

ORIGINAL ARTICLE

Outcome of myringoplasty for tympanic membrane perforation

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ABSTRACT:

Background: Myringoplasty is a surgical procedure performed to repair a perforation or hole in the tympanic membrane. The present study was conducted to assess outcome of myringoplasty for tympanic membrane perforation. **Materials & Methods:** 58 patients with chronic otitis media, non-healing traumatic TM perforations, residual perforation following ASOM, patients with dry TM perforation for at least 6 weeks underwent myringoplasty. Pre-operative otoscopic and video otoendoscopic examination was done to record size and site of perforation. Post-operative otoscopic examination was also done to detect success and failure cases. **Results:** Out of 58 patients, males were 32 and females were 26. Based on site, success rate of perforation at anterior region was 89%, at posterior region was 92%, at central region was 88% and at inferior region was 90%. Based on size, pin point was 100%, at small was 85%, medium showed 79% and large had 44% cases. The difference was significant ($P < 0.05$). **Conclusion:** The Success rate of small and medium size tympanic membrane perforations found to be higher as compared to large size perforation. Posterior and anterior perforation exhibited higher success rate.

Keywords: Myringoplasty, Success, Tympanic membrane perforations

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INTRODUCTION

Myringoplasty is a surgical procedure performed to repair a perforation or hole in the tympanic membrane (eardrum). Tympanic membrane perforations can occur due to various factors.¹ Direct trauma to the ear, such as a blow to the ear or insertion of a foreign object into the ear canal, can cause a perforation. Severe or chronic ear infections, particularly otitis media, can lead to the accumulation of fluid or pus behind the eardrum, causing pressure and eventual rupture.² Rapid changes in air pressure, such as during scuba diving, air travel, or explosions, can cause barotrauma to the ear, leading to a perforation. Inserting objects into the ear canal, such as cotton swabs or hairpins, can damage the delicate structure of the tympanic membrane and cause a perforation.³

Myringoplasty is typically indicated for patients with a persistent perforation of the tympanic membrane that has not healed spontaneously.⁴ Perforations can occur as a result of trauma, infection (such as chronic otitis media), or other causes.⁵ A condition as old as the evolution of the human species is tympanic membrane perforation. It is among the most typical reasons why people lose their hearing.⁶ The main cause of TM perforation among the numerous causes is infection. Acute or persistent infections can be

caused by bacteria or mycobacteria. Trauma of any kind, including penetrating, surgical, and blunt trauma, can result in TM perforation.⁷ If treated promptly, perforations resulting from trauma or acute infection typically heal. Myringoplasty is recommended for a straightforward pars tensa hole with an undamaged annulus (central perforation) and no extra middle ear lesion.⁸ The present study was conducted to assess outcome of myringoplasty for tympanic membrane perforation.

MATERIALS & METHODS

The present study was conducted on 58 patients with tympanic membrane perforation of both genders. All were informed regarding the study and their written consent was obtained. Inclusion criteria was patients with chronic otitis media, non-healing traumatic TM perforations, residual perforation following ASOM, patients with dry TM perforation for at least 6 weeks. Data such as name, age, gender etc. was recorded. Pre-operative otoscopic and video otoendoscopic examination was done to record size and site of perforation. Post-operative otoscopic examination was also done to detect success and failure cases. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 58		
Gender	Males	Females
Number	32	26

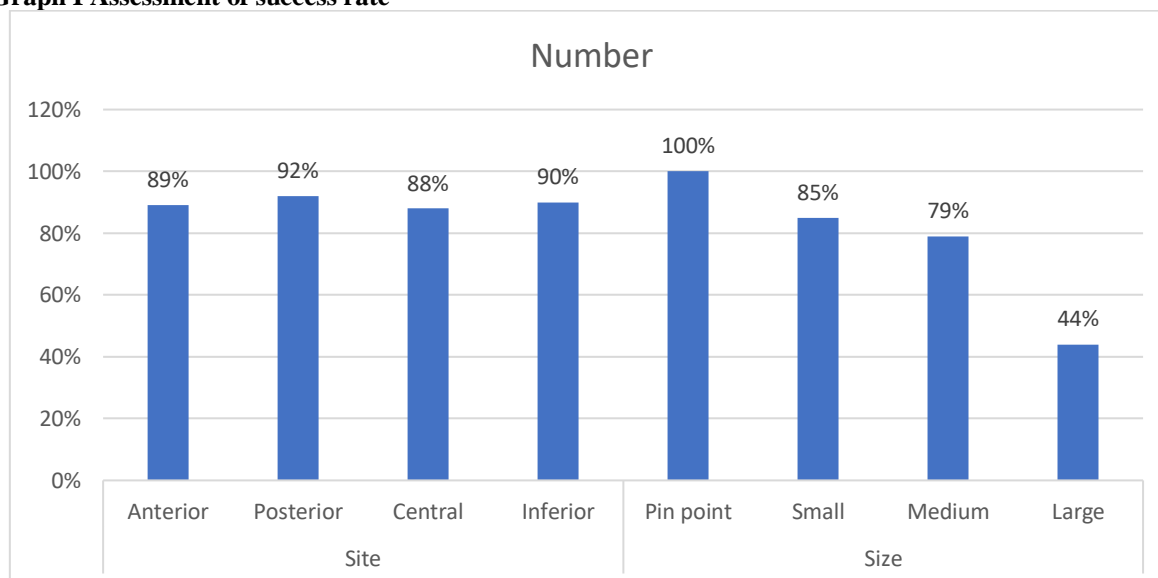
Table I shows that out of 58 patients, males were 32 and females were 26.

