



A STUDY OF OUTCOME OF TYMPANOPLASTY ASSESSED BY AUDIOGRAM IN TERTIARY CARE HOSPITALS IN SOUTH INDIA

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ABSTRACT

Tympanoplasty is a surgical technique to repair defect in tympanic membrane with placement of graft. The goal of surgical procedure is not only to close the perforation but also improve the hearing. In this study our aim is to find out the improvement in hearing followed by tympanoplasty in various age groups of people. This is a prospective study conducted over a period of 3 months from august 2016 to october 2016 in dept of ENT in two tertiary care hospitals GITAM institute of medical sciences and GOVT ENT hospital Visakhapatnam. Patients who were willing for study were randomly selected from the in patient wards. Complete history and thorough clinical examination and required investigations were done.

In our study we found following results:

- Out of the 50 patients selected pre operative hearing loss is common in female(60%) compared to male(40%).
- Among the selected patients hearing loss is common among age group of 20 to 40 years.
- Hearing loss is common unilaterally Left 44% right 34% and bilateral 22%.
- Post operative hearing improvement is more common in male 57.14% compared to female 42.85%

KEYWORDS : TYMPANOPLASTY, CONDUCTIVE HEARING LOSS, PURE TONE AUDIOGRAM

INTRODUCTION:

Tympanoplasty is indicated to restore hearing disability and prevent recurrent otorrhea. Optimal results can be achieved through use of the appropriate surgical technique. Surgical Tympanoplasty was introduced by Berthold and later developed and modified by Wullstein and Zollner. The various surgical approaches to tympanoplasty include endomeatal (per meatal), endaural, and post-auricular routes. A surgical technique using either underlay or overlay of grafts over the perforated TM has been employed by various surgeons. The underlay is widely used and is relatively simple to perform.

Hearing loss can be conductive or sensorineural or mixed depending upon the whether it is arising from external ear middle ear or inner ear, but in our study hearing loss is purely conductive and caused due to perforation of tympanic membrane.

Pre operative and post operative audiograms are conducted and the air bone gap is measured in all the cases.

AIMS AND OBJECTIVES:

To find out the improvement of hearing followed by tympanoplasty by performing pre operative and post operative audiogram among the patients attending ENT department in 2 tertiary care hospitals.

MATERIALS AND METHODS:

This is a prospective study, conducted over a period of 3 months from august 2016 to october 2016 in department of ENT in 2 tertiary care hospitals GITAM institute of medical sciences and GOVT ENT hospital Visakhapatnam.

The patients who have conductive hearing loss with significant air bone gap with safe type CSOM irrespective of age were considered. Patients who came for post operative follow up where only included in the study. Thorough clinical examination and pure tone audiogram are done in all the 50 cases.

INCLUSION CRITERIA:

1. Patients of all groups having conductive hearing loss due to perforation of tympanic membrane were included.
2. Patients giving consent for study on them.
3. Patients willing for post-operative follow up.
4. Patients who are willing to undergo all investigations.

EXCLUSION CRITERIA:

1. Patient not giving consent of study
2. Patients with complications like cholesteatoma and mastoiditis.
3. Patients with mixed or sensorineural hearing loss.
4. Patients not coming for regular follow up are excluded from the study.

OBSERVATIONS:

From Aug 2016 to Oct 2016, 200 patients with ear disease have attended ENT opd in GITAM institute of medical sciences and GOVT ENT hospital out of which 100 patients were operated for both unsafe and safe type of CSOM. Out of which 50 patients who came for regular follow up were selected for the study.

Table 1: show the age and sex distribution of all the patients with hearing loss. It shows out of 50 patients 10 patients were below 20 years of age (7 female and 3 male) 25 patients were from 20 to 40 years of age (14 female and 11 male) and 15 patients were from 40 to 60 years of age (9 female and 6 male).

