

Result of Type-I Tympanoplasty in Patients of Geriatric Age Group With Mucosal Type of chronic otitis Media In A Rural Based Tertiary Care Hospital:

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Abstract

Objective: The aim of this study is to evaluate the result of type-I tympanoplasty in geriatric age group (age > 60 years) in terms of closure of perforation and hearing improvement.

Study Design: It's a prospective study done between July 2015 to December 2016 at Burdwan Medical College and Hospital, Burdwan.

Materials and Method: 40 new cases with mucosal type of Chronic Otitis Media (COM) are included in this study. Type-I tympanoplasty done for all cases. At 6 months post operatively patients are examined for graft uptake status and hearing improvement.

Result: among 40 patients 26 were male and rest 14 were female, mean age of our sample is 63.65 with SD 10.39. Patients mostly complain about discharge from the affected ear (90%) and hearing loss (83%). The pre and post-operative pure tone mean are calculated at 0.5kHz, 1kHz, 2kHz and 3kHz frequency respectively. Hearing gain is measured as the difference of mean of pre and post-operative pure tone averages. Hearing gain is significant with p value < 0.05 in all frequencies measured.

Conclusion: Type-I Tympanoplasty operation is very successful operation in geriatric patients with COM in achieving an intact tympanic membrane and better hearing.

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I. Introduction

In Chronic Otitis Media (COM), the inflammation involves middle ear mucosa, resulting into permanent abnormality of pars tensa and pars flaccida. Mucosal type COM characterized by perforation in pars tensa of tympanic membrane.¹ Patients with COM mostly complaint about hearing loss and discharge from the affected ear. Role of Tympanic membrane is very important in middle ear sound transfer mechanism.² In developing country like us, COM is a most common cause of hearing impairment.² Reconstructive surgery (tympanoplasty) remains the main treatment option in safe type COM and it remains effective in making the ear dry and improving hearing disability.³ The aim of this prospective study is to evaluate the result of tympanoplasty in geriatric age group in terms of closure of perforation and hearing improvement.

II. Materials And Methods

Patients with COM with central perforation, aged more than 60 years, are selected for type-I tympanoplasty at ENT department, Burdwan Medical College and Hospital, Burdwan from July 2015 to December 2016.

Surgically fit Patients who met the following criteria are included in this study:

1. Aged above 60 years, with a clinical diagnosis of COM without cholesteatoma or loss of ossicular chain integrity.
2. Pre-op pure tone audiometry with hearing loss < 60 dB

Study design: 40 New cases who met the above inclusion criteria were included consecutively. After taking informed consent, details of all patients were recorded in a fixed proforma (demographic profile, symptom profile, examination findings, pre-op audiometry, surgical procedure and post-op audiometry). After routine workup and investigation, Type-I tympanoplasty was performed in all selected patients under a monitored anesthesia care (MAC) via post-aural approach. Temporalis fascia graft was used to close the perforation. Audiometry was done at 6 months post operatively.

III. Result & Discussion

A total of 40 patients with COM, aged > 60 years were studied. Demographic profile and symptom profile of all patients are as in Table-1.

Demographic profile: **Table:1**

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G e n d e r		R e l i g i o n	
M a l e	F e m a l e	H i n d u	M u s l i m
2 6 (6 5 %)	1 4 (3 5 %)	1 8 (4 5 %)	2 2 (5 5 %)

Otitis media, croup and lower respirator tract infections are more common in males compared to females.⁴ In our study, number of male patients is predominant. Muslim patients are also slightly more than Hindu patients as daily OPD attendance of Muslim patient are higher. All patients are registered in four age group and their distribution is as in Table:2. Mean age is 63.65 with standard deviation of 10.39. The mean age of patients diagnosed with chronic otitis media is increased significantly than previous decade in one study done by Lin YS et al.⁵

Table:2

Age group (years)	n = n u m b e r	M e a n = 6 3 . 6 5 SD=10.39
6 1 - 6 5	3 0 (7 5 %)	
6 6 - 7 0	8 (2 0 %)	
7 1 - 7 5	2 (0 5 %)	
> 7 5	0 (0 0 %)	

In our study most patients presented with symptom of intermittent ear discharge (36 patients=90%) and decreased hearing (33 patients=83) which is gradually progressive. Symptom duration varies from 5 months to 23.5 years, mean=12.4 years with SD=7.453. According to Peter Morris, chronic otitis media causes recurrent or persistent otorrhoea and it is a common cause of hearing impairment, disability, and poor scholastic performance.⁶ Among the 40 patients, 21 have left ear disease, rest 19 have right ear disease. 21 patients have large central perforation where as 19 have small to moderate size perforation. Table 3 and Table 4 show the pre-operative and post-operative pure tone audiometry result.