Table II Assessment of success rate

Parameters	Variables	Number	P value
Site	Anterior	89%	0.74
	Posterior	92%	
	Central	88%	
	Inferior	90%	
Size	Pin point	100%	0.05
	Small	85%	
	Medium	79%	
	Large	44%	

Table II shows that based on site, success rate of perforation at anterior region was 89%, at posterior region was 92%, at central region was 88% and at inferior region was 90%. Based on size, pin point was 100%, at small was 85%, medium showed 79% and large had 44% cases. The difference was significant (P< 0.05).

Graph I Assessment of success rate



DISCUSSION

The success rate of myringoplasty is generally high, with the majority of patients experiencing closure of the perforation and improvement in hearing.⁹ However, full recovery may take several weeks to months as the graft integrates and heals completely.¹⁰ In some cases, a second procedure may be necessary if the initial repair is not successful or if the perforation recurs.¹¹ Myringoplasty is usually performed under local or general anesthesia, depending on the patient's preference, the extent of the procedure, and the surgeon's recommendation.¹² The present study was conducted to assess outcome of myringoplasty for tympanic membrane perforation. We found that out of 58 patients, males were 32 and females were 26. Das et al¹³ spent Six months for monitoring the 60 individuals who had myringoplasty after the procedure. Randomly chosen patients

underwent the procedure if they had a dry perforation, a functional Eustachian tube, an intact and movable ossicular chain, and a decent cochlear reserve. All cases underwent video otoscopy using a Storz 0 degree endoscope. The success rate was 100% for small and pin-point perforations, 80% for medium-sized perforations, and 69.5 % for big and subtotal perforations.

We observed that based on site, success rate of perforation at anterior region was 89%, at posterior region was 92%, at central region was 88% and at inferior region was 90%. Based on size, pin point was 100%, at small was 85%, medium showed 79% and large had 44% cases. Merenda et al¹⁴ determined if preoperative tympanometric volumes have any predictive value in the success of pediatric tympanoplasty. Fifty-eight pediatric patients who underwent tympanoplasty were studied; reviewed

factors included recent discharge from the ear, perforation size, disease of the contralateral ear, age, gender, middle ear findings, and location of perforation. The overall success rate was 59 percent. The success rate was 89 percent for patients with a large preoperative tympanometric volume compared with 34 percent for patients with a small volume. Multivariate analysis demonstrated that disease of the contralateral ear and a large tympanometric volume were statistically significant. Gersdorff M et al¹⁵ presented the long-term results 3 years after primary myringoplasties performed with formalized fascia temporalis autografts. The overall closure rate was 87.7% of cases, with improvement in hearing in 67.2% of cases. The best results were achieved with total perforations, and not with partial posterior perforations, contrary to popular opinion. The anterior perforations were the most difficult to close. Anterior angle blunting was avoided by careful technique. Although the results of myringoplasty are clearly better in adults than in children, there is not a determined "frontier age" before which a child may not undergo operation. The state of the middle ear at the time of operation influences surgical outcome: wet ears have a higher rate of perforation, myringitis, and retraction pocket. Medical treatment is recommended prior to surgery in every discharging ear, as a diagnostic method rather than a therapeutic one. The shortcoming of the study is small sample size.

CONCLUSION

Authors found that the success rate of small and medium size tympanic membrane perforations found to be higher as compared to large size perforation. Posterior and anterior perforation exhibited higher success rate.

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