

TYMpanoplasty IN CHILDREN: OUR EXPERIENCE



ENT

KEYWORDS: Tympanoplasty,
Myringoplasty, CSOM in children.

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ABSTRACT

OBJECTIVE: To know whether tympanoplasty should be performed in pediatric age group or not.

METHOD: A prospective comparative study was conducted where 102 cases of CSOM with central perforation of different age group were selected. The outcome of tympanoplasty surgery below 12 years, below 16 years and above 16 years were compared.

RESULT: The success rate found in above age groups were 81.2%, 86.2% & 91.2% respectively. The difference of result in different age group is statistically insignificant.

CONCLUSION: Tympanoplasty in children is safe and effective. Age is not a factor for tympanoplasty in properly selected cases having no focal sepsis in nose, sinuses, tonsils & adenoids etc.

INTRODUCTION:

Chronic suppurative otitis media (CSOM) and Acute suppurative otitis media (ASOM) are the common diseases of the middle ear causing perforation of the tympanic membrane and conductive hearing loss in all age group. This is especially more common in developing countries due to low socio economic status, unhygienic lifestyle, poor nutritional status etc.[1]

There is no controversy about operating a case of CSOM with attic antral disease & cholesteatoma irrespective of age. But the controversy still exists when to perform surgery in cases of children having CSOM with central perforation.

Tubotympanic type of CSOM with central perforation is usually treated by doing tympanoplasty surgery which is a procedure to eradicate the disease from the middle ear and to reconstruct the hearing mechanism with or without tympanic membrane grafting.[2] Type-1 tympanoplasty which is nothing but a simple myringoplasty [3] is mostly required for central perforation without any ossicular damage.

Many otologist advocate postponing the tympanoplasty procedure in children below 12 years [4] The explanations for the above suggestions are;

1. Children are more prone to frequent upper respiratory tract infection leading to re-perforation.
2. Many perforations which may heal spontaneously in future.
3. The external auditory meatus is narrow which make the surgical procedure very difficult.
4. The eustachian tube may not be fully developed or functional which may adversely affect the result.

Similarly quite a few surgeons advocate in favour of tympanoplasty in young age group for the following reasons.

1. Doing tympanoplasty in children prevent recurrent middle ear infections and restrict the further damage and complications.
2. As the cochlear reserve is usually good potential for restoring & preserving hearing is very high.
3. doing a prompt tympanoplasty improve the quality of life and allows child to enjoy water games.

This study is under taken to find out if the age of the patient is a factor in influencing the surgical outcome of tympanoplasty.

AIM OF THE STUDY.

To compare the outcome of tympanoplasty surgery below 12 years, below 16 years and above 16 years

MATERIALS AND METHOD:

The study was conducted from June 2012 to May 2015, in department of E.N.T., IMS and SUM Hospital, Bhubaneswar.

102 cases are included in this study. They were divided into 4 groups.(table-1)

Table-1

Group	Age	Number of cases
Group-A	7-11	16
Group-B	12-16	29
Group-C	17-55	57
Group-D	7-15(age below-16= A+B)	45
Total number of cases		102

A complete ENT examination was done to rule out cases having adenoid hypertrophy, chronic tonsillitis, chronic sinusitis, nasal polyp and other nasopharyngeal pathology. 4 cases are taken into the study after adeno tonsillectomy was done in first stage. Those who do not agree for prior surgery for adenoid and tonsil problem are excluded from the study. 6 cases having sinusitis, chronic pharyngitis and upper respiratory tract infection were treated conservatively and after successful recovery were included in the study. Any residual focus of infection in nose and paranasal sinuses are excluded from the study group depending upon the CT scan PNS finding. Pure tone audiogram was done in every case to find out the type and degree of hearing loss. Type-1 tympanoplasty was done in every case by the same surgeon by underlay method and all the cases were followed for a period of 1 year. Intact tympanic membrane and dry ear after 1 year of the surgery was the only parameter taken for successful outcome.

OBSERVATION:

In this study out of 102 cases 45 cases were children within 16 years of age. These 45 children were again divided into 2 groups. Children between 7 to 12 were included in group-A & children between 13 to 16 years of age were included in group-B.

