

## A comparative study of tympanoplasty with or without mastoidectomy in treatment of chronic suppurative otitis media tubotympanic type

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### Abstract

**Background:** The present study was conducted to compare tympanoplasty with or without mastoidectomy in treatment of chronic suppurative otitis media tubotympanic type. **Materials & Methods:** The present study was conducted on 82 patients of chronic suppurative otitis media tubotympanic type of both genders. Patients were randomly divided into 2 groups of 41 each. Group I patients underwent tympanoplasty alone and group II patients underwent cortical mastoidectomy with tympanoplasty. **Results:** Duration of ear discharge was 4-6 years in 23 in group I and 27 in group II, 7-10 years in 12 in group I and 10 in group II and >10 years in 6 in group I and 4 in group II. Degree of hearing loss was mild in 34 in group I and 36 in group II and moderate in 7 in group I and 5 in group II. Size of perforation was medium in 4 in group I and 9 in group II, large in 26 in group I and 22 in group II and subtotal in 11 in group I and 10 in group II. The difference was significant ( $P < 0.05$ ). The mean audiological assessment before was 38.12, after was 28.46 and benefit was 9.66 in group I and 38.24, 26.4 and 11.84 respectively in group II. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that both the methods of treating cases of chronic suppurative otitis media tubotympanic type were equally effective.

**Keywords:** chronic suppurative otitis media, mastoidectomy, tympanoplasty.

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### Introduction

Chronic otitis media is an inflammatory process of the mucoperiosteal lining of the middle ear space and mastoid. CSOM is a middle ear infection presenting with features of ear discharge and permanent perforation of tympanic membrane. Risk factors include low socioeconomic status, poor nutrition and lack of health education in rural population. Mastoidectomy was first described by Louis Petit in the 1700s[1]. In this condition, there is thickening of mucus membrane owing to edema, sub mucosal fibrosis, and infiltration with chronic inflammatory

cells. It has been estimated that approximately 6% of Indian population is suffering from chronic ear disease [1,2]. Myringoplasty is routinely performed procedure for correction of tympanic membrane defects. Various factors such as physical injury, scalds, burns, pressure effects, head injuries or infection process can result into tympanic membrane perforation.

Surgery performed in this condition is to eliminate disease process and reconstruct the hearing mechanism [3]. Tympanic membrane perforation repair can also be done with tympanoplasty[4]. Mastoid plays an important role in middle ear aeration and pressure regulation.

Failure in patients with chronic noncholesteatoma otitis media may be due to deficiency of aeration of mastoid at the time of initial tympanoplasty, hence cortical mastoidectomy along with tympanoplasty is regarded as surgical procedure of choice[5].

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The present study was conducted to compare tympanoplasty with or without mastoidectomy in treatment of chronic suppurative otitis media tubotympanic type.

### Materials & Methods

The present study was conducted in the Department of Otorhinolaryngology. It comprised of 82 patients of chronic suppurative otitis media tubotympanic type of both genders. Consent from all patients was obtained and institutional ethical clearance was also taken.

Patient information such as name, age, gender etc. was recorded. A thorough clinic examination by trained ENT surgeon was performed. Patients were randomly divided into 2 groups of 41 each. Group I patients underwent tympanoplasty alone and group II patients underwent cortical mastoidectomy with tympanoplasty. All were subjected to x-ray mastoid shuller's view, PNS view and x-ray nasopharynx. Tympanoplasty and mastoidectomy was performed via postaural approach. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

### Results

**Table 1: Distribution of patients based on method of surgery performed**

Groups	Group I	Group II
Method	Tympanoplasty	Tympanoplasty with cortical mastoidectomy
Number	41	41

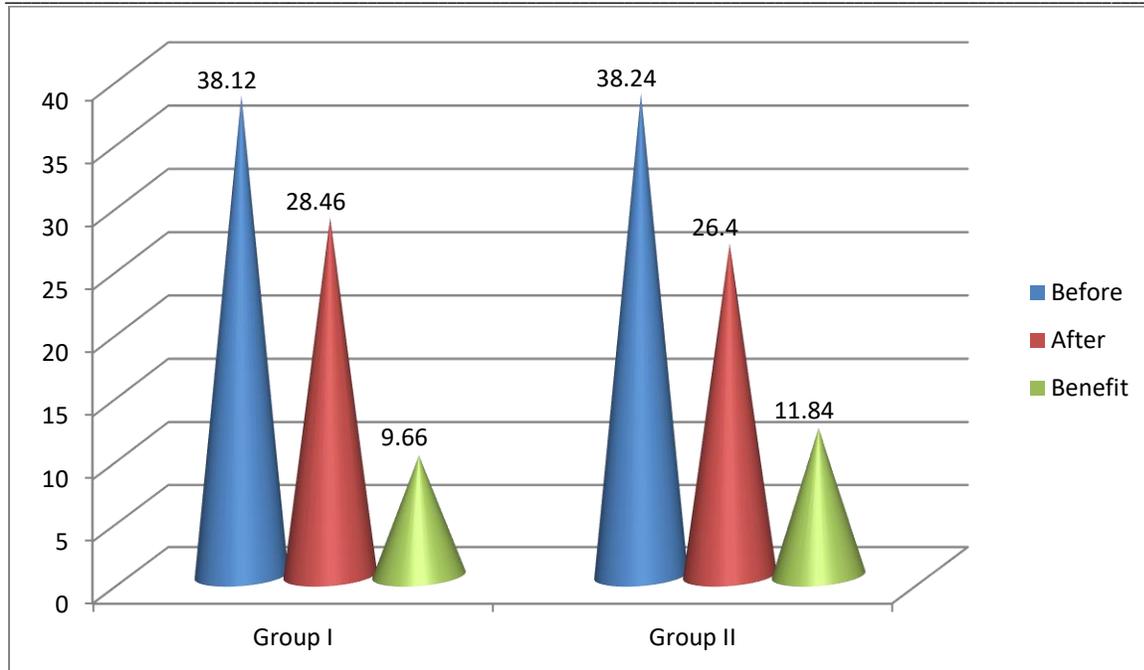
Table 1 shows distribution of patients based on method of surgery performed. Each group had 41 patients.

