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Original Research Article

TO STUDY THE OUTCOME OF PAPER PATCH MYRINGOPLASTY IN PATIENTS WITH TYMPANIC MEMBRANE PERFORATIONS

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Abstract

Background: The aims of our study were to evaluate the outcome of office-based paper patch grafting in tympanic membrane (TM)

Methods: This is a retrospective study of 50 patients that underwent paper patch myringoplasty in an outpatient setting.

Results: The long-term success rate of paper patch grafting for TM perforation was 78.00% in this study

Conclusion: Paper patch grafting can also be considered before formal surgical myringoplasty in the case of small, dry, chronic TM perforations.

Keywords: Myringoplasty, TM, Paper patching.

Introduction

Tympanic membrane perforation is seen as partial and/or total rupture of the ear membrane which can occur for many reasons such as trauma, infection, malignant tumors or iatrogenic interventions. [1]

Chronic supportive otitis media (CSOM) is an infection of the middle ear cavity, the eustachian tube and mastoid and is the most frequent cause of permanent tympanic membrane perforation, especially in developed countries. Because of perforation, the tympanic membrane is non-intact and there is an intermittent suppurative discharge in the external ear pathway.[2]

Conductive hearing loss accompanies the table because of tympanic membrane perforation. Even though a low socio-economic level, crowded living environments, insufficient intake of maternal breast milk, poor nutrition, cigarette smoking, and allergies are held responsible in the etiology, the main etiological factor is frequently recurring and not fully treated middle ear infections [3]

Traumatic tympanic membrane perforations (TTMP) are a result of blunt or penetrating trauma causing increased pressure in the external ear pathway, such as traffic accidents, slap injury, blast injury, terror attacks or self-inflicted injuries. Perforations are generally in the anterior quadrant in the pars tensa and tend to spontaneously recover.[4]

Materials and Methods

Type of study- Retrospective study

Inclusion criteria- Patients with TM perforations regardless of the cause or onset

Exclusion criteria-

- Not willing to participate in the study.
- History of previous middle ear surgery;
- Nasopharyngeal or skull base pathology resulting in Eustachian tube dysfunction;
- History of radiation to head and neck region;
- Attic perforation;
- Patient refusing paper patch grafting and choosing alternative treatment options; and
- Patients who were followed up for less than 1 year after paper patch grafting.

Results

Table 1: Demographic variable

Mean age	41.36±16.39 Yrs
Sex (Male : Female)	23:27
Etiology (Trauma: Infection: Iatrogenic: Unknown)	24 : 21 : 3 : 2
Side (Right:Left)	23:27

Mean age of patients 41.36±16.39 Yrs. 27 patients were female and 23 patients were male. 24 cases were traumatic injury and 21 cases were infective.

Table 2: Clinical profile

Tinnitus present		29(58.00%)
Hearing loss present		30(60.00%)
Time interval between TM perforation and patch grafting	< 3 weeks	32(64.00%)
	3 weeks- 3 months	12(24.00%)
	>3 months	6(12.00%)
Size of TM perforation	<1/3	39(78.00%)
	1/3-2/3	9(18.00%)
	>2/3	2(4.00%)
Location of TM perforation	Anterior	33(66.00%)
	Inferior	4(8.00%)
	Posterior	10 (20.00%)
	Multiple	3(6.00%)
Duration for complete healing (weeks, mean±SD)		13.2±12.63
Success rate		78(78.00%)

Discussion

The long-term success rate of paper patch grafting for TM perforation was 78.00% in this study. Our success rate is similar to or slightly higher than those in previous reports [5,6]. However, our general success rate is lower than that reported by Lou et al. [7] In their study, almost 98% of 504 cases with traumatic TM perforations were acute onset (within 1 month after a trauma), and a spontaneous healing rate of 89% cases was reported. Our success rate of paper patch grafting for traumatic TM perforations were acute onset is still lower than that of Lou et al. [8] and this difference in success rate suggests that there may be other prognostic factors apart from etiology.

The strength of this study is that we evaluated the predictive clinical factors for successful paper patch myringoplasty for TM perforation. Previous studies reported the size of TM perforations as the predictor for successful paper patching. Golz et al.[6] reported that the closure rate of paper patch myringoplasty depended on the perforation size in the cases of chronic perforations of more than 1 year. Lee et al. [7] also reported that TM perforations of less than 4 mm show the highest closure rate, significantly in cases of chronic otitis media. However, these two studies analyzed only the size of TM perforation as the outcome predictor and did not evaluate any other clinical factors.

The study by Park et al. [8] reported that perforation size was the only outcome predictor of paper patch myringoplasty, although they analyzed predictive factors, including age, sex, affected ear, hearing level, duration of perforation, cause, location and size of perforation, relationship between the perforation border and the malleus, status of TM surface, and number of patch applications. Contrastingly, our study revealed that patient's age, etiology of TM perforation, and history of otorrhea were the important predictive factors for successful paper patch myringoplasty for TM perforation. There were three major differences between the materials and methods of the two studies. The candidates of Park et al. [8] had chronic perforations lasting for more than 3 months; however, our study included all TM perforations regardless of duration.

Conclusion

The predictors of successful outcome were patient's age and etiology of perforation. Clinicians can attempt paper patch myringoplasty first in younger patients, traumatic TM perforation cases, and in patients with no history of otorrhea. Paper patch grafting can also be considered before formal surgical myringoplasty in the case of small, dry, chronic TM perforations.

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