralysis does not represent an adverse prognostic factor. In our study, physiotherapy played a key role in improving facial nerve palsy Grades 3-4.

AUTHORS' CONTRIBUTION

The authors' HM and SAV had performed the work, wrote the article, and collected the literature.

CONFLICTS OF INTEREST

The authors declared no conflicts of interest.

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