**Table 2: Assessment of parameters in both groups**

Parameters	Group I	Group II	P value
Duration of ear discharge (years)			
4-6	23	27	0.01
7-10	12	10	
>10	6	4	
Degree of hearing loss			
Mild	34	36	0.001
Moderate	7	5	
Size of perforation			
Medium	4	9	0.05
Large	26	22	
Subtotal	11	10	

Table 2 shows that duration of ear discharge was 4-6 years in 23 in group I and 27 in group II, 7-10 years in 12 in group I and 10 in group II and >10 years in 6 in group I and 4 in group II. Degree of hearing loss was mild in 34 in group I and 36 in group II and moderate

in 7 in group I and 5 in group II. Size of perforation was medium in 4 in group I and 9 in group II, large in 26 in group I and 22 in group II and subtotal in 11 in group I and 10 in group II. The difference was significant ( $P < 0.05$ ).



**Fig 1: Audiological assessment**

Fig 1 shows that mean audiological assessment before was 38.12, after was 28.46 and benefit was 9.66 in Group I and 38.24, 26.4 and 11.84 respectively in Group II. The difference was significant ( $P < 0.05$ ).

## Discussion

Cortical mastoidectomy is performed with myringoplasty in cases of active chronic suppurative otitis media to clear the mastoid reservoir of infection [6].

Chronic suppurative otitis media represents the most common disease of the middle ear cleft [7]. Mastoid factors include the extent of mastoid pneumatization and the presence of inflammatory disease in the mastoid. But there are differing opinions regarding doing mastoidectomy with tympanoplasty in these patients [8].

The present study was conducted to compare tympanoplasty with or without mastoidectomy in treatment of chronic suppurative otitis media tubo-tympanic type. In present study, patients were randomly divided into 2 groups of 41 each.

Group I patients underwent tympanoplasty alone and Group II patients underwent cortical mastoidectomy with tympanoplasty. Yaor et al [9] conducted a study in which age of patients ranged from 9 to 84 years with a mean age of 37 years underwent myringoplasty and 24% of their patients being children aged 9 to 15 years.

We found that duration of ear discharge was 4-6 years in 23 in group I and 27 in group II, 7-10 years in 12 in group I and 10 in group II and >10 years in 6 in group I and 4 in group II. Degree of hearing loss was mild in 34 in group I and 36 in group II and moderate in 7 in group I and 5 in group II. Size of perforation was medium in 4 in group I and 9 in group II, large in 26 in group I and 22 in group II and subtotal in 11 in group I and 10 in group II. Agrawal et al [10] conducted a study on 40 patients in which tympanoplasty alone and tympanoplasty along with cortical mastoidectomy was done in 20 cases each. Hearing improvement was 9.41 in tympanoplasty group and 12.05 in tympanoplasty combined with cortical mastoidectomy group. Graft uptake was 80% and 95% in group I and II respectively.

4 patients exhibited recurrence of discharge of tympanoplasty. Results of study showed statistically non-significant difference in tympanoplasty alone and tympanoplasty along with cortical mastoidectomy in terms of hearing gain and graft uptake. We found that mean audiological assessment before was 38.12, after was 28.46 and benefit was 9.66 in group I and 38.24, 26.4 and 11.84 respectively in group II. Balyan et al [11] in a study conducted on 48 patients with CSOM, treated by means of tympanoplasty with and without mastoidectomy found no significant difference in graft failure rates or hearing results. They also concurred

that the addition of mastoidectomy had increased effort and risk to the surgery.

Kawatra et al[11] in their study found that graft rejection rate was higher in Group II (tympanoplasty with cortical mastoidectomy) as compared to Group I (tympanoplasty alone), however, this difference was not significant statistically. Authors reported no change in laterality in either of two groups. Group II revealed slightly more mean change in AB Gap as compared to Group I although this difference was statistically non-significant. The shortcoming of the study is small sample size.

### Conclusion

Authors found that both the methods of treating cases of chronic suppurative otitis media tubotympanic type were equally effective.

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