

Original Research

Assessment of etiological profile of patients with traumatic tympanic membrane perforation

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ABSTRACT:

Background: Otolaryngologists often treat traumatic tympanic membrane (TM) perforations, which are injuries to the eardrum. The present study was conducted to assess etiological profile of patients with traumatic tympanic membrane perforation. **Materials & Methods:** 76 cases of traumatic tympanic membrane perforation of both genders were examined carefully by an ENT surgeon. Parameters such as size, site, complaint and mechanism of injury was recorded. **Results:** Out of 76 patients, there were 46 males and 30 females. The mechanism of injury was armed robbery in 21, self-inflicted in 11, RTA in 30, and physical violence in 14 cases. Site involved was anterior in 26, posterior in 31 and undefined in 19 cases. Side involved was left in 42, and right in 34 cases. Complaints was otalgia in 21, tinnitus in 37, otorrhoea in 18 and vertigo in 54 patients. The difference was significant ($P < 0.05$). **Conclusion:** Common complaints of patients with tympanic membrane perforation was otorrhoea, vertigo, otalgia, and tinnitus. Site was anterior, posterior and undefined.

Key words: tympanic membrane, otalgia, vertigo

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INTRODUCTION

Otolaryngologists often treat traumatic tympanic membrane (TM) perforations, which are injuries to the eardrum. Thermal or chemical burns, direct penetrating trauma, barotrauma, and abrupt changes in ear pressure (such as those experienced during flying or scuba diving) are common causes of traumatic TM perforation.¹ Trauma-related TM perforations are becoming more common as a result of trauma, as well as the rise in violence and accidents that occur in modern society.² The three main signs of TM perforation are hearing loss, earache, and buzzing in the ears. Furthermore, TM perforation may raise the chance of developing otitis media or a middle ear infection. While myringoplasty is the recommended treatment for large TM perforations, most tiny eardrum perforations can heal on their own.³

Tympanoplasty yields an audiological outcome of 80%–90%; an improvement in the air bone gap of 15 dB or more is deemed a satisfactory result.⁴ The state of the middle ear, the existence or absence of cholesteatoma, the state of the ossicular chain, and the degree of middle ear aeration all affect the

audiological result.⁵ There are several ways to enhance the surgical process, mainly with regard to the material utilized to repair the eardrum defect, because all of these variables might affect the audiological result. Autologous materials, such as temporal fascia, fascia lata, cartilage with or without perichondrium, veins, fat, and skin, can be used to close the defect.⁶ The present study was conducted to assess etiological profile of patients with traumatic tympanic membrane perforation.

MATERIALS & METHODS

The present study consisted of 76 cases of traumatic tympanic membrane perforation of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. An ENT surgeon carefully examined the ear. Parameters such as size, site, complaint and mechanism of injury was recorded. Data was entered in MS excel sheet and statistical analysis was performed. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 76		
Gender	Male	Female
Number	46	30

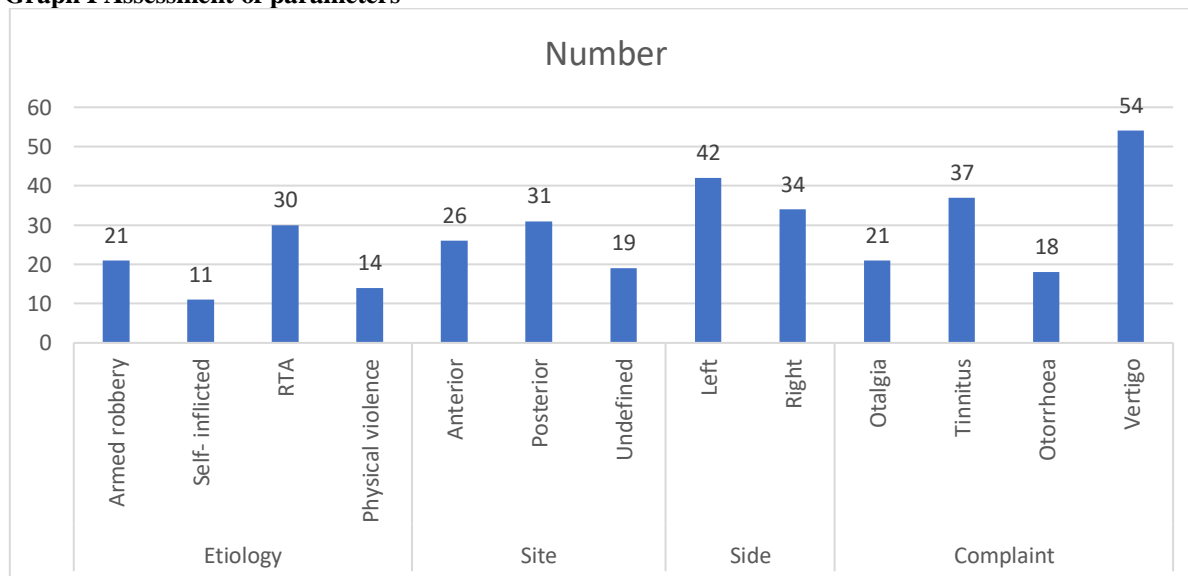
Table I shows that out of 76 patients, there were 46 males and 30 females.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Etiology	Armed robbery	21	0.05
	Self- inflicted	11	
	RTA	30	
	Physical violence	14	
Site	Anterior	26	0.82
	Posterior	31	
	Undefined	19	
Side	Left	42	0.91
	Right	34	
Complaint	Otalgia	21	0.69
	Tinnitus	37	
	Otorrhoea	18	
	Vertigo	54	

