

COMPARATIVE EVALUATION OF CORTICAL MASTOIDECTOMY WITH MYRINGOPLASTY WITH MYRINGOPLASTY ALONE IN SAFE TYPE OF CSOM

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Ear Nose Throat

Abstract:

Chronic suppurative otitis media is a common disease encountered in everyday practice of otolaryngologist and it can at times be troublesome to achieve a totally dry ear and to improve the patients hearing. The aim of the study was to study factors influencing Myringoplasty and to determine the role of cortical mastoidectomy in Myringoplasty. A total of 60 cases of CSOM tubo-tympanic disease were included into the study. The study revealed that the success rate for graft up take was better in younger age groups (less than 40 yrs) with significant difference in success rates of graft up take in patients with unilateral disease. Higher uptake was found in medium sized perforation as compared to subtotal perforations. It was found in the study that better results were obtained by performing a Myringoplasty with cortical mastoidectomy than with Myringoplasty alone.

Key words: Myringoplasty, mastoidectomy, perforation, CSOM

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Introduction:

Chronic suppurative otitis media (CSOM) of tubo-tympanic type is typically a persistent disease of the middle ear cleft, clinically manifesting with deafness and discharge. The management of CSOM has witnessed a profound change over the last century. Development in microbiology and availability of better antibiotics together with emphasis on preserving hearing has further modified the approach to its management. The management of CSOM safe type includes control of middle ear and mastoid infection with appropriate medical line of therapy, eradication of septic foci followed by closure of tympanic membrane perforation. The objective of the ear is to make the ear dry with improvement in hearing.

Myringoplasty or Type I Tympanoplasty is an operative procedure limited to the closure of the tympanic membrane perforation using a graft. The surgical approach can be endaural, postaural or transmeatal. Autologous temporalis

fascia and homologous dura are the most commonly used grafting materials. The two basic techniques followed are medial (underlay) or lateral (overlay) placement of the graft over the tympanic membrane remnant.

Regardless of the grafting material and the technique used, the success rates of the Myringoplasty are in the range of 90% in most studies. Many factors contribute in the failure of Myringoplasty which can be broadly divided into mastoid and non mastoid factors.

Infection represents the single major cause of Myringoplasty failure and can result from a hidden mastoid disease. A simple mastoidectomy is an effective means of re-pneumatizing the mastoid and evading the mastoid sources of infection. Myringoplasty with or without cortical mastoidectomy is still a controversy among the otologists.

Aims and Objective:

The aims and objective of the study was to evaluate the factors influencing the success and failure of Myringoplasty and to determine the role of cortical mastoidectomy in Myringoplasty and to compare pre and post operative audiological findings.

Material and Methods:

The study was conducted in the department of Otorhinolaryngology, GMC, Bhopal. This is a retrospective study comprising of 60 patients with chronic suppurative otitis media of safe type in quiescent stage. 30 of the cases were selected for Myringoplasty alone and 30 cases were selected for Myringoplasty with cortical mastoidectomy. The work up consisted of complete general, physical, systemic and ENT examination with required pathological and radiological investigations. Culture sensitivity of the pathogen from the discharging sinus was done as a routine.

Patients having predisposing foci of infection in the nose, PNS or throat were subjected to surgical correction/ medical treatment till complete elimination of the infection foci. Preoperatively patients were having discharge free period of 4-6 weeks.

Patients having history of long standing allergy were excluded from the study.

Most of the MWM group patients were selected on the basis of presence of moist ear or a quiescent ear with sclerotic mastoids. Cortical mastoidectomy was done in these patients where in all accessible air cells were exenterated and the auditus widened. This was followed by Myringoplasty in the same sitting. Myringoplasty was done through the post aural approach by an underlay grafting technique using autologous temporalis fascia as a graft material. After grafting the ear cavity was packed with Gel Foam and antibiotic soaked ribbon gauze externally. Mastoid dressing was done 1 week postoperatively.

In case of cortical mastoidectomy, the drainage tube was removed on the second post operative day. The external packs and sutures were removed on seventh post operative day and the patient discharged. Local antibiotic drops and antihistaminics were advised. Patients were reviewed after 3 weeks. The second and third post operative reviews were

done at 2 and 6 months respectively. The post operative audiograms were recorded on the second and third visit.

Discussion:

Myringoplasty or Type I tympanoplasty is an operation in which the reconstructive procedure is limited to the repair of the tympanic membrane perforation. Implicit in the definition is that the ossicular chain is intact and mobile and that there is no middle ear disease such as infected mucosa or in growth of skin. Exploration of the middle ear and ossicular chain is a routine part of most of Myringoplasty operations.

