Section: ENT

Original Research Article

BILATERAL SEQUENTIAL TYMPANOPLASTY DONE ON SAME SITTING: DILEMMA RESOLVED

Alpesh D. Fefar[1], Hemangi Patel[2], Mukesh Dodia[3], Payalben S. Jivani[4]

[1]*Associate Professor, Department of ENT, GMERS Medical College, Morbi, Gujarat, India.*
[2]*Assistant Professor, Department of ENT, GMERS Medical College, Morbi, Gujarat, India.*
[3]*Associate Professor, Department of ENT, Dr. K.C. Patel Medical College and Research Institute, Bharuch, Gujarat, India.*
[4]*Assistant Professor, Department of Physiology, GMERS Medical College, Morbi, Gujarat, India.*

Received *: 05/11/2024*
Received in revised form *: 25/12/2024*
Accepted *: 09/01/2025*

Corresponding Author:
Dr. Payalben S. Jivani,
Assistant Professor, Department of Physiology, GMERS Medical College, Morbi, Gujarat, India.
Email: payal.physio1987@gmail.com

DOI: 10.70034/ijmedph.2025.1.41

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (1); 232-234

ABSTRACT

Background: Tympanoplasty is perhaps the most common surgical procedure performed by ENT surgeons. Though we see many patients with bilateral csom having perforation., we are not doing it on both sides simultaneously due to risk of sensory-neural deafness. Nowadays, highly skilled surgeries like cochlear implant are done on both sides simultaneously. **Aim:** We are presenting a study of 100 cases (200 ears) of bilateral single sitting tympanoplasties. Its effectiveness and safety.

Material and Methods: A total of 100 patients of both sexes with central perforation of tympanic membrane of both ears with mild to moderate conductive hearing loss were included in this study. This is a prospective study. The results were evaluated for the advantages and efficacy of single sitting bilateral type I tympanoplasty. Graft uptake at 6 weeks is considered success.

Results: In our study, there were 45 (45.33%) males and 55(54.75%) females. Half of the patients are in of 26 – 45 years age-group. The perforation closure was successful in 94% patients. Mean hearing gain 27.33 dB. None of the patients developed iatrogenic sensorineural hearing loss. The results are comparable with the tympanoplasties performed on one side only.

Conclusion: Single sitting bilateral type I tympanoplasty is safe day care procedure with a high success rate. In developing countries like India, it is very useful in shaving resources and adding into the development. Whenever possible bilateral tympanoplasty at one go should be attempted.

Keywords: Bilateral tympanoplasty, Bilateral CSOM, Simultaneous Tympanoplasty.

INTRODUCTION

Tympanoplasty is perhaps the most common surgical procedure performed by ENT surgeons. Though we see many patients with bilateral csom having perforation. We are not doing it on both sides simultaneously due to risk of sensory-neural deafness.[1-3] Nowadays, highly skilled surgeries like cochlear implant are done on both sides simultaneously. Cataract surgery, Total Knee Replacement are also done on both sides at one go.

Key words: Bilateral tympanoplasty, Bilateral csom, Simultaneous Tympanoplasty.

Aim: To study effectiveness of bilateral single sitting tympanoplasties.

To study its safety.

MATERIALS AND METHODS

Patients of both sexes with central perforation of tympanic membrane of both ears with mild to moderate conductive hearing loss were included in this study. All patients were explained about same day or sequential tympanoplasty, advantage and disadvantage of each. Those who consented for same day bilateral tympanoplasty were included. Initially 120 patients consented for bilateral tympanoplasty. Out of them 8 patients require ossiculoplasty and 12 patients lost follow up, so finally 100 patients were included This is a prospective study. Patients with bilateral tympanic membrane perforation were evaluated. Patients with discharging ear, AB gap more than 60dB,

perforation other than csom, requiring mastoidectomy, ossiculoplasty, revision cases were excluded from the study. Patients selected were investigated and posted for bilateral tympanoplasty. Ear with higher hearing loss was operated first. All surgeries performed were under general anesthesia. The graft is taken from one side only. The approach used for first ear is either post-aural or trans-canal while second ear is always trans-canal. In post aural approach graft used was temporalis fascia on both sides and trans-canal approach graft used is tragal cartilage with perichondrium. All surgeries were type 1 underlay tympanoplasties. The graft was stabilized with antibiotic gel foam, canal packed with Neosporin wick and box dressing was given on either side. Patients were discharged same day with 1 wk. course of antibiotics and anticold medications. The dressing removed and patient followed up at 3wks., 6wks. The results were evaluated for the advantages and efficacy of single sitting bilateral type I tympanoplasty. Graft uptake at 6 weeks is considered success. PTA is also repeated for gain of hearing.

RESULTS

The age and sex distribution

The patients belong to 21 to 60 years of age. There were 45 males and 55 females. Majority of the patients belong to 31 to 40 years of age. The mean of age is 37.7 years.

Table 1

Age/Sex	Male	Female	Total
21 - 30	10	16	26 (26%)
31 - 40	18	22	40 (40%)
41 - 50	9	11	20 (20%)
51 - 60	8	6	14 (14%)
Total	45 (45%)	55 (55%)	100 (100%)

The graft take up rate:

Table 2

Type	Success	Failure	Total
Temporalis	67 (96%)	3(4%)	70 (35%)
Tragal cartilage with perichondrium	121(97%)	9 (3%)	130 (65%)
Total	188 (94%)	12 (6%)	200 (100%)

Total 35 post-aural with trans-canal and 65 bilateral trans-canal tympanoplasties were done. Out of 35 post-aural tympanoplasties, in 67 ears graft was taken up and out of 70 bilateral trans-canal tympanoplasties, in 121 ears graft was taken up. Combining them graft was taken up successfully in 188(94%) ears. Failure was seen in 12 (6%) ears. Not a single case has bilateral failure. In 65% ears tragal cartilage with perichondrium and 35% ears temporalis fascia was used as graft material.

