ORIGINAL ARTICLE

MYRINGOPLASTY IN SIMPLE CHRONIC OTITIS MEDIA

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ABSTRACT

Background: Myringoplasty is one of the surgical techniques for the management of chronic suppurative otitis media with permanent perforation of tympanic membrane. It is defined as simple surgical repair of tympanic membrane perforation without doing ossicular reconstruction. The aim of this study is to analyze the anatomic and functional outcome of this procedure in our setting.

Material & Methods: This descriptive study was conducted from October 2010 to October 2011, at DHQ and Al-Shifa Hospital Dera Ismail Khan. Patients with dry perforation for 6 weeks were included while those with any other associated ear pathology, prior ear surgeries or less than 5 years of age were excluded from the study. Informed consent was taken from all the patients. All patients were operated under microscope with underlay technique through postaural approach by single surgeon.

Results: Total number of operated ears was 53. Mean age of the patients was 17.3+4.3 years; 28(52.83%) were males while 25(47.16%) females. The overall success rate of myringoplasty was 88.6% and 73.5% in terms of anatomical and functional outcomes respectively. No major complication such as worsening of hearing or dead ear was observed. Hematoma formation was seen in 12(22.6%) while wound dehiscence in 9(16.9%) patients.

Conclusion: Myringoplasty is a safe surgical procedure in achieving intact tympanic membrane and to improve the hearing loss.

Key Words: Myringoplasty, Chronic otitis media, Tympanic perforation.

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INTRODUCTION

Chronic suppurative otitis media (CSOM) is a major otological problem which account for a large number of out-patient cases in our locality. Patients suffering from chronic suppurative otitis media of tubotympanic type with permanent perforation are handicapped not only because of hearing loss but also from recurrent otorrhoea. Myringoplasty is one of the surgical techniques for the management of CSOM with permanent perforation of tympanic membrane. It is defined as simple surgical repair of a tympanic membrane perforation without doing ossicular reconstruction. The purpose of the operation includes closure of the perforation and improvement in hearing levels.[1]

Perforation of the tympanic membrane may be due to middle ear infections, trauma or iatrogenic causes. Around 80% heal spontaneously while the remaining needs to be repaired.[2] The concept of surgical repair of tympanic membrane was first introduced by Berthold in 1878, with thick skin graft by overlay technique while Wullstein and Zollner used the split skin grafts.[3-5] Since then, over the period of many decades, different grafts and techniques evolved. The principal indications for myringoplasty are recurrent otorrhea and conductive hearing loss.

The outcomes of this surgical procedure depend on many factors such as location and size of perforation, chronicity, age, gender, techniques and experience of the operating surgeon.[6]

The aim of this study is to analyze the anatomic and functional outcome of this procedure in our setting.

MATERIAL AND METHODS

It is a prospective study conducted from October 2010 to October 2012 at District Head Quarter Teaching hospital and Al-Shifa Hospital, Dera Ismail Khan.

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The patients having dry perforation of at least 6 weeks were included in the study. While the patients with history of prior ear surgery or any other associated ear pathology and the patients less than 5 years of age were excluded from the study.

A thorough history and clinical examination of ear, nose and throat was carried out. Ears examination was done under the microscope. Hearing assessment (pre and post-operatively) was done by tuning fork test with frequency of 512 Hz as the facility of pure tone audiometry was not available in our locality.

Informed consent was obtained from the patients meeting the inclusion criteria. All patients were operated under general anesthesia using operating microscope by the same surgeon. Postaural approach was adopted and temporalis fascia graft was taken. Underlay technique was used in all patients. BIPP Pack was placed for 2 weeks. Patients were followed every two weeks for the period of 2 months and were examined under microscope.

A proforma was used to collect the data such as age, gender, perforation size & location, conductive loss present or absent, surgical approach, technique, post surgical results and complications.

Data was analyzed on SPSS Version 17 for the percentage and frequency of different variables.

RESULTS

Total number of operated ears were 53. Mean age of the patients was 17.3+4.3 years. Among these 28 (52.83%) patients were males while 25 (47.16%) females.

