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Study of Causes of Otagia in Ear and Non-Ear Diseases

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ABSTRACT

Introduction: Otagia is defined as ear pain, it is one of the most common complaints with which a patient presents to ENT OPD or emergency department

Aims and Objectives: To identify causes of otagia in the ear and non-ear diseases in patients visiting the ENT OPD of Saveetha Medical College and Hospital in Tamilnadu, India.

Methodology: The study was conducted on 40 patients who visited the ENT OPD of Saveetha Medical College and Hospital with an earache. Patient's details such as age, sex, complaint, causes and physical finding were recorded in an excel sheet and. The study tools used in the study are clinical examination and investigations.

Result: The leading cause of otagia was found to be non-ear diseases (60%) from the study done on 40 patients with an earache in the ENT OPD of Saveetha Medical College and Hospital. Dental pain was the leading cause and was to be the cause in males predominantly over females by three times. Otitis externa was the leading cause of ear diseases followed by acute otitis media, chronic suppurative otitis media and by impacted wax.

Conclusion: Since the last century there have been many studies to show the non-ear causes of otagia which is caused by referred pain from other sites which are connected with the ear by different nerves, Since classifying the cases of otagia as those caused by ear and non-ear-diseases will help in the assessment and treatment of the pain.

Key Words: Primary otagia, Classification of otagia, Observational study, Ear pain, Causes of otagia, Non-ear causes of otagia, Referred pain

INTRODUCTION

Otagia is defined as ear pain, it is one of the most common complaints with which a patient presents to ENT OPD or emergency department. There are two distinct types of otagia, primary otagia where the underlying pathology is in the ear and secondary otagia where the underlying cause is elsewhere. The origin of pain may be in the ear, structures around the ear or other head and neck structures. This is due to the complex nervous connections in the head and neck areas, the ear, the pharynx and the nose.¹ The primary causes of otagia are often benign and can be easily identified on examination such as trauma, infection, lodging of foreign bodies, otitis media, otitis externa, acute otitis media, discharge and primary neoplasms which can be identified through otoscopy. The secondary causes of otagia are considered only when the cause is not obvious and cannot be identified by

primary investigations, these causes include barotrauma, dental inflammation and infection, temporomandibular joint disorders, trigeminal neuralgia, head and neck cancers, arytoid arthritis. Certain grave diseases such as temporal arteritis and malignant neoplasms present as ear pain.^{1,2}

Objective:

- To find the most common cause of ear pain in ear pathology
- To find the most common cause of ear pain in non-ear pathology

Methodology

It is an observational study conducted in 2020 on 40 patients who visited the ENT OPD of Saveetha Medical College and Hospital with an earache after obtaining Institutional ethical committee clearance(SMC/IEC/2020/03/321). Those

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patients with a previous history of head and neck surgeries were excluded from the study. All patients underwent thorough ENT examination, head and neck examination and investigation to find the cause of their otalgia. The patient's details such as age, sex, complaints, findings from examination and investigations and the cause of otalgia were all recorded in an excel sheet and tabulated.

RESULTS

In the ENT OPD of Saveetha Medical College and Hospital in 2020, 40 patients with otalgia were studied. The causes of otalgia were diagnosed and were categorized into non-ear diseases and ear diseases it was found that most common cause of otalgia is non ear pathology, 60% (24) cases. The ear causes of otalgia were about 40% (16) cases (Figure 1).

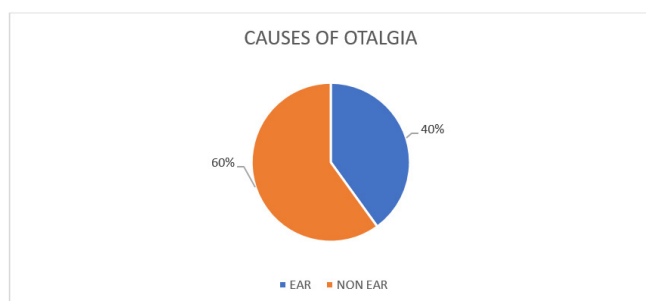


Figure 1: Causes of otalgia among the study participants.

These non-ear cases were referred to other departments for a thorough examination and confirmation of the cause of otalgia. The most frequent non-ear causes were toothache (20%) with male dominance in the cases with a ratio of 3:1, followed by cervical spine lesions (12.5%) with the cause being more frequent in women with a ratio of 4:1, followed by TMJ arthritis and tonsillitis (10%) both with an equal number of cases in both sexes in the prior and a male dominance seen in the latter, pharyngitis (5%) is seen in equal numbers in both sexes and the least cause being carcinoma of larynx (2.5%) (Table I).

Table I: Non-ear causes of otalgia among the study participants.

