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A pre-post comparative study on surgical outcomes of myringoplasty in dry and wet ears among patients with chronic suppurative otitis media.

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Abstract

Background

Chronic suppurative otitis media (CSOM) is a major cause of conductive hearing loss in developing countries. Myringoplasty is the standard treatment, but the influence of preoperative ear status (wet versus dry) on hearing outcomes remains unclear. This study compared postoperative hearing gain between wet and dry ear patients.

Methods

A pre–post comparative study was conducted in the Department of Otorhinolaryngology from February to July 2018. Sixty patients aged 20–50 years with tubotympanic CSOM and central tympanic membrane perforation were included. Participants were divided into two groups: dry ear (no discharge for ≥3 months) and wet ear (scanty discharge despite one week of antibiotics), with 30 patients in each group. All underwent myringoplasty and were evaluated using pure tone audiometry preoperatively and at 3 months postoperatively. Air conduction thresholds were calculated as the mean of 0.5, 1, and 2 kHz. Statistical analysis was performed using SPSS version 21, with significance set at $p < 0.05$.

Results

Among the 60 participants (48.3% males, 51.7% females), most were aged 20–30 years. Perforation size was comparable between groups. Both groups showed postoperative hearing improvement. The dry ear group demonstrated a mean gain of approximately 10–15 dB, with similar improvement observed in the wet ear group. Statistical analysis showed no significant difference between groups ($t = 2.654$, $p = 0.058$).

Conclusion

Postoperative hearing gain following myringoplasty did not differ significantly between wet and dry ear patients. Both groups showed clinically meaningful improvement, indicating that controlled ear discharge does not adversely affect surgical outcomes. Myringoplasty can be considered in selected wet ear cases after appropriate medical management.

Keywords: *Myringoplasty; Chronic suppurative otitis media; Wet ear; Dry ear; Pure tone audiometry; Hearing gain*
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Introduction

Chronic suppurative otitis media (CSOM) is a persistent inflammatory condition of the middle ear characterised by recurrent or continuous otorrhoea through a permanent tympanic membrane (TM) perforation lasting more than two weeks. It is a significant public health concern in developing nations, including India, where the condition is estimated to affect approximately 5% of the population. According to the World Health Organization (WHO), CSOM affects 65–330 million individuals globally, with 60% experiencing ear discharge and hearing impairment as the most disabling sequelae.

CSOM predominantly results in conductive hearing loss, which is both measurable and potentially reversible with timely surgical intervention. Myringoplasty the surgical closure of a tympanic membrane perforation without ossicular reconstruction is the accepted treatment for tubotympanic CSOM with intact ossicular chain and adequate cochlear reserve. The procedure aims to

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eliminate recurrent otorrhoea, restore the protective barrier of the middle ear and improve hearing function.

A clinically debated question is whether preoperative ear discharge status specifically, whether the ear is 'wet' (actively discharging) or 'dry' (inactive for at least three months) influences the outcome of myringoplasty. Historical literature suggests inferior outcomes in discharging ears, prompting many surgeons to defer surgery until the ear is dry. However, several prospective comparative studies have challenged this view, reporting comparable graft success and hearing improvement in both dry and wet ears. Despite these findings, no consensus has emerged and clinical practice remains heterogeneous.

A critical gap in the existing evidence is the limited number of well-designed pre–post comparative studies from tertiary care centres in South India that specifically assess hearing outcomes using standardised pure tone audiometry across both discharge states and diverse perforation sizes. Addressing this gap is essential for formulating evidence-based surgical guidelines.

The objective of this study was to compare the postoperative hearing gain following myringoplasty between patients with dry ears and those with wet ears among patients with tubotympanic CSOM, using pure tone audiometry at three months postoperatively.

Methodology

Study Design

A pre–post comparative study was employed to evaluate the hearing outcomes before and after myringoplasty across two predefined patient groups based on ear discharge status.

Study Setting

The study was conducted in the Department of Otorhinolaryngology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre (KIMS), Maduranthagam, Kancheepuram District, Tamil Nadu, India. KIMS is a 750-bed tertiary care teaching hospital affiliated with the Tamil Nadu Dr. MGR Medical University. The institution serves a mixed urban and semi-rural catchment area and provides comprehensive ENT services including outpatient consultations, audiological assessments and major otological surgeries.