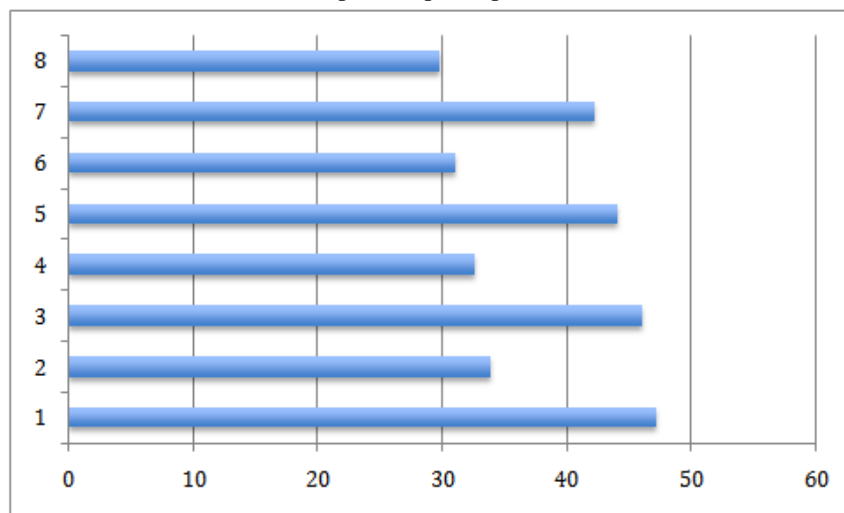
Table 3:Pre-operative Audiometry:

F r e q u e n c y (k H z)	M e a n (d B)	S	D
0 5	4 7 . 2 2 5	8 . 8 0 1	
1	4 5 . 9 7 5	8 . 5 0 2	
2	4 4 . 0 5	8 . 3 7 6	
3	4 2 . 2 5	8 . 1 7 9	

Table 4: Post-operative Audiometry:

F r e q u e n c y (k H z)	M e a n (d B)	S	D
0 5	3 3 . 8 7 5	9 . 8 6 2	
1	3 2 . 6 2 5	9 . 6 2 0	
2	3 1 . 0	9 . 5 3 8	
3	2 9 . 7	9 . 3 2 3	

Chart-1: distribution of pre and post-operative audiometric mean-



Number on horizontal axis represents hearing in dB
 Number on vertical axis represents:
 1=pre op mean at 0.5kHz, 2=post op mean at 0.5kHz
 3=pre op mean at 1kHz, 4=post op mean at 1kHz

5=pre op mean at 2kHz, 6= post op mean at 2kHz
 7= pre op mean at 3kHz, 8= post op mean at 3kHz

Table 5: Hearing gain: difference of mean ofpre and post-operative pure tone averages.

F r e q u e n c y (k H z)	d e l	M e a n (d B)	p	v	a	l	u	e
0	5	1 3 . 3 5	<	0	.	0	5	
1		1 3 . 3 5	<	0	.	0	5	
2		1 3 . 0 5	<	0	.	0	5	
3		1 2 . 5 5	<	0	.	0	5	

Hearing gain is significant with p value <0.05 in all frequencies measured, our result comparable with other studies. E.S. Kolo⁷ et al in their study showed the mean of pre and post-operative pure tone average difference (hearing gain) was 12.192 dB (SD 12.924); and this was statistically significant ($p < 0.05$). In their study Shabbir Indorewala⁸ et al stated over 86% of patients had improvement in their hearing function post-operatively with significant p value. 3 out of 40 patients had persistent perforation of tympanic membrane at 6 months after surgery. So in 37 (92.5%) patients, there is closure of tympanic membrane at 6month post-operatively and these groups of patient achieve dry ear.ate of closure of tympanic membrane perforation is comparable with other studies where the rates are 90.4%³, 89%^{9,10}, 93%¹¹ etc. Graft failure rates (7.5%) also close to rates of 9.6% in other study.³ Hearing improved in all patients having intact graft 6-month post operatively. Those(3 patients) with persistent perforation post operatively do not show any audiological hearing deterioration.¹²Temporalisfasia graft used in our cases and according to study of John Mathai.¹³its an excellent graft material in order to achieve hearing improvement as well as graft intake.

IV. Conclusion

Type-I Tympanoplasty operation is very successful operation in geriatric patients with COM in achieving an intact tympanic membrane and better hearing. So, Type-1 tympanoplasty operation can be performed regularly in this age group of patients. Remembering the sample size is small,a multi-center based standardized study with large number of patients should be included to show more accurate result.

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