Journal of Academic Research Vol 30, Issu 1, 2025 "46−52"

Outcomes of Myringoplasty at Misrata Medical Center: A Retrospective Study

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Article information

Keywords
Myringoplasty, tympanic membrane perforation, graft uptake, surgical outcome, Misrata

Received **06 01 2026**, Accepted **20 01 2026**, Available online **21 01 2026**

Abstract

Myringoplasty is a common surgical procedure to repair tympanic membrane perforations. This study evaluated the anatomical success rate and prognostic factors for myringoplasty performed at Misrata Medical Center. We retrospectively reviewed 40 patients underwent myringoplasty over a period of 18 months from 1/ 1/ 2023 to 30/ 6 /2024. Data on age, sex, perforation size, site, and outcomes were collected. Success was defined as an intact graft uptake and a dry ear at follow-up. The graft uptake success was 23 out of 25 central perforations with 2 failures. All posterior perforations were successfully repaired. In contrast, among anterior marginal only 1 was successful, while two cases resulted in failure. Myringoplasty at Misrata Medical Center demonstrates a high success rate (90%). Perforation site and size influenced the outcomes.

Introduction

Perforation of the tympanic membrane is a common problem in otolaryngology, resulting from chronic otitis media, acute infections, trauma, or iatrogenic causes[1]. These perforations may lead to recurrent ear discharge, conductive hearing loss, and predisposition to middle ear pathology. Repairing the tympanic membrane is therefore a critical step in improving quality of life, preventing complications, and restoring hearing.

Myringoplasty (type I tympanoplasty) involves closure of the perforation without ossicular reconstruction, usually employing graft materials such as temporalis fascia, perichondrium, or cartilage [2]. The procedure is widely practiced and has reported success rates ranging from 80% to 95% in most series [3,4]. Factors influencing surgical outcomes include the size and site of the perforation, presence of active infection, Eustachian tube function, contralateral ear status, patient age, and surgical expertise [5,6].

Central perforations are often easier to repair, whereas anterior marginal perforations pose greater challenges due to poor visibility, lack of graft support, and vascularity issues [7]. Similarly, larger perforations have historically been associated with higher risk of graft failure [8]. Despite

advances in surgical techniques and materials, these prognostic factors remain critical for surgical planning.

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While many studies from Europe, Asia, and North America have documented outcomes of myringoplasty, fewer reports exist from North Africa and the Middle East. Publishing institutional results is essential to highlight regional variations in disease presentation, patient demographics, and surgical outcomes [9,10]. This study from Misrata Medical Center aims to evaluate graft uptake rates, analyze prognostic factors, and compare findings with international literature [11,12].

A study Sample

This retrospective study included 40 patients underwent myringoplasty at Misrata Medical Center over the period from 1/ 1 /2023 to 30/ 6/ 2024. Inclusion criteria: dry ear for 1 month or more, no cholesteatoma, intact ossicular chain. The pre operative assessment was done for all patients one months before the surgery and this includes CT scan temporal bone to exclude mastoid infection, cholesteatoma and ossicular discontinuity. Also, pure tone audiometry was done for all patients to assess the hearing level which indicated ossicular discontinuity when the hearing loss more than 35 dl. We examined the patients again a week before the surgy to exclude ear infection and a day before the surgery to complete admission processing. In all patients the approach was postauricular and we used temporalis fascia underlay graft for repair. Cortical mastoidectomy with myringoplasty was done in only one patient, whereas in the remaining patients only graft repair without mastoidectomy was done. All patient were discharged next day and received IV antibiotics after the surgery for a week. Data collected: age, sex, perforation size, perforation site, surgical outcomes. Success was defined as intact graft after follow-up for 3 months. Statistical analysis was descriptive with chi-square tests. Statistical analysis was performed using descriptive statistics. The chi-square test was applied to assess associations between categorical variables, such as the relationship between perforation size or site and surgical outcome (success or failure). The chi-square test is a statistical method used to determine whether there is a significant difference between expected and observed frequencies in one or more categories.

