



## OUTCOMES OF MYRINGOPLASTY AT MISRATA MEDICAL CENTRE

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### Original article

### ABSTRACT

*Background:* Myringoplasty is a common surgical procedure to repair tympanic membrane perforations. This study evaluates the anatomical success rate and prognostic factors for myringoplasty performed at Misrata Medical Center. *Methods:* 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. *Results:* Among 40 patients, the graft success rate was 36/40 (90%). Failures occurred in 4 (10%). Perforation sizes were predominantly medium (30), with small size in 1 and subtotal in 9. Central perforations accounted for 25 cases, posterior marginal 12, and anterior marginal 3. Of central perforations, 23 succeeded and 2 failed; posterior marginal had 12 successes, 0 failures; anterior marginal 1 success, 2 failures.

*Conclusion:* Myringoplasty at Misrata Medical Center demonstrates a high success rate (90%). Perforation site and size may influence outcomes, especially anterior marginal perforations showing more failures.

### KEYWORDS

Myringoplasty, Tympanic Membrane Perforation, Graft Uptake, Surgical Outcome, Misrata

### 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. Restoring 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. 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].

**PATIENTS AND METHODS**

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 which an indication of ossicular discontinuity 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 we used post aural approach and

we used temporalis fascia underlay graft repair. Cortical mastoidectomy with myringoplasty was done for only one patient, whereas only graft repair was done for the remaining patients. 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**

According to table 1 most patients were in the 30–39 age group (55%), followed by 20–29 years. Females represented nearly two-thirds of the cohort (65%), consistent with global literature.

**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

According to table 2, medium size 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 larger defects.

**Table 2: Distribution of Patients by Size of Perforation**

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

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

**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

According to table 4 the overall graft uptake rate was 90%, with 4 failures (10%). These failures were mainly in anterior marginal and central perforations.

**Table 4: Overall Surgical Outcomes**

Outcome	Number of Patients
Success	36 (90%)
Failure	4 (10%)

Based on table 5 the overall success rate of 90% demonstrates the effectiveness of myringoplasty. The 10% failure rate emphasizes the importance of optimizing patient selection and surgical planning.

**Table 5: Success Rate Summary**

Outcome	Number	Percentage
Success	36	90.0
Failure	4	10.0

**DISCUSSION**

Our study demonstrated a 90% success rate, comparable with the higher end of results in published literature. For example, Karunaratne et al [1]. reported an 88% success rate in a Sri Lankan cohort, while Darouassi et al [2]. observed a 91% success rate in 140 Moroccan patients. Similarly, Kim et al [3]. reported 90% uptake in a Korean population. Thus, our results are consistent with international experience, demonstrating that 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 vascular and anatomical limitation and the necessity of tucking anterior tucking of the graft below the

annulus to prevent failing of the graft medially.

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