

EFFECT OF TYPE 1 TYMPANOPLASTY ON THE QUALITY OF LIFE OF PATIENTS SUFFERING FROM CHRONIC SUPPURATIVE OTITIS MEDIA

Hari Gupta¹, Saquib Reyaz Khan²

¹Associate Professor, Department of ENT, Varun Arjun Medical College and Rohilkhand Hospital, Lucknow Road, Banthara, District Shahjahanpur, Uttar Pradesh, India.

²Assistant Professor, Varun Arjun Medical College and Rohilkhand Hospital, Lucknow Road, Banthara, District Shahjahanpur, Uttar Pradesh, India.

Received : 14/05/2023
Received in revised form : 07/06/2023
Accepted : 19/06/2023

Keywords:

Chronic otitis media, Tympanoplasty, Ear, Quality of life.

Corresponding Author:

Dr. Hari Gupta,
Email: guptadrhari@gmail.com

DOI: 10.47009/jamp.2023.5.3.388

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

Int J Acad Med Pharm
2023; 5 (3); 1971-1974



Abstract

Background: The aim of the study is to evaluate effect of type 1 tympanoplasty on the quality of life of CSOM patients. **Materials and Methods:** In this observational study, ninety- two patients of chronic suppurative otitis media with perforations of either genders were included. The chronic otitis media-5 (COM-5) questionnaire was administered to all patients. Air bone gap, physical suffering scores, hearing loss score, caregiver's concern scores, emotional distress score and activity limitation scores were recorded. **Results:** Side involved was right in 58 and left in 34. Location of perforation was anterior quadrant in 15, posterior quadrant in 7 and central perforation in 70 cases. Pre- operative physical suffering scores was 3.74 and post- operative score was 2.10, hearing loss score was 3.24 and 1.28, caregiver's concern scores was 2.34 and 1.12, emotional distress score was 1.92 and 1.04 and activity limitation scores was 1.62 and 1.10 respectively. Pre-op mean air bone gap was 32.2 db and post- op mean air bone gap was 18.4 db. The difference was 13.8 decibels. **Conclusion:** Type 1 tympanoplasty is common surgical procedure performed in patients with chronic suppurative otitis media and it found to be effective in improving quality of life in these patients.

INTRODUCTION

Chronic otitis media (COM) is a common occurring condition in which patient frequently visit otolaryngologist. It is involving middle ear with persistent or intermittent otorrhea. It is painful condition affecting most of the patients.^[1] Common complaints patients may encounter are loss of hearing, discomfort in ear, otalgia, otorrhoea etc. There can be otorrhoea which is evident with upper airway infections.^[2] Otorrhoea is mostly not associated with pain, is a smelling and with increased chances of hearing loss. Factors such as perforation of tympanic membrane, its position and size, disruption of ossicular chain, the degree of membrane and fixation of ossicles in inner ear play an important role.^[3]

Due to COM, the social life is hampered. There are functional limitations in affected subjects. The affected social activities may be found in patients with severe hearing loss.^[4] Other symptoms such as persistent ear discharge ear and pain affect the general health and individual well- being.^[5] Among managements of COM, type 1 tympanoplasty or myringoplasty is common surgical techniques. It is

the surgical repair of a tympanic membrane perforation without ossicular reconstruction.^[6]

Health-related quality of life (HRQL) is an important aspect of human life.^[7] It is a subjective outcome that reflects the patient's perception of their health status. In the context of otitis media, HRQL defines the outcomes of chronic middle ear infection on a patient's daily activities, physical symptoms, social interactions, and emotional well-being.^[8,9] Considering this, we attempted present study to evaluate effect of type 1 tympanoplasty on the quality of life of CSOM patients.

MATERIALS AND METHODS

After obtaining ethical clearance certificate from institutional ethical review board, we selected ninety- two patients of chronic suppurative otitis media with perforations of either genders. A valid written consent was also obtained from all enrolled patients.

Demographic profile was entered in case history sheet. A detailed history and clinical findings were recorded. Procedures such as otoscopy and anterior rhinoscopy were performed. Other test such as Valsalva Maneuver, tuning fork tests and pure tone

audiometry were also conducted. We recorded type, size and location of the perforation. The patency of the eustachian tube was recorded. The chronic otitis media-5 (COM-5) questionnaire was administered to all patients. Air bone gap, physical suffering

scores, hearing loss score, caregiver's concern scores, emotional distress score and activity limitation scores were recorded. Statistical analysis was performed using Mann Whitney U test, setting p value below 0.05 as significant.

