

## PATTERN OF TYMPANIC MEMBRANE PERFORATION IN IBADAN: A RETROSPECTIVE STUDY

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**ABSTRACT****Background:** Tympanic membrane perforations vary in size, shape and position. The degree of conductive deafness varies with the size and position of the tympanic membrane perforation.**Objective:** This study is to determine the pattern and causes of tympanic membrane perforation.**Method:** Hospital based study at the ENT Clinic, UCH, Ibadan. Consecutive patients seen during the period of study with ear symptoms were interviewed and examined by ENT surgeons. This information was entered into computer and analyzed using SPSS v 11.**Result:** Thirty-three (13.5%) of the 244 patients were found to have tympanic membrane perforation. Fifteen (45.5%) patients were new while 18 (54.5%) were follow up patients. There were 13 (39.4%) males and 20 (60.6%) females. The type of perforation seen were central 57.6%, subtotal 33.3%, total 6.1%, marginal 3.0%. The sides affected were left ear 45.5%, right ear 15.2%, and both ears 39.4%. The causes found were chronic suppurative otitis media (CSOM) 90.9%, acute suppurative otitis media (ASOM) 6.1%, and trauma to the affected ear 3.0%. CSOM was the cause of tympanic membrane perforation seen in children.**Conclusion:** There is need for early diagnosis and treatment of all cases of tympanic membrane perforation and proper education of parents and guardians on proper method of ear care and early referral. There is also need to train all healthcare workers especially primary health care providers on how to manage these cases.**Keywords:** Pattern, tympanic membrane perforation, diseases of the ear**INTRODUCTION**

The tympanic membrane lies obliquely across the end of the external ear canal, separating the external and the middle ear<sup>1</sup>. It has three layers derived from the partition between the first branchial groove and the pharyngeal pouch. These are an outer epithelial layer, a middle fibrous layer and an inner mucosal layer<sup>1</sup>.

Tympanic membrane perforation results from trauma to the ear, infective agents, tumours and iatrogenic causes<sup>2,3</sup>. Identified causes include foreign body or unskilled instrumentation or syringing; sudden air compression as in boxing, hand-slap, blast<sup>2,3</sup>. Infective causes could result from acute suppurative otitis media (ASOM) and chronic suppurative otitis media (CSOM)<sup>3,4</sup>. CSOM was found to be more common in Nigeria and strongly associated with low socioeconomic status usually resulting in late presentation<sup>5,6,7,8</sup>.

The chronic discharging ear may be serous, serosanguineous, or mucopurulent with wide range of bacteria being cultured<sup>9,10,11</sup>. Usually, size and location of tympanic membrane perforation affects the degree of hearing loss<sup>12,13</sup>. Chronic infection as a result of the perforation can cause major hearing loss<sup>13,14</sup>.

This study aim to determine the pattern and causes of tympanic membrane perforation among patients who presented with ear symptoms and make necessary recommendations.

**MATERIAL AND METHOD**

This is a one month retrospective study (1/5/2000-31/5/2000) done at the Ear Nose Throat (ENT) Clinic of the University College Hospital (UCH), Ibadan. UCH is the pioneer teaching hospital in Nigeria. All patients that attended the clinic during the period of study with ear symptoms were included in the study. Only patients who did not consent were excluded. Consecutive patients seen during the study period had their demographic data obtained from them or their patients/guardians who brought them to the clinic after taking their informed consent. Subsequently otological examination for tympanic membrane perforation was performed by ENT surgeons using the head mirror, electric light source and a battery powered otoscope. This data was entered into computer, cleaned and statistical analysis was performed by using SPSS version 11. Ethical consideration included taking informed consent from respondents, using serial numbers and

not names to maintain confidentiality and making recommendations to appropriate authorities.

## RESULTS

A total of 33 patients with tympanic membrane perforation in either or both ears were described in this study out of the 244 patients seen at the ENT Clinic during the month of study. Fifteen (45.5%) were new patients while 18 (54.5%) were follow ups. About half 15 (45.5%) of the respondents were children. There were 13 (39.4%) males and 20 (60.6%) females.