Study Duration

The study was conducted over a period of six months, from February 2018 to July 2018.

Participants

Sampling Method

Participants were selected using consecutive sampling. All eligible patients attending the ENT outpatient department of KIMS during the study period who met the inclusion criteria were enrolled until the required sample size was achieved.

Inclusion Criteria

Patients aged 20–50 years of either sex, diagnosed with tubotympanic CSOM with small, moderate, large, or subtotal central tympanic membrane perforation, with pure conductive hearing loss on tuning fork tests, audiometry-confirmed conductive deafness ranging from 25 dB to 45 dB, adequate cochlear reserve and patent Eustachian tube were included. Group A (Dry Ear) comprised patients with no active ear discharge for a minimum of three months prior to surgery. Group B (Wet Ear) comprised patients with scanty mucoid discharge at the time of surgery following one week of systemic and topical antibiotic therapy.

Exclusion Criteria

Patients with focal sepsis in the nose, throat, or paranasal sinuses; mixed or sensorineural hearing loss; ossicular erosion or discontinuity requiring ossiculoplasty; unsafe ear (granulations, polyps, or hyperaemia of middle ear mucosa); cholesteatoma; contralateral dead ear; bilateral perforations; Eustachian tube dysfunction; or systemic comorbidities (diabetes mellitus, hypertension) were excluded.

Study Size

A sample size of 60 participants (30 per group) was determined based on an estimated mean difference in postoperative hearing gain of 5 dB between groups, with a standard deviation of approximately 7 dB, achieving 80% power at a 5% level of significance (two-tailed), using the formula: $n = 2(Z\alpha/2 + Z\beta)^2\sigma^2 / \delta 2$. This yielded approximately 25 per group, with the sample rounded up to 30 per arm to account for potential attrition.

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Groups

Group A Dry Ear (n = 30): Inactive tubotympanic CSOM with no active discharge for a minimum of three months prior to myringoplasty.

Group B Wet Ear (n = 30): Active tubotympanic CSOM with persistent mucoid discharge at the time of surgery after one week of antibiotic treatment.

Variables

Primary outcome: Postoperative hearing gain (dB), calculated as the difference between preoperative and postoperative pure tone average (PTA) air conduction thresholds at 0.5, 1 and 2 kHz.

Secondary outcomes: Graft success rate (intact tympanic membrane at 3 months); perforation size classification (small, moderate, large, subtotal); and Middle Ear Risk Index (MERI) scores.

Bias Control

To minimise potential sources of bias, the following measures were implemented: (1) all myringoplasties were performed by the same surgical team using a uniform technique and graft material (temporalis fascia); (2) all preoperative and postoperative audiological assessments were conducted by the same certified audiologist using the same calibrated audiometer in a sound-proof room; (3) the Modified Hughson–Westlake procedure was applied consistently for PTA; and (4) group allocation was based solely on predefined objective clinical criteria.

Data Collection

Preoperative evaluation included clinical examination, tuning fork tests (256, 512 and 1024 Hz), endoscopic otoscopy using a Hopkins rod zero-degree rigid endoscope, PTA and mastoid X-ray (lateral oblique view). The PTA protocol involved averaging air conduction thresholds at 0.5, 1 and 2 kHz. Ear swab for culture and sensitivity was performed in all wet ear patients. Postoperative endoscopic otoscopic examination and PTA were repeated at weeks 4 and 6 and at 3 months.

Statistical Analysis

Data were entered and managed in Microsoft Excel and analysed using IBM SPSS Statistics, Version 21.0. Descriptive statistics (frequencies, percentages, means and standard deviations) were calculated. The paired t-test was used to compare preoperative and postoperative hearing thresholds within and between groups. An independent samples t-test was applied to compare hearing gain between the dry and wet ear groups. A p-value of less than 0.05 was considered statistically significant.

Ethical Clearance

Institutional Ethics Committee approval was obtained prior to commencement of the study. All participants provided informed written consent. Patient confidentiality was maintained throughout the study in accordance with the Declaration of Helsinki.

