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SURGICAL OUTCOME IN PATIENTS OF CSOM WITH DIFFERENT TYPES OF TYMPANIC MEMBERANE PERFORATIONS(SAFE TYPE).

ENT

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ABSTRACT

Chronic otitis media (COM) is an important and a highly prevalent disease of the middle ear and poses serious health problem worldwide especially in developing countries. Chronic otitis media is often accompanied by varying degree of conductive hearing loss[2]. Loss of hearing is a national health problem with significant physical and psychosocial impact. The objective of this study is to correlate the size of perforation with hearing loss using pure tone audiogram and to evaluate the outcome of type 1 tympanoplasty in patients with chronic otitis media with tympanic membrane perforation at different sites.

Methods: The study was done on 120 patients with chronic otitis media who visited ENT and HNS OPD during Jan 2017 to Jan 2018. The patients were classified into four groups with each group containing 30 patients, according to the type of tympanic membrane perforations. Group A consisted of patients with small/medium perforation, group B with marginal perforation, group C with subtotal perforation and group D with total perforation. Type 1 tympanoplasty was done in all patients under general anaesthesia, after taking proper consent from all patients.

Results: The mean pure tone average for small/medium perforations was 21.73dB, for marginal 27.11 dB, for subtotal 34.45dB and for total perforation 43.38 Db. Mean air bone gap for small/medium, subtotal and total perforation was 13.45dB, 19.07dB, 32.38dB and 42.22dB respectively. Difference in mean pure tone average and mean ABG between different sizes of perforation is statistically significant. Hence we conclude that hearing loss increases with increase in size of perforation. Preoperatively, mean PTA threshold was 34.16dB and mean ABG was 24.26dB. Postoperatively, mean PTA threshold was 21.26dB and mean ABG was 11.26dB. The hearing improvement from preoperative level to 6 months postoperative level was statistically significant. Graft uptake in our study was seen in 88% of the cases. Out of 120 patients ,21 patients (17.5%) had residual perforation with highest percentage in group D(36.6%) followed by C(23.3%) and B(10%) as described in chart 1 above. Postoperative hearing outcome was excellent with hearing improvement with 10-15dB ABG, 10-20dB ABG, 15-25Db ABG and 20-33Db ABG in group A,B,C,D respectively,showing more improvement in hearing outcome with less ABG(air bone gape) in group A>B>C>D. similarly perforations were also divided in to anterior and posterior type depending on site of perforation In our study about 84 patients had posterior type perforation and rest 36 had anterior type of perforation. Posterior based perforations had good outcome in terms of hearing gain in dB, and ABG closure and less residual perforations than anterior based perforations.

Conclusion: In our study we found a statistically significant correlation between the size of perforation and the hearing loss and a statistically significant improvement in hearing following type I tympanoplasty.site of perforation also had statistically significant in terms of recurrence and hearing outcome.

KEYWORDS

AIMS

Our main aim of this study was to find out the surgical outcome in simple type1 (myringoplasty) in patients of CSOM with different types of tympanic membrane perforation size.viz(DCP dry centre perforation, sub-total, near total and total perforation)

OBJECTIVE

Objective of this study is to find out hearing outcome and also graft uptake in patients of CSOM with different types of tympanic memberane perforations undergoing myringoplasty using under-under-overlay technique. The objective of this study is to correlate size of perforation with hearing loss using pure tone audiogram and to evaluate the outcome of type 1 tympanoplasty in patients with chronic otitis media with tympanic membrane perforation

Inclusion criteria:

- All patients of chronic suppurative otitis media (CSOM) with tubo-tympanic disease.
- Patients in the age group between 18 and 65 years.
- Patients having dry ear for at least 6 weeks prior to surgery.
- Patients with pure conductive hearing loss on pure tone audiogram.

Exclusion criteria:

- Patients of CSOM with attico antral type of disease.
- Patients less than 18 or more than 65 years of age.
- Patients who didn't come for followup.
- Patients who found to have cholesteotoma or ossicular chain problems intraoperatively.
- Patients with Eustachian tube dysfunction (diagnosed by valsalva method and impedence audiometry).
- Patients with sensorineural hearing loss on pure tone audiometry.
- Patients who needed above type 1 surgical repair(type 2,3 etc).

Introduction:

CSOM is well known disease entity which every ENT surgeon comes across in daily practice. It has a great impact on patients quality of life and routine daily work. CSOM is one of the diseases with huge global burden. Chronic otitis media (COM) is an important and a highly prevalent disease of the middle ear and poses serious health problem worldwide especially in developing countries[1]. Chronic otitis media is often accompanied by varying degree of conductive hearing loss. Loss of hearing is a national health problem with significant physical and psychosocial impact. The objective of this study is to correlate size of perforation[2,3] with hearing loss[2] using pure tone audiogram and to evaluate the outcome of type 1 tympanoplasty in patients with chronic otitis media .Chronic otitis media has been defined as a longstanding inflammatory condition of middle ear and mastoid associated with perforation of the tympanic membrane. Chronic otitis media is most likely a result of acute otitis media, Negative middle ear pressure or otitis media with effusion. Chronic otitis media with perforation is often accompanied by varying degree of conductive hearing loss[2]. Loss of hearing is a national health problem with significant physical and psychosocial problem[1].