RESULTS

Table 1: Patients distribution

Total- 92		
Gender	Male	Female
Number (%)	54	38

There were 54 male and 38 females in our study (Table 1).

Table 2: Clinical presentation

Parameters	Variables	Number	P value
Side	Right	58	<0.05
	Left	34	
Location	Anterior quadrant	15	<0.05
	Posterior quadrant	7	
	Central perforation	70	

Side involved was right in 58 and left in 34. Location of perforation was anterior quadrant in 15, posterior quadrant in 7 and central perforation in 70 cases. A significant difference was observed ($P < 0.05$) (Table 2, Figure 1).

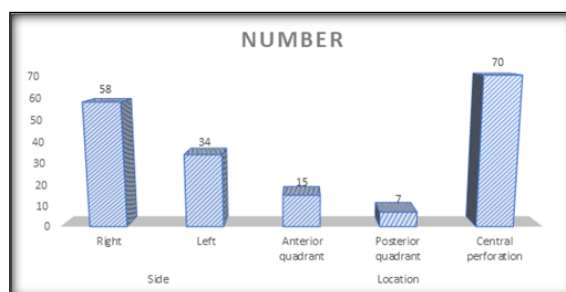


Table 3: Comparison of scores calculated on visual analogue scale

Symptoms	Pre- operative	Post- operative	P value
Physical suffering scores	3.74	2.10	<0.05
Hearing loss score	3.24	1.28	<0.05
Caregiver's concern scores	2.34	1.12	<0.05
Emotional distress score	1.92	1.04	<0.05
Activity limitation scores	1.62	1.10	<0.05

Pre- operative physical suffering scores was 3.74 and post- operative score was 2.10, hearing loss score was 3.24 and 1.28, caregiver's concern scores was 2.34 and 1.12, emotional distress score was 1.92 and 1.04 and activity limitation scores was 1.62 and 1.10 respectively. The difference was significant ($P < 0.05$) (Table 3, Figure 2).

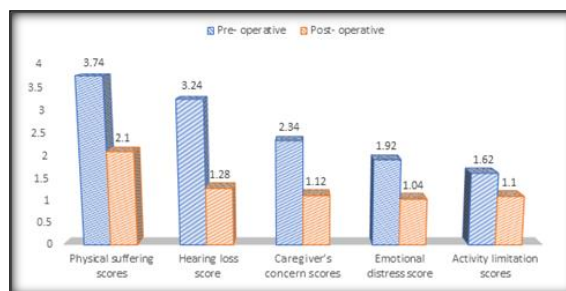
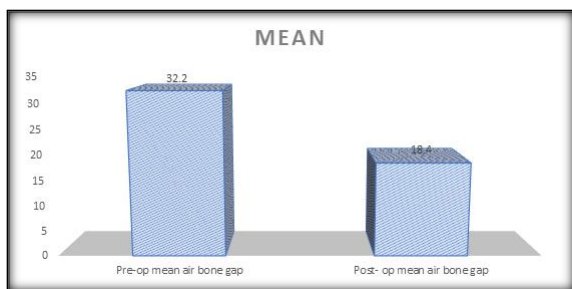


Table 4: Measurement of air bone gap

Air bone gap	Mean	P value
Pre-op mean air bone gap	32.2	<0.05
Post- op mean air bone gap	18.4	
Difference	13.8	

Pre-op mean air bone gap was 32.2 db and post- op mean air bone gap was 18.4 db. The difference was 13.8 decibels. A significant difference was observed ($P < 0.05$) (Table 4, Figure 3).



DISCUSSION

Chronic suppurative otitis media (CSOM) is a middle ear infection of great concern. It has high impact on social life and general health of human beings¹⁰. Universally, hearing impairment is the most well-known sensory deficit. In India, the incidence of COM found to be 7.8%. World health organization (WHO) described it as a silent epidemic. It has been easily overlooked and underestimated in last few years.^[11] Type 1 tympanoplasty included closure of perforation with a dry stable grafted membrane.^[12,13] Grafting the tympanic membrane with autologous temporal fascia helps in restoration of its integrity, as temporalis fascia is a thin, non-shrinking tissue with low metabolic rate resembling tympanic membrane in texture and structure.^[14,15] This procedure has led to improvement in hearing levels. In this study we evaluated effect of type 1 tympanoplasty on the quality of life of CSOM patients.