Results

Participant Flow

A total of 84 patients were screened for eligibility during the study period. Of these, 24 were excluded: 8 had sensorineural or mixed hearing loss, 6 had ossicular discontinuity requiring ossiculoplasty, 5 had active sepsis in the nose or throat, 3 had unsafe ear features (granulations or cholesteatoma) and 2 declined participation. The final study sample comprised 60 participants who met all inclusion criteria and completed the 3-month follow-up. No participants were lost to follow-up.

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Table 1. Demographic Profile Age and Gender Distribution by Group

Variable	Subgroup	Wet Ear n (%)	Dry Ear n (%)	Total n (%)	Cumulative %
Gender	Male	18 (30.0%)	11 (18.3%)	29 (48.3%)	48.30%
	Female	12 (20.0%)	19 (31.7%)	31 (51.7%)	100.00%
Age Group (years)	20–30	13 (21.7%)	12 (20.0%)	25 (41.7%)	41.70%
	31–40	11 (18.3%)	9 (15.0%)	20 (33.3%)	75.00%
	41–50	6 (10.0%)	9 (15.0%)	15 (25.0%)	100.00%
Total		30 (50.0%)	30 (50.0%)	60 (100%)	

The majority of participants in the wet ear group were male (18, 30.0%), while the dry ear group was predominantly female (19, 31.7%). The 20–30-year age group was the most represented across both groups (25 participants, 41.7%), followed by the 31–40-year group (20, 33.3%) and the 41–50-year group (15, 25.0%).

Graph 1: Age Distribution by Group

[Bar chart: X-axis = Age groups (20–30, 31–40, 41–50 years); Y-axis = Number of participants; Two clustered bars per group representing Wet Ear (blue) and Dry Ear (orange). Values: 20–30: Wet=13, Dry=12; 31–40: Wet=11, Dry=9; 41–50: Wet=6, Dry=9. No overlapping labels. Legend clearly labelled.

Table 2. Ear Discharge Distribution

Discharge Status	Frequency (n)	Percentage (%)	Valid %	Cumulative %
Present (Wet Ear)	30	50.00%	50.00%	50.00%
Absent (Dry Ear)	30	50.00%	50.00%	100.00%
Total	60	100.00%	100.00%	

Participants were equally distributed between the two groups, with 30 patients in each arm, confirming balanced group allocation.

Table 3. Perforation Size Distribution by Group

Perforation Size	Wet Ear n (%)	Dry Ear n (%)	Total n	Wet Cumul. %	Dry Cumul. %
Small (<25%)	6 (10.0%)	8 (13.3%)	14	10.00%	13.30%
Moderate (26–50%)	8 (13.3%)	5 (8.3%)	13	23.30%	21.70%
Large (51–75%)	6 (10.0%)	9 (15.0%)	15	33.30%	36.70%
Subtotal (>75%)	10 (16.7%)	8 (13.3%)	18	50.00%	50.00%
Total	30 (100%)	30 (100%)	60		

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In the wet ear group, subtotal perforations were most prevalent (10, 16.7%), followed by moderate (8, 13.3%) and small and large (6, 10.0% each). In the dry ear group, large perforations predominated (9, 15.0%), followed by small and subtotal (8, 13.3% each) and moderate (5, 8.3%). Perforation size distribution was broadly comparable between the two groups.

Table 4. Preoperative Hearing Threshold Summary Wet and Dry Ear Groups Combined

Hearing Threshold (dB)	Wet Ear n (%)	Dry Ear n (%)	Total n	Cumulative % (Both Groups)
21–25 dB	7 (23.3%)	5 (16.7%)	12	20.00%
26–30 dB	3 (10.0%)	12 (40.0%)	15	45.00%
31–35 dB	5 (16.7%)	9 (30.0%)	14	68.30%
36–40 dB	10 (33.3%)	5 (16.7%)	15	93.30%
41–45 dB	12 (40.0%)	4 (13.3%)	16	*see note
Total	30 (100%)	30 (100%)	60	