Group-A had 16 children and group-B had 29 children. Total numbers of adult patients between 17 to 55 age group were 57 which were included in group-C. Total number of patients within 16 years of age, which is the combination of group-A & group-B were 45 which were included in group-D.

Table-2

Group	Number of cases	success	Failure	Success rate
Group-A	16	13	3	81.2%
Group-B	29	26	3	89.3%
Group-C	57	52	5	91.2%
Group-D	45	39	6	86.6%

The success rate in group-A was 13 out of 16 cases, which is 81.2%. The success rate in group-B was 26 out of 29 cases, which is 89.3% and in group-C it was 52 out of 57, which is 91.2%. In group-D out of total number of 45 patients' success was found in 39 patients, which is

86.6%. (Table-2)

There were 6 failures out of 45 cases in age group of 7 to 16, out of these failures grafts were rejected in 4 cases & perforations noticed in first 2 months of follow-up period. The other two cases re-perforations occurs within 6 months follow-up period.

Out of 57 cases of adult patients 5 failure cases were noticed. All failure cases developed central perforation and recurrent discharge. The causes of the failure were difficult to predict. But the eustachian tube dysfunction and problems in ventilating pathway may be the probable causes of the failure.

DISCUSSION:

Acute suppurative otitis media & chronic suppurative otitis media are common problems in children. The tympanic membrane perforation and impaired hearing caused by ASOM & CSOM is a significant disability in children. However there is no consensus among otologist whether to perform tympanoplasty in children or not.

House et al. In 1995 [5] conducted a study on 381 cases of tympanoplasty in children of 7 - 19 age group. They found a success rate of 81%.

Lau T & Tos M, on their study of 91 cases of tympanoplasty in the age group of 8 - 14 found success rate in 91% OF cases. [6]

Simillarely Blainshard et al. In 1990 in another study on 59 children of 7 - 14 age group found success in 78% of cases. [7]

It is difficult to compare the studies available in the literature because of the different age groups & subgroups, different measuring criteria for successful outcome and at the same time due to different technique and different experience level of the surgeon.

But at the same time the observation made in this study is comparable to many studies available in the literature.

In this study the success rate in the age group of 7-12 is 81.2%. It is comparable to the study of Raine & Singh (1983) who reported success rate

in age group of 9-12 is 84%. [8] The success rate also reported by Blainshard et al in the age group of 7-14 is 78%. [7]

In this study, it is observed that success rate of tympanoplasty in the age group of 12-16 is 89.3%, which is comparable to the study done by N.Gupta & R.K Mishra in 2000 where they found success rate in 12-15 age group is 90.24%. [9] Tos & Lau also in their study found success rate in 8-14 age group is 91%.6 In another study on 50 children of age group of 9-14 years A Srivastava & C Mohan found success in 86% of cases. [10]

The overall success rate in this study in the age group of 7-16 is 86.6%. It is comparable to the results of Lau & Tos (1986) where they found success rate of 91% in 8-14 age group. [6] Nishi Gupta & R K Mishra also observed a similar result of 86.54% in 8-15 years age group. [9]

In another observation made in this study it is found that the success rate of tympanoplasty in adult patients (16-55 age) is 91.2% which is marginally better than the children. The p value obtained by comparing the group C with group D is 0.303 which is statistically non significant.

Similarly comparing group-A (age 7-12) and group-B (age 13-16) the p value is 0.1052 which shows statistically non significant difference between the two group.

CONCLUSION:

It is concluded from this study that age of the patient does not have

any effect on success rate of tympanoplasty in CSOM with central perforations. Tympanoplasty in children is safe and effective.

W Y Adkins & B White (1984) in their study "type-1 tympanoplasty: influencing factors" found that age of the patients have no effect on success of tympanoplasty. [11]

But always attention should be paid to the proper selection of cases, prior treatment to the active focus of infection in nose, sinuses, adenoids and tonsils etc. Proper surgical technique and good post-operative care is more important than the age of the patients. Moreover by doing a successful tympanoplasty in children will limit the damaging effect of chronic infection in the middle ear.

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