AB Closure

Table 3

ABG Closure	No. of pts	% of ears
< 10 dB	152	76 %
< 20 dB	176	88 %

In our study, 152(76%) ears have AB gap closure was within 10 dB and 176(88%) ears have AB gap closure within 20dB range.

DISCUSSION

In our study there were 45 % males and 55 % females. Maximum being in 31 to 40 yrs of age with mean age being 37.7 years. In a study done by mane et al the mean of age was 37.5 years and by Ahmad Daneshi et al is 37.9 years.[1,2] In study done by P. Homoe and others there were 47 % males and 53 % females.3 Majority of the patients are of middle age group and both sexes are affected almost equally.

In our study the graft uptake rate was 94%. In a study done by Ahmad Daneshi et al, the graft uptake rate was 94.44% and Shiv Kumar Raghuvanshi and Dinesh P Asati was 93.75% and by Per Caye-Thomasen was 94%.[2,4,5] which is comparable. The unilateral tympanoplasty success rate varies from 60 to 96 % in majority of the studies. In comparable studies done by Lou Z. and Sahu AV et al, there is no statically difference observed between simultaneous or sequential tympanoplasty.[6,7] So, success rate of bilateral tympanoplasty is comparable to unilateral tympanoplasty.

In our study 65% ears tragal cartilage with perichondrium and 35% ears temporalis fascia was used as graft material. In a study done by Patricia et al, 82.9% cases used tragal cartilage with perichondrium as graft material.[8] This depends upon personal choice and approach taken.

In our study, 152(76%) patients have AB gap closure was within 10 dB and 176(88%) patients have AB gap closure within 20dB range. Sahu AV et al in bilateral tympanoplasty ABG closure was

achieved to 82.14% within 10dB and to 91.07% within 20dB level,[7] In a study done by Mehmet Karataş et al postoperative percentages of patients with ABG closure less than 20dB and 10dB were excellently achieved to 98% and 56%.[9] In a study by El-ahl MAS et al, 85% patients have hearing gain within 10dB.[10] This is comparable with our study.

Performing bilateral tympanoplasty at one go saves time by taking graft from one side as well as single intubation and extubation with single preparation time and indoor. This will also result in single time loss of school or work. The Twice number of visits also avoided for single time bilateral same sitting surgery. This will also turn cost effective to patients and healthcare establishments as well.[6-10]

CONCLUSION

Single sitting bilateral (type I) tympanoplasty is safe day care procedure with a high success rate. It can be performed in most patients without apprehension of sensorineural HL with good results comparable to unilateral type I tympanoplasty. It reduces the cost of treatment, allows single hospital admission, decreases the frequency of exposure to anesthesia and leaves the patient satisfied. It avoids the need for a second surgery thereby reducing the number of days of absence from school and work, and reduces the burden on the healthcare system. The hearing impairment during postoperative period with ear canal pack is minimal and acceptable by the patients.

Conflict of Interest: All authors declare no conflict of interest in any form.

REFERENCES

1. Mane et al, Bilateral type 1 tympanoplasty in chronic otitis media. Indian J Otolaryngol Head Neck Surg.2013 Dec;65(4):293-7. doi: 10.1007/s12070-011-0294-7.
2. Ahmad Daneshi et al, Bilateral same-day endoscopic transcanal cartilage tympanoplasty: initial results, Braz J Otorhinolaryngol. 2017 Jul-Aug;83(4):411-415. doi: 10.1016/j.bjorl.2016.04.014.
3. P Homøe 1, H C Florian Sørensen, Mobile, one stage, bilateral ear surgery for chronic otitis media patients in remote areas M TosJ Laryngol Otol, 2009 Oct;123(10):1108-1. .doi: 10.1017/S0022215109005738.
4. Shiv Kumar Raghuwanshi, Dinesh P Asati, Outcome of single-sitting bilateral type 1 tympanoplasty in Indian patients, Indian J Otolaryngol Head Neck Surg, 2013 Dec;65(Suppl 3):622-6. doi: 10.1007/s12070-013-0635-9.
5. Per Caye-Thomasen, Torfinnur Rubek Nielsen, Mirko Tos, Bilateral myringoplasty in chronic otitis media, Laryngoscope, 2007 May;117(5):903-6. doi: 10.1097/MLG.0b013e318038168a.
6. Lou Z. Comparison of bilateral same day and sequential endoscopic cartilage myringoplasty for bilateral chronic tympanic membrane perforation. Acta Oto-Laryngologica, 140(6), 456-462. doi: 10.1080/00016489.2020.1731595.
7. Sahu AV, Datta D, Talukdar J, Dutta N, Simultaneous bilateral type 1 tympanoplasty as a day care procedure. Bengal J Otolarybgol HNS, 25(2), 101-106 (2017).
8. Patricia Silva Sousa, Jose Alerto Ferandes, Clara Magalhaes, Diogo Portugal, Antonio Castanheira, Bilateral same – day myringoplasty: a feasible optoion? Eur arch Otorhinolaryngol, 281, 4715-4718 2024. doi: 10.1017/s00405-0240-08692-z.
9. Mehmet Karataş, Emin Kaskalan, Simultaneous bilateral butterfly tympanoplasty using tragal cartilage from one ear, Auris Nasus Larynx, 2019 Jun;46(3):324-329. doi: 10.1016/j.anl.2018.09.007.
10. El-ahl MAS, Amer HS and El-Anwar MW, Simultaneous myringoplasty as single stage operation. Egypt J Otolaryngol, 29:16-19 (2013). doi: 10.7123.