Table 5. Postoperative Hearing Gain Comparison Dry Ear vs. Wet Ear (3 Months), Paired t-test

Hearing Gain (dB)	Dry Ear n (%)	Wet Ear n (%)	Total n	Statistical Outcome
0–5 dB	5 (16.7%)	4 (13.3%)	9	
5–10 dB	12 (40.0%)	13 (43.3%)	25	t = 2.654
10–15 dB	9 (30.0%)	12 (40.0%)	21	p = 0.058
15–20 dB	3 (10.0%)	1 (3.3%)	4	Not Significant
>20 dB	1 (3.3%)	0 (0.0%)	1	(p > 0.05)
Total	30 (100%)	30 (100%)	60	

Both groups demonstrated clinically meaningful postoperative hearing improvement. The most common hearing gain category in both groups was 5–10 dB. The paired t-test yielded a t-value of 2.654 and a p-value of 0.058. Since $p = 0.058$ exceeds the threshold of $p < 0.05$, the difference in postoperative hearing gain between the dry ear and wet ear groups was not statistically significant at the 5% level.

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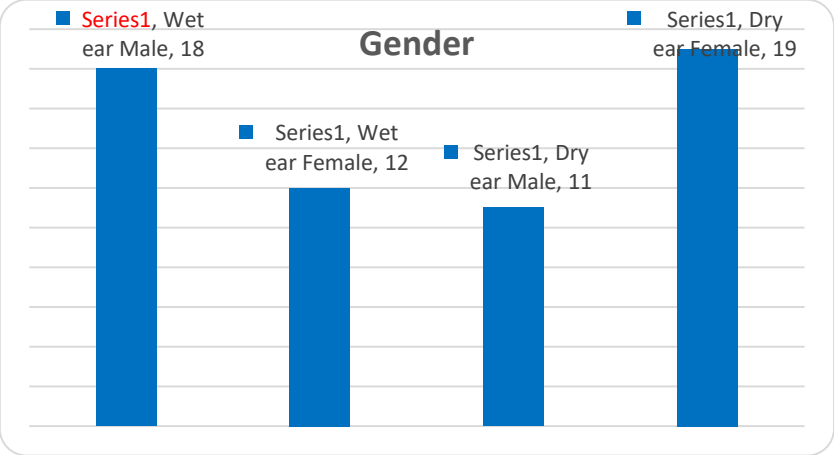
Graph 2: Postoperative Hearing Gain Comparison Dry Ear vs. Wet Ear



Discussion

This pre–post comparative study evaluated the postoperative hearing outcomes of myringoplasty in 60 patients with tubotympanic CSOM, stratified by preoperative ear discharge status. The key finding was that no statistically significant difference was observed in hearing gain between the dry ear group and the wet ear group at three months postoperatively ($t = 2.654$, $p = 0.058$).

Interpretation of Findings

Both groups achieved clinically meaningful hearing improvement across multiple gain categories. The majority of patients in both groups recorded hearing gains between 5 and 15 dB, consistent with the expected improvement following successful myringoplasty for central TM perforations with intact ossicular chains. While the dry ear group demonstrated a marginally higher proportion of patients achieving gains greater than 15 dB, this difference did not reach statistical significance. The p-value of 0.058, though marginally above the threshold of 0.05, suggests a trend that warrants investigation in larger, adequately powered studies.

Comparison with Previous Studies

These findings are consistent with several prospective comparative investigations. Shankar, Virk et al. reported comparable efficacy of Type I tympanoplasty in dry and wet ears, noting that perforation size not discharge status was the more influential determinant of outcome, with small perforations achieving 100% graft success regardless of discharge status. Similarly, Chandrashekar and Chandrashekar reported no statistically significant difference in hearing improvement between dry and wet ear myringoplasties in tubotympanic CSOM, reinforcing the position that wet ear status should not be an absolute contraindication to surgery.