Our study demonstrated that there were 54 male and 38 females. Bhatia et al., enrolled 45 patients of chronic suppurative otitis media.^[16] Type 1 tympanoplasty was performed. It was observed that 82 % (37) had an intact graft 6 months after surgery. Subjective scores showed marked improvement with the mean improvement in total scores of 7.89 ± 4.81 on VAS. The mean improvement of 14.73 ± 8.58 dB of mean air bone gap was observed. A significant correlation existed between subjective and objective scores. Type 1 tympanoplasty brought significant improvement in the quality of life of chronic suppurative otitis media patients.

We observed that side involved was right in 58 and left in 34. Location of perforation was anterior quadrant in 15, posterior quadrant in 7 and central perforation in 70 cases. Devi et al., in their study determined improvement quality of life of COM patients and surgical success in terms of graft uptake and improvement in hearing.^[17] One hundred patients with COM underwent tympanoplasty performed by an expert otolaryngologist. The correlation between preoperative and postoperative assessment by questionnaire was statistically significant. All patients showed a significant improvement in hearing postoperatively. 80% of patients showed effective graft uptake.

Our study showed that pre-operative physical suffering scores was 3.74 and post-operative score was 2.10, hearing loss score was 3.24 and 1.28,

caregiver's concern scores was 2.34 and 1.12, emotional distress score was 1.92 and 1.04 and activity limitation scores was 1.62 and 1.10 respectively. Nadol et al., conducted a study on 54 patients of CSOM.^[18] There were 26 (48.1%) females and 28 (51.9%) males. 18% of patients showed bilateral CSOM. Poor socioeconomic circumstances lead to increased prevalence of CSOM compared to that in more affluent population groups. Results showed that QOL is not affected in patients.

Pre-op mean air bone gap was 32.2 db and post-op mean air bone gap was 18.4 db. The difference was 13.8 decibels. Podoshin et al., in their study showed that the rate of uptake of graft was 90%.^[19] The COM-5 questionnaire was used to measure patient responses as they relate to patient's symptoms, functional status, social and emotional consequences of disease and its treatment. Vlastos et al., mentioned the COM-5 questionnaire, which was very useful for determining the quality of life in children with chronic otitis media (COM).^[20] The COM-5 questionnaire is disease specific quality-of-life survey that shows high reliability and adequate construct validity, as well as responsiveness.

CONCLUSION

Type 1 tympanoplasty is common surgical procedure performed in patients with chronic suppurative otitis media and it found to be effective in improving quality of life in these patients.

Acknowledgments

None

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

The authors did not receive any grant from any commercial, governmental, or non-profit organizations related to this work. The study was self-funded together with contribution from the Department of ENT.

Disclaimers

The opinions expressed in this article are the authors' personal views and do not represent that of their affiliated organizations, employers, or associations.

Data Availability Statement

Not Applicable

Highlights of The Study

- Type I Tympanoplasty in patients suffering from CSOM is helpful in improving the Quality of life.
- This procedure provides good post-operative analgesia and improved VAS scores.
- Haemodynamic stability is preserved in patients operated under Type I Tympanoplasty.

Author Contributions

HG conceived the review idea. SRK conducted the literature search. SRK prepared the first draft of the manuscript. HG reviewed, edited, and revised the

manuscript substantially on the key intellectual content. HG finalized and approved the current version agreed to be accountable for accuracy and integrity and decided to submit the manuscript to Trends in Medical Research.

