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A STUDY OF TYMPANOPLASTY AND ITS OUTCOME IN VARIOUS AGE GROUPS USING THE MIDDLE EAR RISK INDEX SCALE

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ABSTRACT

Introduction: Otitis media is an important and a highly prevalent disease of the middle ear and poses serious health problem world-wide especially in developing countries where large percentage of the population lacks specialized medical care. With a large number of patients frequently undergoing tympanoplasty for chronic suppurative otitis media (CSOM), it is important to assess the severity of the disease and predict the outcome of the surgical management. **Aims:** To study MERI and result of tympanoplasty according to the risk category. **Materials and Methods:** The present study was a Prospective study. This Study was conducted from November 2021 to November 2022 at Department of Ear, Nose, and Throat (ENT), Patna Medical College & Hospital , Patna, Bihar, India. **Result:** In our study, Forty-nine of the 58 patients had unilateral and 18 had bilateral perforations. The surgical success rate was 92% in the former and 78% in the latter group (P =0.67). **Conclusion:** Our study showed that myringoplasty is a good treatment modality in the paediatric population and MERI scoring can be useful in predicting the outcome of tympanoplasty in all age-groups.

KEYWORDS

Chronic suppurative otitis media, middle ear risk index and tympanoplasty.

INTRODUCTION

There are many factors which influence the success rate of tympanoplasty.[1]These include age of the patient, size and site of the perforation, status of the ear (dry or discharging), and the surgical technique, but their real role is still unclear. Therefore, the reported success rate of tympanoplasty is extremely variable, ranging from 35% to 92%.[2]Furthermore, Bluestone et al[3] considered the postoperative recurrence of negative middle ear pressure or serous effusion as a surgical failure. There is no agreement as to the timing of the procedure. Some authors prefer to perform surgery as soon as possible to prevent disease progression, ossicular chain erosion, and the formation of cholesteatoma, avoid hearing loss in the speech development period, and allow swimming activities.[4]Others prefer to delay the operation because of the high incidence of upper respiratory infections during childhood, unpredictable Eustachian tube function, immature immunity, possible spontaneous healing, and the possibility of preventing recurrent middle ear infection because of the adequate ventilation allowed by tympanic perforation during the period of Eustachian immaturity.[5]

Many previous studies in the literature have found good correlation between middle ear risk index (MERI) developed by Kartush and success of tympanoplasty. MERI scoring can be useful in predicting the outcome of tympanoplasty, with low MERI having a good surgical outcome. Our study is different from previous studies in that we have used MERI in predicting the outcome of tympanoplasty in our cases.

Aims:
To study MERI and result of tympanoplasty according to the risk category.

MATERIALS AND METHODS

Study site:
Department of Ear, Nose, and Throat (ENT), Patna Medical College & Hospital, Patna, Bihar, India.

Study population:
All patients underwent detailed general physical examination and examination of ENT.

Study design: A Prospective study.

Period of study: November 2021 to November 2022.

Preoperative assessment of status of the ear before surgery (quiescent/inactive), Eustachian tube function, and type of hearing loss (conductive/mixed/sensorineural hearing loss) were done and recorded. Risk categories were derived from the MERI scoring chart given below, and the severity of the disease was noted. All the patients underwent tympanoplasty under same setup and by the same surgeon using postaural approach and the temporalis fascia as the graft material.

All the patients were followed up every 2 weeks for the 1st month. Thereafter, they were followed up monthly for at least 4 months, during which the assessment of graft uptake by otoscopy, subjective evaluation (hearing, tinnitus, and any other complaints), and repeat PTA and Eustachian tube function assessment was done. These findings were then evaluated and compared with preoperative findings.

RESULT AND DISCUSSION

The present study was a Prospective study. This Study was conducted from November 2021 to November 2022 at Department of Ear, Nose, and Throat (ENT), Patna Medical College & Hospital , Patna , Bihar , India.

This study was conducted on 74 patients of CSOM, and they were evaluated for graft uptake and hearing improvement according to the age and MERI scale. Furthermore, efficacy of MERI scale to determine the success of surgical outcome after tympanoplasty was also evaluated. In our study, majority of patients were in the age group of 11–30 years (75%). In a study conducted by Hussain,[6]66% of patients belonged to the age group of more than 25 years. Patient age has generally been considered as influencing surgical outcome, but the data reported in the literature are equivocal. Several authors in the literature have found better success with advancing age but, other authors have reported no significant correlation between age and surgical outcome. The former result may be due to the lower incidence of upper airway infections and better Eustachian tube function in later age and the relative immaturity of the immune system in younger children. We found no statistical difference in the success rate between our two age groups, a result that is in line with many author findings. This may have been due to the fact that our patients were aged 8 years or more and were thus probably unaffected by the inefficient tube function observed in children under the age of.