Non Ear Causes	Incidence	Male	Female	Male Female Ratio
Dental	20%	6	2	3:1
TMJ (Temporo-mandibular joint) Arthritis	10%	2	2	1:1
Cervical Spine Lesions	12.5%	1	4	1:4
Tonsillitis	10%	3	1	3:1
Pharyngitis	5%	1	1	1:1
Cancer Larynx	2.5%	1	0	nil

The major cause among ear diseases was otitis externa (30%) followed by acute otitis media (25%) and chronic suppurative otitis media (25%) and impacted wax (20%) being the least cause in patients with earache (Figure 2).

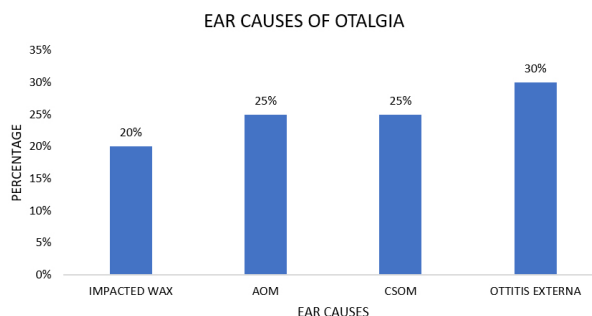


Figure 2: Ear causes of otalgia among the study participants.

DISCUSSION

Otalgia is one of the most uncomfortable experiences for all age groups making them seek the doctor in almost all cases. This is due to the complex innervation of the ear. The outer, middle and internal ear are all complex and small structures that are very sensitive.² In our study, 55% of patients with ear pain, the pain was caused by non-ear diseases which is much less than the study conducted by Mohammed et al, where among 770 patients suffering from otalgia, 12.2% had the referred type of pain.³ In this study non-ear causes of otalgia are seen more in men (55%) than in women (45%) which is consistent with the Kiakojoori et al. study which is of 60% men and 40% women.⁴ In our study the most prevalent cause is dental (20%) which is following study by Mohammed et al.³ In a study conducted by Kim et al., toothache was accounted for as the most common cause of referred otalgia.⁵ In a study conducted by Zhraa et al. the second most frequent nerve pathways to cause secondary otalgia is cervical spine lesions (24.3%) which is consistent with our findings where cervical spine lesion causes referred otalgia in 12.5% of the cases.⁶ In Behnoud et al study the most common cause is a temporomandibular joint which is against our study where it causes referred otalgia in 10% of the cases.³ In our study there is one case of carcinoma which is consistent with the study conducted by Reiter et al. which reports a case of carcinoma manifesting as a non-ear disease cause of otalgia. In a study conducted by Mulwafu et al. among 17 patients with carcinoma, 33% of the cases suffered from referred otalgia.⁷ In a study conducted by Mohammed et al., 1% of the non-ear cause of referred otalgia was due to carcinoma which is lesser than our study with 2.5% of the cases.² In a Similar study by Neilan et al patients presenting with otalgia posing diagnostic challenges, undergo a detailed history and examination to find the aetiology to be secondary causes of otalgia

as seen in our study.⁸ Referred otalgia has been a well-known condition of the ear since early 1910. The results from our study are similar to another study conducted by Chen et al., which shows that in recent decades the development of CT and MRI technology has helped in identifying the cervical lesions causing otalgia which contributes to about 12.5% of the cases.⁹ In our study 10% of the cases are due to TMJ disorder caused otalgia, due to the affected complex synovial system, articulating ligaments and masticatory muscles which in par goes with a study done by Shalender Sharma et al.¹⁰

CONCLUSION

In this study, it is seen that non-ear diseases are the leading cause of otalgia than ear diseases. Thus, making it important to note that dental hygiene has to be checked in patients with otalgia. To diagnose the cause other than dental, different parts sharing the nervous connections are to be examined for identification and confirmation of cause to provide suitable treatment. Simple awareness of ear hygiene and methods to keep the ear clean can bring about a large reduction in the ear causes of otalgia. A thorough diagnostic study of the structures surrounding and in and around the ear required to detect malignancies.

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Authors contribution:

Bryan Joel Devaraj– Data collection, Writing the manuscript.

Dr. Meenakshi.M – Data collection, Writing the manuscript, Study design, Final draft correction and review.

Dr. Deepak Raj. K– Writing the manuscript, Study design, Final draft correction and review.

Abbreviations:

ENT- Ear, nose and throat,

OPD- Outpatient department

Key points:

- 60% of the study participants had a non-ear pathology that caused the otalgia and 40% had an ear pathology that caused the otalgia.
- Otitis externa is the most common ear pathology that caused otalgia among the study participants.
- The most frequent non-ear cause of otalgia was toothache.

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