Results

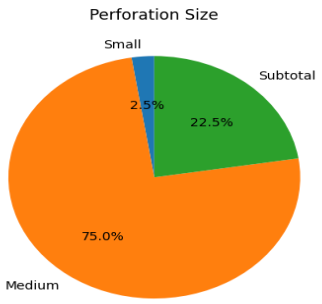
Table 1: Distribution of Patients by Age and Sex

Age Group	Male	Female	Total
20-29	4	6	10
30-39	8	14	22
40-50	2	6	8
Total	14	26	40

Interpretation: According to table 1 above, most patients were in the 30–39 age group (55%), followed by the age group from 20–29 years (25%). Females represented nearly two-thirds of the cohort (65%), while males (35%).

Table 2: Distribution of Patients by Size of Perforation

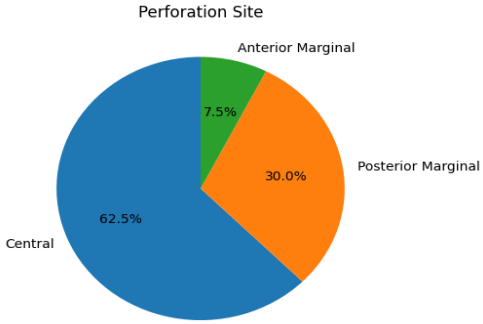
Perforation Size	Number of Patients
Small	1
Medium	30
Subtotal	9
Total number	40



Interpretation: according to the two figures above, Medium perforations were the most common (75%), followed by subtotal (22.5%). Only one case (2.5%) had a small perforation, suggesting patients often present with medium size defects.

Table 3: Distribution of Patients by Site and Outcome

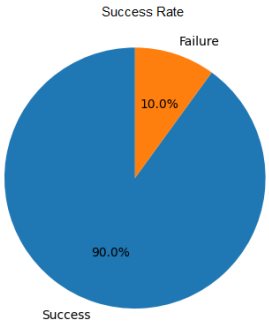
Site	Success	Failure	Total
Central	23	2	25
Posterior Marginal	12	0	12
Anterior Marginal	1	2	3



Interpretation: As it can be seen from table 3 and the pie chart above, the Central perforations were most frequent (62.5%). Posterior marginal perforations showed a 100% success rate, while anterior marginal perforations failed in 67% of cases.

Table 4: Success Rate Summary

Outcome	Number of Patients	Percentage
Success	36	90.0
Failure	4	10.0



Interpretation: As can be seen from the table and the pie chart above, the overall graft uptake 36 (90%), with 4 failures (10%).

Discussion

Our study demonstrated a 90% success rate, comparable with the higher range reported in the previous studies. Karunaratne et al [1]. reported an 88% success rate in a Sri Lankan cohort, while Darouassi et al [2]. reported a 91% success rate in 140 Moroccan patients, Similarly, Kim et al [3]. reported 90% success rate in a Korean population. These findings indicate that our results are consistent with international data and confirm that a high success can be achieved in our local setting.

Age and Sex: In our cohort, most patients were in their 30s, and two-thirds were female. This aligns with other studies reporting a predominance of young to middle-aged adults undergoing surgery [4]. Some series report more female patients, possibly reflecting greater healthcare-seeking behavior[5].

Perforation Size: Medium perforations were most common in our patients, while small perforations were rare. Our data suggest that size alone was not strongly predictive of failure, although larger perforations (subtotal) are generally associated with higher risk in other series [6,8].

Perforation Site: The site of perforation clearly influenced outcome. Central and posterior marginal perforations achieved closure rates of 92% and 100%, respectively, whereas anterior marginal perforations failed in 67% of cases. This is consistent with other studies that highlight anterior perforations as the most challenging due to anatomical and vascular limitations [7,9].

Overall Comparison: Our 90% success rate falls in line with global averages (80–95%), confirming that outcomes at Misrata Medical Center are comparable to other international institutions. Failures in our cohort were largely attributable to anterior marginal perforations or infection, echoing global findings [11,12].

Conclusion

Myringoplasty at Misrata Medical Center demonstrated a 90% success rate. However, perforation site, particularly anterior marginal, appears to influence outcome because of the vascular and anatomical limitation and the necessity of tucking anterior tucking of the graft below the annulus to prevent failing of the graft medially.