Table 1: age and sex distribution (n=100)

Age in yrs	Female	Male	Total	percentage
>20	7	3	10	20%
20 to 40	14	11	25	50%
40 to 60	9	6	15	30%
>60	-	-	-	-
total	30	20	50	100%

Table 2 shows that out of 50 patients 22 patients (44%) present with left side 17(34%) patients presented with right side and 11 patients (22%) presented with both ears hearing loss

Table 2: presentation of hearing loss (n=100)

Side	Gitamhosp	Govthosp	Total	percentage
Left	10	12	22	44%
Right	9	8	17	34%
Bilateral	1	10	11	12%
total	20	30	50	100%

Table 3 shows preoperative degree of hearing loss among the 50 patients >26 db loss was seen in 3 patients(6%), mild hearing loss was

seen in 16 patients (32%), moderate hearing loss was seen in 13 patients (26%), moderately severe was seen in 14 patients(28%), severe was seen in 4 patients(8%).

Table 3: degree of hearing loss (n=100)

Degree	Total	Percentage
>26	3	6%
Mild(26-40db)	16	32%
Moderate(41 to 55db)	13	26%
Moderately severe(56 to 70db)	14	28%
Severe(71to 90db)	4	8%
Profound	-	
Total	50	100%

Table 4 shows the hearing improvement observed in pure tone audiogram in post operative cases who came for follow up out of which 5 cases(10%) there was residual perforation ,5 cases(10%) there was graft rejection, 5 cases (10%) no hearing improvement so for this table only 35 cases were considered out of which 10 to 20 db improvement was seen in 10 cases(28.5%),20 to 30 db improvement was seen in 20 cases(57%) and more than 30db was seen in 5 cases(14%).out of which 20 were males and 15 were females.

Table 4: post operative improvement (n=35)

Degree	10 to 20db	20to 30db	>30db	Total	Percentage
males	5	12	3	20	57.14%
females	5	8	2	15	42.85%
total	10	20	5	35	100%

DISCUSSION:

Hearing loss is one of most common complaint with which patients come to ENT department in day to day practice.in our study we are assessing the outcome of tympanoplasty with pure tone audiogram for which we are performing both pre-operative and post-operative audiometry.

According to the present study females are more affected than males(females 60% males 40%), but according to Liu H, Zhang H, Bentler RA, Mo L, Han D, Zhang L study 2011(1) males and females are equally affected.

According to present study commonest age group to be affected is 20 to 40 years(50%) these findings correspond with Liu H, Zhang H, Bentler RA, Mo L, Han D, Zhang L study in 2011(1) who reported that the commonest age group of presentation of hearing is 30-60 years which is 48.4%.

In our study commonest degree of hearing loss is mild to moderate constitutes to 58%. These findings correspond with Margolis RH, Saly GL study 2008(2) who also reported that commonest degree was moderate (45%).

In our study post operative hearing improvement is seen in 70% of the cases with 10 to 20 db improvement in 28.5% 20 to 30 db improvement in 57% and >30db improvement in 14% these findings correspond to Serge et al reported that tympanoplasty resulted in a 57-97% improvement in patients' hearing function. Mishra et al. reported hearing gain of 10-30 dB in 95% of their cases.

Conclusion:

A total number of 200 cases of ear disease who attended GITAM institute of medical sciences and GOVT ENT hospital 50 cases of safe disease with conductive hearing loss were selected on whom tympanoplasty was performed and came for regular follow up

This study is aimed to find out the improvement of hearing followed by tympanoplasty by performing pre operative and post operative audiogram

- Out of 50 members selected hearing loss is common in females (60%) compared to males(40%)
- Among the selected patients hearing loss is common among the age group of 20 to 40 years(50%)
- Hearing loss has Unilateral presentation , more commonly left(44%) than bilateral in 12 cases(11%)
- Post operative hearing improvement is more in men compared to women (male 57% female 43%)
- Hearing improvement of around 20 to 30 db is seen in 57.14% followed by 10 to 20 db in 28.5%.
- Among the 50 cases 5 cases did not show any improvement in hearing(10%).
- Tympanoplasty not only improve otorrhoea but also hearing.

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