In contrast, earlier literature including studies cited by Hosny, El-Anwar et al. reported inferior graft success rates in actively discharging ears, attributing this to contamination of the graft site, impaired wound healing in infected mucosa and inflammatory mediator disruption of fibrovascular ingrowth. Pothala et al. found that, while graft success rates were lower in wet ears, the degree of hearing improvement was comparable, a pattern consistent with the present findings. Balyan et al. and Hall et al. separately confirmed that adjuvant cortical mastoidectomy in active ears did not significantly alter graft success rates, suggesting that infection control not surgical extension is the determinative factor in wet ear outcomes.

Scientific Explanation of Findings

The physiological basis for comparable outcomes in wet and dry ear myringoplasty likely involves two competing mechanisms. In dry ears, the favourable milieu absence of inflammatory exudate, reduced bacterial colonisation and intact mucosal architecture facilitates graft vascularisation through angiogenesis and vasculogenesis. In wet ears, however, preoperative antibiotic therapy for one week substantially reduces bacterial load and suppresses acute inflammation, creating a sufficiently receptive middle ear

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environment for graft integration. The role of the Eustachian tube a prerequisite for middle ear aeration and graft survival was controlled by including only patients with patent tubes in both groups, which may partly explain the comparable outcomes observed. The use of temporalis fascia, a robust and well-vascularised graft material, may also have contributed to successful integration irrespective of residual discharge.

Clinical Relevance

The findings carry important clinical implications. Many surgeons continue to defer myringoplasty until the ear has been dry for a defined period, a practice that delays definitive treatment and subjects' patients to ongoing discharge, hearing impairment and risk of further middle ear damage. This study, consistent with recent evidence, supports the feasibility of performing myringoplasty in select wet ear patients specifically those with tubotympanic CSOM and scanty mucoid discharge after antibiotic treatment without significantly compromising postoperative hearing outcomes. This may reduce the cumulative burden of disease and treatment delays, particularly in resource-limited settings.

Generalizability

The findings of this study may have limited generalisability to broader populations. The study was conducted at a single tertiary care centre in Tamil Nadu, India and participants were restricted to the age range of 20–50 years with tubotympanic CSOM. Patients with unsafe CSOM, sensorineural hearing loss, or significant systemic comorbidities were excluded. The results are most applicable to similar populations in comparable tertiary ENT settings in South India and other developing regions with analogous epidemiological and socioeconomic profiles. External validity to paediatric populations or patients with squamosal CSOM cannot be assumed. Multicentre and longer follow-up studies would be required to confirm and extend these findings.

Limitations

Several limitations of this study must be acknowledged. First, the study was conducted at a single centre, limiting the generalisability of findings. Second, the sample size of 60 while adequate for the estimated effect size may have been insufficient to detect smaller but clinically meaningful differences between groups, as evidenced by the p-value of 0.058 approaching but not reaching significance. Third, postoperative follow-up was limited to three months; longer follow-up is necessary to evaluate graft durability and sustained hearing benefit. Fourth, graft success rate was not systematically quantified across all patients in tabular form in the present report and further objective analysis of tympanic membrane integrity outcomes is warranted. Fifth, randomisation was not performed; participants were allocated based on clinical status, introducing potential for selection bias. Finally, the study did not assess quality of life outcomes, patient satisfaction, or health-economic impact of timing of surgery.

Conclusion

This pre–post comparative study of 60 patients demonstrated that myringoplasty resulted in clinically meaningful postoperative hearing improvement in both dry ear and wet ear patient groups. The postoperative hearing gain did not differ significantly between the two groups ($t = 2.654$, $p = 0.058$, $p > 0.05$). These results indicate that the presence of scanty ear discharge at the time of surgery, following a course of preoperative antibiotic therapy, does not significantly compromise hearing outcomes of myringoplasty. The binary distinction between 'dry' and 'wet' ear as a primary determinant of surgical candidacy requires re-evaluation in light of accumulating evidence, including the present study.

Recommendations

Based on the findings of this study, the following recommendations are made. Otolaryngologists should consider offering myringoplasty to patients with tubotympanic CSOM with scanty mucoid discharge after appropriate preoperative medical management, rather than deferring surgery solely due to ear discharge status. A standardised one-week antibiotic regimen guided by culture sensitivity should be adopted prior to surgery in wet ear patients. Future multicentre prospective randomised controlled trials with longer follow-up periods and larger sample sizes are needed to definitively establish the effect of discharge status on both graft success rates and hearing outcomes. Standardised reporting of outcome measures, including PTA-defined hearing gain thresholds and validated quality of life instruments, should be adopted across future studies to enable meaningful meta-analytic synthesis.

