

A study on tympanoplasty in perforated ear drum

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Abstract

Tympanoplasty without mastoidectomy is performed to control infection through eradication of disease and to reconstruct the sound conducting mechanism. In our study 100 patients were selected for tympanoplasty operation. All operations were done in Dhaka medical college hospital and private hospital in Dhaka city. Choice of incision was post auricular approach 40% of patients were operated under general anesthesia and 60% of patients were operated under local anesthesia. Age range of patient was between 16 to 30 yrs. Female patients were predominant. Follow up of patients with were up to 2 yrs. Overall success rate was 92%.

Keyword - Tympanoplasty

Introduction

Tympanoplasty also called ear drum repair, refers to surgery performed to reconstruct a perforated tympanic membrane¹. Ear drum perforation may result from chronic infection or less commonly from trauma to the ear drum. Chronic suppurative otitis media is common diseases in Bangladesh². The complication of CSOM is declining day by day in our country because many surgeons are doing the modern treatment successfully³.

There are five types of tympanoplasty⁴. We here perform only type I tympanoplasty. This operation can be done by general as well as local anaesthesia⁴. The incidence of local anesthesia is gradually increasing due to its less complication³. There are different type of graft material used among them temporalis fascia is widely used to its advantage⁵. We used temporalis fascia⁵ in all cases where as some practice with tragal perichondrium⁶. We do performed tympanoplasty by post auricular incision in all cases⁶. We used underlay technique⁶. We intended to evaluate the outcome of first 100 cases of tympanoplasty operation.

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Method and Material

Patients with chronic suppurative otitis media with central perforation admitted in Dhaka Medical College Hospital in ENT department and private clinic from July 2002 to August 2005 were included in this study.

Out of all patients of tympanoplasty only 100 patients has been reported. The age of the patient was between 16 to 30 yrs. Females were predominant over males. No revision cases were included in our study.

Evaluation of patients were done by proper history taking, examination thoroughly, radiologically, audiological & finally examined under microscope. All central perforations were dry for at least 3 months.

Anesthesia: 40% cases were done by general anesthesia with local infiltration and other 60% were done by local anesthesia with deep sedation.

Operation Technique:

Local infiltration given with 2% xylocaine with adrenaline. Post auricular incision were used. From same incision line temporatis fascia graft was taken. Underlay technique used. Under Microscope fashioning of the perforated margin done Tympanomeaetat flap raised. Graft material was then secured between the tympanic membrane and a bed of gel foam placed in the middle ear. Few Gel foams were the placed on graft. Incision was closed. Post operatively care was taken to prevent infection. Stitch was removed after 7 days. After 14 days outer pack from external auditory canal removed. Finally inner pack removed after 21 days. Follow ups were done after 3 & 6 months.

Results

Table-I
Cause of Perforation (N=100 Ears)

Causes	No. of Patients	Percentage
CSOM	96	96%
Trauma	4	4%

Table-II
Site of Perforation (N=100 Ears)

Perforation	No. of Patients	Percentage
RT Ear	25	25%
LT Ear	50	50%
Bilateral	25	25%

Table-III
Sex Distribution (N=100 Ears)

Sex	No. of Patients	Percentage
Male	40	40%
Female	60	60%

Table-IV
Position of Perforation (N=100 Ears)

Position	No. of Patients	Percentage
Anterior	40	40%
Posterior	44	44%
Inferior	6	6%
Subtotal	5	5%
Kidney Shaped	5	5%

Table-V
Results (N=100 Patients)

Cured	92	92%
Failure	8	8%

Table-VI
Complications

Complication	No. of Patients	Percentage
Recurrent Perforation	6	6%
Adhesion in Middle Ear	2	2%
Facial Nerve injury	nil	nil
Retraction TM	nil	nil

Discussion

Tympanoplasty is now popularized in our country due to its great success rate with less complication. Outcome depends on selection of patients. Central perforation with wide margin is a wide margin is a good candidate for tympanoplasty operation² Ear should be dry for at least 3 months. Eustachian tube must be patent for good result.^{4,5} In our study post auricular incision was given in all cases. It is easy to perform and the view of site under microscope is wide. For the beginner it is a better approach. Other incision like endaural or permealal can also be given.^{6,7} Temporalis facial was used in every case because it is thin but tough, can be obtained in same incision, has low O₂ demand i.e. low metabolic rate, after healing look like normal TM,^{6,7} Tragal perichondrium are also used by other authors.^{7,8} Tympanoplasty can be performed under on lay and underlay technique, which give opportunity to inspect and test the mobility of ossicular chain, any disease process can be removed, no chance of trapping squamous epithelium, cholesteatoma pearl formation. Female to male ration was 1.5:1. Perforation due to CSOM and deafness was major complaints. Posterior of quadrant perforation was found more than other type of perforation,^{9,10} Left ear perforation was found more. Over all success rate was 92%,^{9,10,11} there was no major complication like facial nerve injury or perilymph fistula. Minor complication like recurrent perforation, adhesion in middle ear retraction of TM due to graft failure occur in only 8% of cases. This operation can be done both by general local anesthesia. Nervous patient and female patient can be done under general anesthesia. Local anesthesia is cost effective but better pre operative counseling is needed.

Follow up of the patients was up to 2 yrs. Most of the patients come with 5 visits up to 6 months. After that only 15% patients came with follow up visit up to 2 years.

Conclusion

In our country most of the patient live in village where there is lack of facilities of this type of modern treatment. Most of the medical college hospital do not have microscope. Tympanoplasty is performed to control infection in middle eger, to improve hearing is a prerequisite in military service and helps in hearing Aids insertion. It is not a difficult operation. Thorough evaluation of the patient before operation needed.

It is urged that surgeon should have appropriate experience in microscope and should have keen knowledge about surgical anatomy of external and middle ear by cadaveric temporal bone dissection.

References

1. Zoltner F. Panel on myringoplasty (2nd workshop on Reconstructive middle Ear Surgery). Arch. Otolaryngot 1963;78,301-302.
2. Claros-Domenech A. 100 tympanoplastics practised with the aid of the use of free periosteal membrane graft. Revue de Laryngologie. Otologie, Rhinologie (Bordeaux) 1959; 80:917-921.
3. Raine C.H. Singhs. Tympanoplasty in children a review of 114 cases. J. Laryngol. Otol 1983;97:217-221.
4. Tabb H.6. Closure of perforations of tympanic membrane by vein grafts. Laryngoscope 1960;73,699.
5. Sheehy J.L. Glasscock M.E. Tympanic membrane grafting with temporalis fascia. Arch. Otol 1967;86:391.
6. Halk J.L, Symyth G.D.L. Long term result of tympanic membrane repair. Otolaryngol Head Neck Surg 1988;98:162-169.
7. Jurovitzki I Et SADE J. Myringoplasty long term follow up. Am. J. Otol 1988:9, 52-55.
8. Audit Commission Report. A short cut to better services Day Surgery in England Et Wales. Ann. Roy. Colt. Surg 1990: 72, supplement.
9. Downey T.J.A.L. Champeaux and A.B. Silva. "Alto Derm Tympanoplasty of Tympanic membrane perforations" A. Journal of Otolaryngology (January/February 2003:24, 6-13.
10. Sheahan P.T.O' Dwyer and A. Blayney. "Results of Type I Tympanoplasty in children and parental perceptions of Surgery, Journal of Laryngology Ft Otology June 2002: 116,430-4.
11. Hasan M. Abdullah M et all. Day case myringoptasty under local anaesthesia using temporalis facial. Bangladesh Journal of Otorhinolayngology 2001:7(2), 29-33.