In our study, majority of patients were males (50%), similar to the study conducted by Hussain,[6] in which 58.4% were males and 41.6% were females. Most of our patients presented with chief complaints of ear discharge (96%), similar to other studies done by Sheahan et al[7] (in which ear discharge was present in 64% of patients) and Yazdi et al.[8] (ear discharge was present in 90% of cases).

Similarly, we found no significant association between discharging ear and success of graft intake. Forty-seven cases (60%) had ear discharge at the time of presentation, but 91% of patients with discharging ear had successful outcome after surgery. P = 0.27 was not significant. Many studies in the literature done by Albera et al[9] and Chandrasekhar et al.[10]found that otorrhea had no effect on the success of tympanoplasty. In our study also, cases with otorrhea most probably got improved due to better antibiotic and antihistaminic treatment given before and after the surgery.

In our study, 70 of 74 patients had conductive hearing loss, i.e., 96%, while 4% patients had mixed hearing loss. Of 71 patients of conductive

hearing loss, 39% had mild conductive hearing loss and 55% had moderate conductive hearing loss.

CONCLUSION

1. Our study showed that tympanoplasty is a valid treatment modality for TM perforations in all age groups.
2. MERI scoring can be useful in predicting the outcome of tympanoplasty in all age groups.
3. The evidence of a good audiological result in anatomically successful cases is associated with a highly probable return to normal function and lifestyle at any age.

Table 3: Age and success rate for type I tympanoplasty (total cases - 62)

Age (years)	Healed	Failed	Total
<10	13 (87)	4 (14)	17
>10	42 (89)	3 (10)	45
Total	55 (89)	7	62
P=0.77			

Table 5: Status of ear and postoperative graft intake

Status	Successful (%)	Unsuccessful (%)	Total
Dry	25 (78)	6 (23)	31
Discharge	35 (91)	4 (9)	39
Total	60	10	70
P= 0.27			

Table 6: Type of perforation and postoperative graft uptake

Perforation	Successful (%)	Unsuccessful (%)	Total
Unilateral	35 (92)	5(9)	40
Bilateral	15 (78)	3 (22)	18
Total	50	8	58
P=0.67			

REFERENCES

1. Adkins WY, White B. Type I tympanoplasty: Influencing factors. Laryngoscope 1984;94:916-8.
2. Yoon TH, Park SK, Kim JY, Pae KH, Ahn JH. Tympanoplasty, with or without mastoidectomy, is highly effective for treatment of chronic otitis media in children. Acta Otolaryngol Suppl 2007;(558):44-8.
3. Bluestone CD, Cantekin EI, Douglas GS. Eustachian tube function related to the results of tympanoplasty in children. Laryngoscope 1979;89:450-8.
4. Raine CH, Singh SD. Tympanoplasty in children. A review of 114 cases. J Laryngol Otol 1983;97:217-21.
5. Albu S, Babighian G, Trabalzini F. Prognostic factors in tympanoplasty. Am J Otol 1998;19:136-40.
6. Hussain A. Outcome of Myrinoplasty. J Postgrad Med Inst Peshawar 2004;18:695-8.
7. Sheahan P, O'Dwyer T, Blayney A. Results of type 1 tympanoplasty in children and parental perceptions of outcome of surgery. J Laryngol Otol 2002;116:430-4.
8. Karimi YA, Saedi B, Fayezizadeh M, Seifmanesh H. Association between audiometric profile and intraoperative findings in patients with chronic suppurative otitis media. Iran J Otorhinolaryngol 2011;23:63.
9. Albera R, Ferrero V, Lacilla M, Canale A. Tympanic reperforation in myringoplasty: Evaluation of prognostic factors. Ann Otol Rhinol Laryngol 2006;115:875-9.
10. Chandrasekhar SS, House JW, Devgan U. Pediatric tympanoplasty. A 10-year experience. Arch Otolaryngol Head Neck Surg 1995;121:873-8.