Regarding the clinical presentation, 30 (56.6%) patients presented with recurrent otorrhea as well as decreased hearing, 12 (22.6%) had complain of recurrent otorrhea only while 11 (20.7%) wanted myringoplasty only to improve their hearing loss. Tuning fork test with 512 Hz frequency shown that 41 (77.4%) patient had conductive hearing loss while in 12 (22.64%) patients no hearing loss was observed. 28 perforations were central, 20 were subtotal and 5 were total perforations. 48 perforations were due to middle ear infections while 5 patients had traumatic perforations.

Myringoplasty was successful in 47 patients to achieve, anatomically, the intact tympanic membrane while there was failure in 6 (11.3%) patients. However, Hearing improvement was seen only in 39 patients among the 47 in which the intact tympanic membrane was achieved (Here, hearing improvement means no conductive loss observed on tuning fork test only). Therefore, the overall success rate of myringoplasty was 88.6% and 73.5% in terms of anatomical and functional outcomes respectively.

No major complication such as worsening of hearing or dead ear was observed. Hematoma formation was seen in 12 (22.6%) patients while wound dehiscence was observed in 9 (16.9%) patients.

DISCUSSION

Myringoplasty or tympanoplasty type 1 is the surgical procedure in which the reconstructive process is limited to repairing tympanic membrane perforation. The main objective of myringoplasty has traditionally been the closure of tympanic perforation to prevent chronic infections and to make the ear safe.[7] Consequently the 2nd objective is to improve the hearing loss which resulted due to perforation of tympanic membrane.

There are various techniques of myringoplasty with their own corresponding results. However, still there is no consensus about the optimal technique, which is often employed on the basis of surgeon's preference and skills.[8] We used the underlay technique through postaural approach. Glasscock reported 96% success rate in using underlay technique while 91% success results using overlay technique. But Rizer achieved higer success rate in overlay technique.[9,10] While postaural approach gives excellent surgical view and great ease in manipulating the graft after raising the tympanomeatal flap.[1] Similarly, with postaural approach, temporalis fascia graft can also be harvested with the same incision while in permeatal or endaural approach, a separate incision is needed to take the same graft.

We observed 88.6% success rate in terms of closure of perforation. This figure falls within wide range of successful closure of the perforation described in the literature (66%-91%).[11-13] There are various clinical as well as technical factors which can influence the results of myringoplasty. Albera reported that surgical approach is the principal prognostic factor in the anatomic outcome of myringoplasty.[14] On the other hand, Vartiainen observed that age of the patient, size or site of the perforation or surgical technique did not affect the surgical results. The most decisive factor influencing the results appeared to be the surgeon's experience.[15] Similarly, Lassaletta[16] noted that outcomes of surgery are not related to age at operation, duration, mechanism, size and location of perforation or the condition of opposite ear. So, still there is no consensus over the prognostic factors of myringoplasty. Protocols vary from institution to institution and surgeon to surgeon. Therefore, there is a great need of such a work which can help to set the uniform definitive criteria in predicting the optimal outcomes of myringoplasty.

The major drawback of this study is the hearing tests e.g. pure tone audiometery which was not performed as this facility was not available in our locality; government as well as in private setting. Due to this limitation, we had to rely only on tuning fork test preoperatively and postoperatively. However, we achieved 73.5% success rate in term of hearing improvement. Frade[17] obtained 75.6% success rate in hearing outcomes and observed that the factors influencing the hearing improvement were presence of middle ear alterations and surgeon experience. Vartiainen[15] also achieved the same results but noted that cause of persistent hearing loss was found to be fixation or erosion of ossicles and chronic mastoiditis which might be overlooked by the surgeon.

Usually myringoplasty is a safe surgical procedure. It does not carry risk of fatal complications. Rare complications may be the worsening of hearing, late incidence of cholesteatom formation[15] and attacks of vertigo or tinnitus. Other complications such as wound infection and hematoma formation may be the result of any surgical procedure. We also observed no major complications except 16.9% wound infections and 22.6% hematoma formation.

CONCLUSION

Myringoplasty is a safe and effective surgical procedure in achieving intact tympanic membrane and to improve the hearing loss. We achieved anatomical (88.6%) and functional success (73.5%) comparable to those in the literature.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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