Table II, graph I shows that mechanism of injury was armed robbery in 21, self- inflicted in 11, RTA in 30, and physical violence in 14 cases. Site involved was anterior in 26, posterior in 31 and undefined in 19 cases. Side involved was left in 42, and right in 34 cases. Complaints was otalgia in 21, tinnitus in 37, otorrhoea in 18 and vertigo in 54 patients. The difference was significant ($P < 0.05$).

Graph I Assessment of parameters



DISCUSSION

Trauma can impact any region of the body and is still a common occurrence in human activities and lifestyle.⁷ Because the ear is a part of the cranio-facial skeleton, it is susceptible to environmental damage. This trauma can manifest as penetrating injuries like fractures or blunt injuries like contusions, concussions, and decompressions.⁸ Serious damage to the ears can cause hearing loss and trouble maintaining balance, particularly if the inner ear is impacted.⁹ However, more ear damage affects the soft tissue structures in the middle and external ears or the

skeletal skeleton. Ear injuries can cause the ossicular chain in the middle ear cavity to be disrupted as well as lacerations in the external ear.¹⁰ The present study was conducted to assess etiological profile of patients with traumatic tympanic membrane perforation.

We found that out of 76 patients, there were 46 males and 30 females. The mechanism of injury was armed robbery in 21, self- inflicted in 11, RTA in 30, and physical violence in 14 cases. Dabholkar et al¹¹ evaluated the efficacy of temporalis fascia and tragal perichondrium as grafting material in underlay tympanoplasty. In this study surgical success was

evaluated in terms of intact drum membrane during the follow up period and closure of A–B gap within 10 dB. Temporalis fascia achieved a graft uptake of 84% and a satisfactory hearing improvement in 76% of the patients. Tragal perichondrium achieved a success rate of 80% graft uptake and 75% hearing gain. The rates are comparable with no statistical significance of the difference between them.

We observed that site involved was anterior in 26, posterior in 31 and undefined in 19 cases. Side involved was left in 42, and right in 34 cases. Complaints was otalgia in 21, tinnitus in 37, otorrhea in 18 and vertigo in 54 patients. Lou et al¹² reported that slap or a fist by a spouse or lover was responsible for more than half of cases of TTMP in their study. Spousal abuse is both a legal and a social issue, however this action should be condemned. Equally condemnable is the assault from state security personnel, and they are also enjoined to desist from assault of the citizenry even if a criminal act has been committed.

Baba et al¹³ conducted a survey on 324 patients with chronic, simple, suppurative otitis media who had undergone tympanoplasty 6 months or more previously to investigate post-operative hearing, tinnitus, vertigo, occlusive feeling of the ear and otorrhea. In addition, the overall satisfaction with tympanoplasty was assessed by VAS value. Subjective hearing improvement was observed in 73.1% of the patients whose hearing was poor and in 50% of those whose hearing was good before the operation. The degree of satisfaction assessed by VAS value corresponded with the subjective hearing assessment. As to tinnitus, 66.2% of the patients became aware of the disappearance or alleviation of symptoms. In the case of patients who had tinnitus before the operation, the degree of awareness of tinnitus and the degree of satisfaction assessed by VAS value coincided. However, no changes in the VAS value were observed in those who did not have tinnitus before the operation. As for vertigo, 30.5% of the patients who had vertigo preoperatively became aware of the disappearance of the symptoms after the operation. The degree of satisfaction assessed by VAS value corresponded with the presence or absence, severity and frequency of vertigo. As to the fullness of the ear, alleviation of the symptoms was subjectively noted by 85.9% of the patients who had symptoms before the operation. The degree of satisfaction assessed by VAS value corresponded with the severity of the symptoms in those who had symptoms before the operation. As for otorrhea, the disappearance of

the symptoms was subjectively noted by 85.5% of the patients who had otorrhea before the operation. The degree of satisfaction assessed by VAS value corresponded with the post-operative changes in otorrhea.

CONCLUSION

Authors found that common complaints of patients with tympanic membrane perforation was otorrhea, vertigo, otalgia, and tinnitus. Site was anterior, posterior and undefined.

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