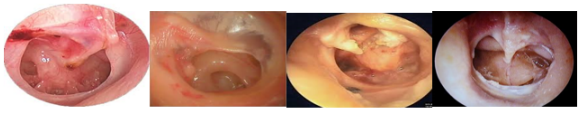
The surface area of an intact and normally vibrating tympanic membrane plays an important role in transmitting sound energy to middle ear. Perforation decreases the vibrating area of the tympanic membrane. It is a general view that hearing loss increases with increase in size of perforation[3,10]. This is more marked at lower frequencies than higher frequencies. It is also opined that size of perforation[10] does not influence the outcome of the tympanoplasty. This study is done to test

the validity of above concepts

Material and Methods:

This study was conducting in department of ENT and HNS Govt Medical College Srinagar (SMHS) for period of one year. All patients who had history of CSOM with non-healing tympanic membrane perforation with age above 18 years and below 65 years who fits the above criteria were included in this study.all these patients underwent otoscopic examination, pure tune audiometry(PTA), impedence audiometry, otoendoscopic examination for evaluation. All patients who fit to above criteria were included in the study. All these patients underwent operation myringoplasty, size of perforation as well site was noted in all patients.surgery was performed by single surgeon and graft was placed by single technique over-underlay method. Post operatively endoscopic examination as well pure tune audiometry was carried out in all patients. Hearing outcome was measured at 6months postoperatively using preoperative (PTA) as reference in all patients.total of 120 patients were included in this study.these patiuents were grouped in various groups depending on perforation size as described below

Group A. 30 patients with dry central perforation.
Group B. 30 patients with marginal perforation
Group C. 30 patients with near/sub-total perforation.
Group D. 30 patients with total perforation.



Various types of pars tensa perforations viz DCP, marginal,near/sub total and total type of perforation.

Perforations were also categorized in anterior and posterior type. In our study about 84 patients had posterior type perforation and rest 36 had anterior type of perforation.

Results:

PTA and otoscopic evaluation postoperatively was done in all groups included in this study.air-bone gape comparison was done using pre-operative (PTA) as reference for outcome. Surgical outcome in terms of graft failure as well residual perforation, blunting and post operative discharge was noted in all groups using otoscopic as well otoendoscopic methods for evaluation.

Table1;

	NO. OF PATIENTS	HEARING IN db(average gain) with ABG (post-operative)	Residual perforation	Discharge post operative
GROUP A	30	10-15dB ABG	Nil	nil
GROUP B	30	10-20db ABG	3(10%)	1
GROUP C	30	15-25dB ABG	7(23.3%)	1
GROUP D	30	20-33dB ABG	11(36.6%)	3

In our study mean pure tone average for small/medium(DCP), marginal and near/subtotal and total perforation was 21.73dB, 27.11dB, 34.45dB,43.38dB respectively. Mean air bone gap for small/medium, near/subtotal and total perforation was 13.45dB, 19.07dB, 32.38dB and 42.22dB respectively. Difference in mean pure tone average and mean ABG between different sizes of perforation is statistically significant. Hence we conclude that hearing loss increases with increase in size of perforation. Preoperatively, mean PTA threshold was 34.16dB and mean ABG was 24.26dB. Postoperatively, mean PTA threshold was 21.26dB and mean ABG was 11.26dB. The hearing improvement from preoperative level to 6 months postoperative level was statistically significant. Graft uptake in our study was seen in 88% of the cases. Out of 120 patients,21 patients (17.5%) had residual perforation with highest percentage in group D(36.6%) followed by C(23.3%) AND B(10%) as described in chart 1 above. Postoperative hearing outcome was excellent with hearing improvement with 10-15dB ABG, 10-20dB ABG, 15-25Db ABG and 20-33Db ABG in group A,B,C,D respectively,showing more improvement in hearing outcome with less ABG(air bone gape) in group A>B>C>D. similarly perforations were also divided in to anterior and posterior type depending on site of perforation In our study about 84 patients had posterior type perforation and rest 36 had anterior type of perforation as shown in table2.

Table 2;-

perforation on basis of site	no of patients 120(%age)	hearing gain in dB(post-operative)	residual perforation/ant blunting
Anterior	36(30%)	20-33dB ABG	8(22.2%)
Posterior	84(60%)	12-21dB ABG	2(2.3%)

Conclusion:

In our study we found a statistically significant correlation between the size[3,10] and site of perforation and the hearing loss.Also a statistically significant improvement in hearing following type I tympanoplasty and residual disease in terms of perforation or blunting of memberane following(myringoplasty).large perforations total,near/subtotal has worst prognosis also anteriorly based perforations have worst outcome in terms of hearing outcome and graft failure(residual perforation).So in our study ,we concluded that site and size[5,6,7] of perforation does effect hearing outcome as well have impact on graft uptake and disease recurrence in terms of perforation post operatively.