Jackler and Schindler¹ stressed the importance of mastoid factor in the success of Myringoplasty. There is a proven role of simple mastoidectomy in cases of actively discharging ears; however the efficacy of Cortical Mastoidectomy in a dry ear to enhance the success rate has not been studied much.

Age is an important non-mastoid factor influencing the outcome of Myringoplasty. Failure of Myringoplasty in children is attributed to Adenoid, Eustachian tube dysfunction, upper respiratory infections and surgical difficulty due to narrow external ear canal etc. However mastoid may be another factor in deciding the outcome of Myringoplasty, as the mastoid air cells reservoir is considerably smaller in children. Thus age is also a mastoid factor since pneumatization is directly related to the age of the patient. Ortegren² in his study found 90% success rate in the age below 40 years which is consistent with the present study in which 87.5 % success rate was found.

Age (in years)	No. of patient	Failure	Take Up rates
10-39	48	06	87.5%
>40	12	04	66.6 %
Total	60	10	

In various studies done by G.S.Bawa et al³, Saeed Ghamdi et al.⁴, John Mathai et al⁵ the sex incidence was found to be higher in males; in our study also there was a slight male preponderance (1.1:1).

Jackler and Schindler found that the graft take up with regard to the condition of the opposite ear was significant. There was 86 % success rate in unilateral perforation as compared to 83.3% in bilateral perforation which appears

to be almost consistent with my study where I found 88.5% and 79.4% in unilateral and bilateral perforation respectively.

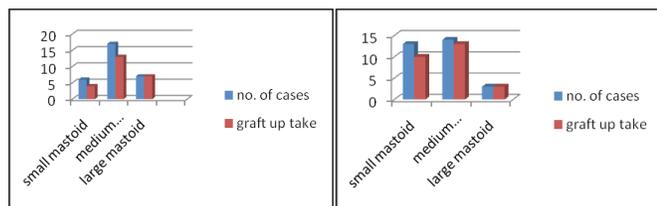
CSOM Safe type	No. of patients	Failure	Take up rates
Unilateral	26	03	88.5 %
Bilateral	34	07	79.4%
Total	60	10	

In my study it was found that there was poorer take up rate with subtotal perforations (33.3%) compared to the medium sized perforations (100%). The high failure rate with the subtotal perforation was attributed to the larger area, which has to vascularize and epithelialize and also due to technical difficulties in surgery. Adkins et al⁶ in their study found similar results.

Interestingly, in the study successful cases showed better hearing gain in larger perforation. Patients had an average gain of 13.4dB, 12.6dB and 6.8dB in subtotal, large and medium perforations respectively in speech frequencies.

Size of perforation	No. of cases	Failure	Take Up Rate	Average hearing gain
Medium	19	0	100 %	6.8 dB
Large	29	02	93 %	12.6 dB
Subtotal	12	08	33.3 %	13.4 dB

Jorgen Holmquist⁷ in his study of 31 cases of Myringoplasty with cortical mastoidectomy and corresponding cases of Myringoplasty alone observed better graft take up (83%) in Myringoplasty with cortical mastoidectomy group (MWM) compared to Myringoplasty alone group (MWOM) (50%). My study also reveals similar result showing 86.7% success rate in MWM group and 80% in MWOM group.



A simple mastoidectomy is an effective means of re-pneumatizing the mastoid air cell system, as well as eradicating the mastoid source of infection. The study proves that cortical mastoidectomy along with Myringoplasty gives better results. Even among failed cases in MWM group, post operatively, the patient did not complain of ear dis-

charge while in failed cases of MWOM group complained of persistent ear discharge. There was negligible difference in audiological benefit between MWM group (10.4 dB) and MWOM group (9.7 dB) in the study.

Conclusion:

The management of the safe type of CSOM, currently, includes control of middle ear and mastoid infection medically followed by surgical closure of the tympanic membrane perforation. Many factors contribute to the failure of the Myringoplasty and it still remains a point of controversy whether a perforation should be repaired by Myringoplasty alone or in association with cortical mastoidectomy. Infection represents the single most important cause of graft failure and can result in hidden mastoid disease. A simple mastoidectomy is an effective means of pneumatizing mastoid air cell system as well as eradicating the mastoid source of infection. The study proves that Myringoplasty along with simple mastoidectomy in selected cases gives better result than Myringoplasty alone.

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