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List of Abbreviations

CSOM Chronic Suppurative Otitis Media
COM Chronic Otitis Media
TM Tympanic Membrane
PTA Pure Tone Audiometry
dB Decibels
kHz Kilohertz
ENT Ear, Nose and Throat
ABG Air–Bone Gap
MERI Middle Ear Risk Index
SPSS Statistical Package for the Social Sciences
WHO World Health Organization
SD Standard Deviation
OPD Outpatient Department
KIMS Karpaga Vinayaga Institute of Medical Sciences and Research Centre

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Dr V. Thirumalaipriya: Conceptualisation, study design, patient recruitment, surgical procedures, data acquisition, manuscript writing and final approval of the submitted version.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional data governance policies and patient confidentiality requirements.

Author Biography

Dr V. Thirumalaipriya, MS (ENT), is an Assistant Professor in the Department of Ear, Nose and Throat (ENT) Surgery at the Institute of Social Obstetrics and Kasturba Gandhi Hospital, Madras Medical College, Chennai, Tamil Nadu, India. With expertise in otological surgery and endoscopic ear procedures, Dr Thirumalaipriya has a clinical and academic interest in the surgical management of chronic suppurative otitis media and outcomes of tympanoplasty in diverse patient populations.

References

1. Acuin J. Chronic suppurative otitis media. BMJ Clinical Evidence. 2007;2007:0507. PMID: 19454051.

2. Adkins WY, White B. Type I tympanoplasty: influencing factors. Laryngoscope. 1984;94(7):916–918. DOI: 10.1288/00005537-198407000-00011

3. Aggarwal R, Saeed SR, Green KJ. Myringoplasty. Journal of Laryngology & Otology. 2006;120(6):429–432. DOI: 10.1017/S0022215106000697

4. Albera R, Ferrero V, Lacilla M, Canale A. Tympanic reperforation in myringoplasty: evaluation of prognostic factors. Annals of Otology, Rhinology & Laryngology. 2006;115(12):875–879.

5. Balyan FR, Celikkanat S, Aslan A, Taibah A, Russo A, Sanna M. Mastoidectomy in noncholesteatomatous chronic suppurative otitis media: is it necessary? Otolaryngology–Head and Neck Surgery. 1997;117(6):592–595.

6. Batni G, Goyal R. Hearing outcome after Type I tympanoplasty: a retrospective study. Indian Journal of Otolaryngology and Head & Neck Surgery. 2015;67(1):39–42. DOI: 10.1007/s12070-014-0749-8

7. Becvarovski Z, Kartush JM. Smoking and tympanoplasty: implications for prognosis and the Middle Ear Risk Index (MERI). Laryngoscope. 2001;111(10):1806–1811.

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8. Bhusal CL, Guragain RP, Shrivastav RP. Correlation of hearing impairment with site of tympanic membrane perforation. Journal of Institute of Medicine Nepal. 2005;27(2):2–5.

9. Booth JB. Myringoplasty: the lessons of failure. Journal of Laryngology & Otology. 1974;88(12):1223–1236.

10. Caylan R, Titiz A, Falcioni M, et al. Myringoplasty in children: factors influencing surgical outcome. Otolaryngology–Head and Neck Surgery. 1998;118(5):709–713.

11. Chandrashekar Y, Chandrashekar R. Comparison of efficacy of myringoplasty in dry and wet ears in chronic otitis media of tubotympanic type. International Journal of Otorhinolaryngology and Head and Neck Surgery. 2017;3(3):705.

12. Cruz OL, Kasse CA, Leonhart FD. Efficacy of surgical treatment of chronic otitis media. Otolaryngology–Head and Neck Surgery. 2003;128(2):263–266.