References

1. Karunaratne D, Gunawardana I, De Zoysa N, De Silva R. Myringoplasty Outcomes From a 5-Year Single Surgeon's Series. Ceylon Medical Journal. 2021;66[2]
2. Darouassi Y, Al Maghraoui H, Alami M, Benariba F, Bouaity B, Chihani M, Ammar H. Prognostic factors of myringoplasty: study of 140 cases. Pan African Medical Journal. 2019;32 :article 90.
3. Kim HC, Lee JH, Lee WS, Choi JY. Surgical results and factors affecting outcome in patients undergoing myringoplasty. Journal of International Advanced Otology. 2021;17(3):209-214.
4. Lee MK, Kim SH, Kim YJ, Cho HJ, Lee JW. Surgical Outcomes of Pure-Fat Myringoplasty for Small Tympanic Membrane Perforations. Korean Journal of Otorhinolaryngology-Head and Neck Surgery. 2021;64(9):645-651.
5. Silvola JT, Kivekäs I, Poe DS. Long-term outcomes of myringoplasty in children. International Journal of Pediatric Otorhinolaryngology.2024;176:111092.
6. Ozbek C, Ciftçi O, Tuna EEU, Yazkan O, Ozdem C. A comparison of cartilage palisades and fascia in type I tympanoplasty. Otology & Neurotology.2008;29(3):345-349
7. Vartiainen E. Tympanoplasty in young patients: factors influencing surgical outcome. Ann Otol Rhinol Laryngol. 1999;108(7 Pt 1):568–572.
8. Black JH, Wormald PJ. Myringoplasty – effects on hearing and contributing factors. S Afr Med J. 1995;85(1):41–43.
9. Denoyelle F, Roger G, Chauvin P, et al. Myringoplasty in children: predictive factors of outcome. Laryngoscope. 1999;109(1):47–51.
10. Onal K, Arslanoglu S, Songu M, Demiray U, Demirpehlivan IA. Functional results of temporalis fascia versus cartilage grafts in type I tympanoplasty in children. Auris Nasus Larynx. 2012;39(1):22–25.
11. Indorewala S, Adedeji TO. Long-term outcomes of myringoplasty with temporalis fascia: analysis of 422 cases. Indian J Otolaryngol Head Neck Surg. 2015;67(3):259–266.
12. Pignataro L, Grillo Della Berta L, Capaccio P, Zaghis A. Myringoplasty: anatomical and functional results. Ann Otol Rhinol Laryngol. 2001;110(5):485–489.

نتائج رأب الطبلة بمركز مصراتة الطبي دراسة إستعادية

د. خالد سالم بعيو د. عبد الباسط محمد النعاس

الملخص	معلومات المادة
يُعد رأب الطبلة من العمليات الجراحية الشائعة لإصلاح ثقوب الغشاء الطبلي .هدفت هذه الدراسة إلى تقييم معدل النجاح التشريحي والعوامل التنبؤية لنتائج رأب الطبلة الذي أُجري في مركز مصراتة الطبي .تمت مراجعة استعادية لـ 40 مريضًا خضعوا لعملية رأب الطبلة خلال فترة 18 شهرًا من 1/1/2023 إلى 30/6/2024. تم جمع بيانات تتعلق بالعمر، والجنس، وحجم الثقب، ومكانه، والنتائج .وتم تعريف النجاح بوجود رقعة سليمة مع أذن جافة أثناء المتابعة .بلغت نسبة نجاح التئام الرقعة 23 حالة من أصل 25 حالة من الثقوب المركزية مع حالتي فشل .كما تم إصلاح جميع الثقوب الخلفية بنجاح .في المقابل، من بين الثقوب الأمامية الهامشية نجحت حالة واحدة فقط، بينما فشلت حالتان . تُظهر نتائج رأب الطبلة في مركز مصراتة الطبي معدل نجاح مرتفعًا .(90%) وقد كان لمكان الثقب. وحجمه تأثير واضح على النتائج	**الكلمات المفتاحية** عملية رأب الطبلة، ثقب الغشاء الطبلي، التأم الرقعة، النتيجة الجراحية، مصراتة.