REFERENCES

1. Baumann I, Gerendas B, Plinkert PK, Praetorius M. General and disease-specific quality of life in patients with chronic suppurative otitis media--a prospective study. *Health Qual Life Outcomes*. 2011;9:48. doi: 10.1186/1477-7525-9-48.
2. Wennberg JE. Outcomes research, cost containment, and the fear of health care rationing. *N Engl J Med*. 1990;323:1202-4. <https://doi.org/10.1056/nejm199010253231710>
3. Kirshner B, Guyatt GH. A methodologic framework for assessing health indices. *J Chronic Dis*. 1985;38:27-36. [https://doi.org/10.1016/0021-9681\(85\)90005-0](https://doi.org/10.1016/0021-9681(85)90005-0)
4. Habesoglu TE, Habesoglu M, Devenci I. Effect of type 1 tympanoplasty on the quality of life of children. *Ann Otorhinolaryngology*. 2011;120.5:326-30. <https://doi.org/10.1177/000348941112000508>
5. Smyth GD, Patterson CC. Results of middle ear surgery: Do patients and surgeon agree? *Am J Otol*. 1985;6:276-9.
6. Koller M, Lorenz W. Quality of life: A deconstruction for clinicians. *J R Soc Med*. 2002;95:481-8. <https://dx.doi.org/10.1258%2Fjrsm.95.10.481>
7. Shaikh AA, Onali MA, Shaikh SM, Rafi T. Outcome of tympanoplasty type-I by underlay technique. *JLUMHS*. 2009;8:80-4.
8. Malick N, Gadag RP, Vidyashree KM, Puthukulangara S. Comparative study of type 1 tympanoplasty with and without gelfoam in the middle ear. *Int J Otorhinol Head Neck Surg*. 2017;3:1036-41. <https://dx.doi.org/10.18203/issn.2454-5929.ijohns20174328>
9. Naderpour M, Shahidi N, Hemmatjoo T. Comparison of tympanoplasty results in dry and wet ears. *Iran J Otorhinolaryngol*. 2016;28:209.
10. Black JH, Hickey SA, Wormald PJ. An analysis of the results of myringoplasty in children. *Int J Ped Otorhinolaryngol*. 1995;31:95-100. [https://doi.org/10.1016/0165-5876\(94\)01067-8](https://doi.org/10.1016/0165-5876(94)01067-8)
11. Billman GE. Homeostasis: The Underappreciated and Far Too Often Ignored Central Organizing Principle of Physiology. *Front Physiol*. 2020;11:200. doi:10.3389/fphys.2020.00200
12. Testa MA, Simonson DC. Assessment of quality-of-life outcomes. *N Engl J Med*. 1996;334:835-40. <https://doi.org/10.1056/nejm199603283341306>
13. Rosenfeld RM, Goldsmith AJ, Tetlus L, Balzano A. Quality of life for children with otitis media. *Arch Otolaryngol Head Neck Surg*. 1997;123(10):1049-54. doi: 10.1001/archotol.1997.01900100019002.
14. Habesoglu TE, Habesoglu M, Devenci I, Kulekci S, Kalaycik C, Gokceer T, Egeli E. Effect of type I tympanoplasty on the quality of life of children. *Ann Otol Rhinol Laryngol*. 2011;120(5):326-30. doi: 10.1177/000348941112000508.
15. Kumari GN, Manoj. A cross sectional study on quality of life measurements for patients with chronic suppurative otitis media in a tertiary care centre - a chronic ear survey. *Int J Contemp Med Res*. 2019;6(10):J1-J6.
16. Bhatia K, Vaid L, Taneja HC. Effect of Type 1 Tympanoplasty on the Quality of Life of CSOM Patients. *Indian J Otolaryngol Head Neck Surg*. 2016;68(4):468-474. doi:10.1007/s12070-016-0989-x
17. Devi KJ, Singh M, Maan AS, Thomas O, Kaur G, Arya S, et al. Effect of type 1 tympanoplasty on the quality of life of patients suffering from chronic otitis media (safe type). *Niger J Clin Pract*. 2021;24:1641-4.
18. Nadol JB Jr, Staecker H, Gliklich RE. Outcomes assessment for chronic otitis media: the Chronic Ear Survey. *Laryngoscope*. 2000;110(3 Pt 3):32-5. doi: 10.1097/00005537-200003002-00009.
19. Podoshin L, Fradis M, Malatskey S, David JB. Tympanoplasty in adults: a five- years survey. *Ear Nose Throat J*. 1996;75(3):149-156.
20. Vlastos IM, Kandilloros D, Manolopoulos L et al. Quality of life in children with chronic suppurative otitis media with or without cholesteatoma. *Int J Pediatr Otorhinolaryngol*. 2009;73:363-369. <https://doi.org/10.1016/j.ijporl.2008.10.030>