Age (years)	Number	%
< 2	6	18.2
2-9	3	9.1
10-18	6	18.2
19-29	6	18.2
30-39	3	9.1
40-49	4	12.1
= 50	5	15.2
Total	33	100.0

Table 1: Age distribution of patients with tympanic membrane perforation

Type	Number	%
Total	2	6.1
Subtotal	11	33.3
Central	19	57.6
Marginal	1	3.0
Total	33	100.0

Table 2: Type of tympanic membrane perforation in study participants

Table 2 showed the type of tympanic membrane perforation. The type of perforation seen were central 57.6%, subtotal 33.3%, total 6.1%, marginal 3.0%.

Side	Number	%
Right	5	15.2
Left	15	45.5
Bilateral	13	39.4
Total	33	100.0

Table 3: Side of ear of respondents affected by tympanic membrane perforation

Table 3 showed the side of ear of respondents affected by tympanic membrane perforation. The sides affected were left ear 45.5%, right ear 15.2%, and both ears 39.4%.

Cause	Number	%
CSOM	30	90.9
ASOM	2	6.1
Trauma	1	3.0
Total	33	100.0

Table 4: Cause of tympanic membrane perforation among respondents

Table 4 showed the cause of tympanic membrane perforation among respondents. The identified causes of perforation were CSOM 90.9%, ASOM 6.1%, and trauma 3.0%.

In children, CSOM was the cause of tympanic membrane perforation. The sides affected in children were left ear 27.3%, right ear 45.4%, and both ears 27.3%.

Figure 1: Type of tympanic membrane perforation in children

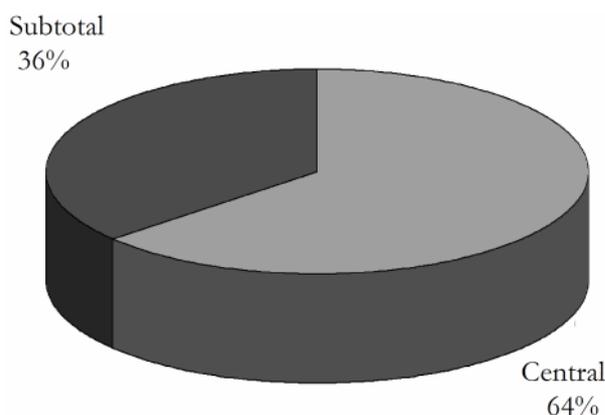


Figure 1 showed identified types of tympanic membrane perforation in children. Central constituted 64.0% while subtotal made up 36.0%.

## DISCUSSION

Tympanic membrane perforation represented 13.5% of the patient seen showing that tympanic membrane perforation is quite common among patients seen at ENT Clinic, UCH. Also about half of these patients with tympanic membrane perforations were children. This is due to the high prevalence of causes of tympanic membrane perforation in these patients especially among the children. CSOM was found to be the commonest cause of tympanic membrane perforation in all age groups which is in keeping with previous studies. In this study CSOM was the cause found in 91% of adults with tympanic membrane perforation and the only cause found in children with tympanic membrane perforation. For example, Okafor BC, 1983 in a study on the pattern of diseases of the ear in SE Nigeria reported that CSOM constituted

44.8% of the defined otological work-load of the out-patient practice <sup>6</sup>. Another study on prevalence of otitis media in school going children in Eastern Nepal reported that although various middle ear pathologies were detected among the children studied, chronic suppurative otitis media was the most common <sup>15</sup>. A study on patterns of ear disease in the Southwestern American Indian reported that CSOM constituted 45% of diseases of the ear seen at their ENT center <sup>16</sup>.

ASOM constituted only 6% of the patients with tympanic membrane perforation in this study. This is most likely because of late presentation of these patients as they might have tried some other forms of care before coming to the clinic. The ENT Clinic is a tertiary referral center receiving patients from the General outpatient and other secondary/ primary health care centers all over the state and beyond. Various studies had showed that ASOM precedes CSOM and in populations where the patients reported early, ASOM is more common <sup>2,4,6,7</sup>.

Trauma to the ear accounted for only 3% of the study participants. Studies had showed that traumatic rupture of tympanic membrane are caused by foreign bodies which result in conductive deafness worsened by unskilled attempts at foreign body removal <sup>16,17</sup>.

In conclusion this study had described the pattern of tympanic membrane perforations and the aetiology among patients attending ENT Clinic, UCH. Ibadan. There is need for detection and quick referral of patients with ear complaints by parents/guardians to ENT surgeons hence need for proper education of parents and guardians on management of ear complaints. Also need to train all healthcare workers especially primary health care providers on management of diseases of the ear.

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