Discussion:

Type I tympanoplasty is one of the most commonly performed procedures in otorhinolarygology. With advanced microsurgical techniques and equipments and experince[9], the state of art facility has now developed to the extent that graft success rates of 90% to 97% are to be expected[4]. Several studies done in the past have reported good results with type I tympanoplasty with regard to hearing improvement, graft[8] uptake and achieving dry ear. A study on clinical profile of COM mucosal type with special reference to audiometric pattern in relation with site of tympanic membrane perforation and surgical management was carried out in 120 patients. In our study mean pure tone average for small/medium(DCP), marginal and near/subtotal and total perforation was 21.73dB, 27.11dB, 34.45dB,43.38dB respectively. Mean air bone gap for small/medium, near/subtotal and total perforation was 13.45dB, 19.07dB, 32.38dB and 42.22dB respectivelyGraft uptake in our study was seen in 88% of the cases. Out of 120 patients,21 patients (17.5%) had residual perforation with highest percentage in group D(36.6%) followed by C(23.3%) and B(10%) as described in chart 1 above. Postoperative hearing outcome was excellent with hearing improvement with 10-15dB ABG, 10-20dB ABG, 15-25Db ABG and 20-33Db ABG in group A,B,C,D respectively showing more improvement in hearing outcome with less ABG(air bone gape) in group A>B>C>D. Similarly site based anteriorly perforations had 22.2% failure rate and less air-bonr gape closure.Similar study done by **nayak eD et al *found*** mean pure tone average for small,medium and subtotal perforation was 23.73dB, 30.11dB,43.38dB respectively. Mean air bone gap for small, medium and subtotal perforation was 13.45dB, 20.07dB, and 31.38dB. Graft uptake in their study was seen in 88% of the cases. **Arindam Das etal** found success rate of 80% and failure rate of 20%. **. G. P.LEE Kelley,R.P.Mills[10]** in their study myringoplasty , does the size of perforation matter? Have found success rate of 74% in small perforation and 56% in large perforations. **Francisco j. Aviles jurado etal(2008)**[11] found success rate of 90% in small and 54.54% in large perforations.**Sudhangshu shekhar Biswas etal(2010)[12], zulfifal awan etal (2008)** found that small perforations has better success rate.**Awan Z, Bhat na etal(2000)**[13],gerdoroff m etal(1995)[13] in their study found success rate depends on site.**Glosscock ME, Siagh et al(2005)**[8] showed that graft integration rate was 34% in anterior and 90-100% in inferior and posterior perforation.

REFERENCES;

1. Saeed A, Ghamdi AL. Tympanoplasty;factors influencing surgical outcome. Ann Daudi Med. 1994;14;483-485.
2. Kaur K, Chadha S, Kumar D and Preethi. Evaluation of hearingloss in tympanic membrane perforation. Indian J Otolaryngol Head Neck Surg. 2011;63(3):208–213.
3. Lerut B, Pfammatter A, Moons J, Linder T. Functional correlation of tympanic membrane perforation size. Otol Neurotol.2012;33(3):379-86.
4. Jackson CG, Kaylie DM, Glasscock ME, Strasnick B.Tympanoplsty- undersurface graft technique. Otologic Surgery.3rd edition Saunders, Elsevier;2010:149-60 1):5–12
5. Knapik M, Saliba I. pediatric myringoplasty: A study of factors affecting outcome. Int J Pediatric -Otorhinolaryngol. 2011;75(6):818- 23.
6. Thiel G, Mills RP, Mills N. Factors affecting hearing improvement following successful repair of the tympanic membrane. J Laryngol Otol.2013;127(4):349-53.
7. Wasson JD, Papadimitriou CE, and Pau H. Myringoplasty:impact of perforation size on closure and audiological improvement.J Laryngol Otol. 2009 ;123(9):973-7.
8. Glasscock ME,Siagh, Jackson CG, Nissen AJ, Schwaber MK. Postauricular undersurface tympanic membrane grafting: A followup report. Laryngoscope.1982;92:718-27.
9. Emir H, Ceylan K, Kizilkaya Z, Gocmen H, Uzunkulaoglu, Samim E. success is a matter of experience: type I tympanoplasty. Eur Arch Otorhinolatyngol. 2007;264:595-99
10. .Leep,Kelly G,Myringoplasty does the size of perforation matter? Clin otolarngol.2002;27:331-334.
11. Aviles jurad.Fj,Mexan Gil Jl. Tobed secall M,at al Miringoplastia;seguimiento additive

Y studio de factores pronosticos. Acta otorrinolaringol Esp.2009;60:169-175
12. Shekhar Biswas, Hossain A, Alam M. hearing evaluation after myringoplasty. Bangladesh j otorhinolarngol.2010:16(1):23-28.
13. Awan Z, Bashir H, Myringoplasty: A comparative study of different graft materials and various surgical techniques. Ana Pak inst Med Sci:2008;4(4):209-211.