13. El-Guindy A. Endoscopic transcanal myringoplasty. Journal of Laryngology and Otology. 1992;106(6):493–495.

14. Emir H, Ceylan K, Kizilkaya Z, et al. Success is a matter of experience: Type 1 tympanoplasty influencing factors. European Archives of Oto-Rhino-Laryngology. 2007;264(6):595–599.

15. Fukuchi I, Cerchiari DP, Garcia E, Rezende CE, Rapoport PB. Tympanoplasty: surgical results and comparison of factors. Brazilian Journal of Otorhinolaryngology. 2006;72(2):267–271.

16. Gangwar A, Kuchhal V. A comparison of postoperative hearing gain in dry and wet ear tympanoplasty. Journal of Evolution of Medical and Dental Sciences. 2016;5(42):2614–2617.

17. Gersdorff M, Garin P, Decat M, Juantegui M. Myringoplasty: long-term results in adults and children. Otology & Neurotology. 1995;16(4):532–535.

18. Gibb AG, Chang SK. Myringoplasty: a review of 365 operations. Journal of Laryngology & Otology. 1982;96(10):915–930.

19. Hall JE, McRackan TR, Labadie RF. Does concomitant mastoidectomy improve outcomes for patients undergoing repair of tympanic membrane perforations? Laryngoscope. 2011;121(8). DOI: 10.1002/lary.21917

20. Harugop AS, Mudhol RS, Godhi RA. A comparative study of endoscope-assisted myringoplasty and microscope-assisted myringoplasty. Indian Journal of Otolaryngology and Head & Neck Surgery. 2008;60(4):298–302.

21. Hernandez M, Leichtle A, Pak K, et al. Myeloid differentiation primary response gene 88 is required for the resolution of otitis media. Journal of Infectious Diseases. 2008;198(12):1862–1869.

22. Hosny S, El-Anwar MW, Abd-Elhady M, Khazbak A, El Feky A. Outcomes of myringoplasty in wet and dry ears. Journal of International Advanced Otology. 2014;10(3):256–259. DOI: 10.5152/iao.2014.500

23. House WF. Myringoplasty. AMA Archives of Otolaryngology. 1960;71(3):399–404.

24. Jyothi AC, Shrikrishna BH, Kulkarni NH, Kumar A. Endoscopic myringoplasty versus microscopic myringoplasty in tubotympanic CSOM. Indian Journal of Otolaryngology and Head & Neck Surgery. 2017;69(3):357–362.

25. Kalsotra P, Gupta R, Gupta N, et al. Overlay versus underlay myringoplasty: a comparative study. Indian Journal of Otology. 2014;20(4):183–188.

26. Kamath MP, Sreedharan S, Rao AR, et al. Success of myringoplasty: our experience. Indian Journal of Otolaryngology and Head & Neck Surgery. 2013;65(4):358–362.

27. Lee P, Kelly G, Mills RP. Myringoplasty: does the size of the perforation matter? Clinical Otolaryngology. 2002;27(5):331–334.

28. Mishiro Y, Sakagami M, Takahashi Y, Kitahara T, Kajikawa H, Okumura S. Tympanoplasty with and without mastoidectomy for non-cholesteatomatous CSOM. European Archives of Oto-Rhino-Laryngology. 2009;266(6):817–820.

29. Pothala H, Shukla SC, Khan W, Ramalingam R, Ramalingam KK. A prospective comparative study between dry and wet tympanoplasty. Annals of Otology

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Original Article

and Neurotology. 2018;1(02):083–088. DOI: 10.1055/s-0038-1676951

30. Ramakrishnan A, Panda NK, Mohindra S, Munjal S. Cortical mastoidectomy in surgery of tubotympanic disease: are we overdoing it? The Surgeon. 2011;9(1):22–26.

31. Sangavi AK. Assessment of hearing improvement by myringoplasty. Journal of Science and Innovative Research. 2015;4:67–70.

32. Shankar R, Virk RS, Gupta K, et al. Evaluation and comparison of Type I tympanoplasty efficacy in dry and wet ears: a prospective study. Journal of Laryngology & Otology. 2015;129(10):945–949. DOI: 10.1017/S0022215115002091

33. World Health Organization. Chronic suppurative otitis media: burden of illness and management options. Geneva: WHO; 2004.

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