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ROLE OF CORTICAL MASTOIDECTOMY IN OUTCOME OF MYRINGOPLASTY IN ACTIVE AND QUISCENT STAGE OF TUBOTYMPANIC TYPE OF CHRONIC SUPPURATIVE OTITIS MEDIA

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ABSTRACT: OBJECTIVE: To study the role of cortical mastoidectomy in terms of graft success rate in cases of myringoplasty in wet and quiescent ear. **METHODS:** A prospective comparative study was conducted. Cortical mastoidectomy with myringoplasty was done in one group where as in another group only myringoplasty was done without cortical mastoidectomy. Graft success rate was compared in both the groups. **RESULTS:** Graft success rate for patients with mastoidectomy and without mastoidectomy after one year observation period were 89.5 and 87.3%, respectively. **CONCLUSION:** Cortical mastoidectomy had no additional benefit to the graft success rate in cases of myringoplasty. **KEYWORDS:** Myringoplasty, Cortical mastoidectomy, CSOM, Quiescent ear.

INTRODUCTION: It is widely believed that as long as there are infections present in and around the middle ear cleft, an attempt to perform myringoplasty may not be successful. In this context, cortical mastoidectomy would be a coveted adjunct procedure for myringoplasty in wet ear and quiescent stage of chronic suppurative otitis media (CSOM), where reservoir of infection is believed to be the cause of frequent recurrence of the disease.¹

Cortical mastoidectomy along with tympanoplasty has been considered the surgical procedure of choice for tubotympanic type of CSOM having recurrent discharge or wet ear. As a precautionary measure many surgeons perform both the procedure routinely to avoid recurrence and graft failure.²

The advantage and disadvantages of cortical mastoidectomy has long been the focus of controversies and debate among the otologists. The mastoidectomy itself carries several complication risks like damage to the incus, dura, sigmoid sinus, labyrinth and facial nerve.³

Prolongation of the surgery and higher morbidity are also other disadvantages associated with mastoidectomy. If cortical mastoidectomy improves the graft success rate then it is worth to ignore the risks involved otherwise it is an unnecessary adjunct procedure.

AIM OF THE STUDY: To compare the outcome of myringoplasty in terms of successful graft take up in cases of tubotympanic CSOM in active and quiescent stages.

MATERIALS AND METHODS: The study consists of 140 cases of CSOM without cholesteatoma having moderate to large and subtotal perforation who underwent myringoplasty with and without cortical mastoidectomy at department of ENT, IMS and SUM Hospital, over a period of 3 years from February 2010 to March 2013.

Ears with cholesteatoma, retraction pockets, granulations, marginal perforations, polyp in the ear, edematous and unhealthy middle ear mucosa and total perforations are excluded from the study.

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Similarly patients having associated problems such as, chronic adenotonsillitis, deviated nasal septum (DNS), sinusitis, cleft palate and other nasopharyngeal pathology are either excluded or taken into the study after complete surgical and medical management of the associated diseases.

Only quiescent (With history of recent ear discharge) and discharging ears were selected. Patients having associated medical illness like diabetes, chronic obstructive pulmonary diseases (COPD), tuberculosis or any other immunocompromised diseases are also excluded from the study.

Patients only within the age group of 18 to 55 years are selected into the study group. The patients who were missed during the follow-up period were not considered in the study.

The patients were randomly divided into two groups, Group-A: Patients who underwent myringoplasty with cortical mastoidectomy and Group-B: who underwent only myringoplasty without mastoidectomy. Randomised block design (RBD) was followed during selection of cases for each group.

All patients underwent surgery by post aural approach. Temporalis fascia graft was used in all the cases for myringoplasty and in all the cases underlay technique was followed. Sincere attempts were made to re-establish the patency of the aditus in those cases where cortical mastoidectomy was done. All the cases were regularly followed at intervals of 1 month for first 4 months and then once in every 3 month for 12 months.

The successful outcome is measured by graft take-up and dryness of the ear. Hearing status was not taken into the considerations for this study as cortical mastoidectomy does not help in improvement of hearing.

RESULTS: Myringoplasty was performed with cortical mastoidectomy on randomly chosen 70 patients out of which, 3 patients were lost during follow-up period. Out of remaining 67 patients successful graft take-up was observed on 60 patients after 1 year period of observation (94%).

Reperforation due to infection noticed only in 2 patients (6%) within 4 months of observation period. Another 3 patients also subsequently developed ASOM and perforation from a period of 4 months to 1 year and in 2 patients graft failure was attributed to medialisation and improper anterior tugging (Table 1).

Observation	GROUP-A	GROUP-B
Total no. of cases (n)	67	63
Graft take -up	60	55
Re-perforation in 4 months	2	2
Re -perforation (4 month to 12 month)	3	4
Failures due to surgeons factor	2	2
Graft success rate (4 month)	94%	93.6%
Graft success rate (12 month)	89.5%	87.5%

Table 1: Graft take up status after surgery

Similarly out of 70 patients on whom simple myringoplasty was done without mastoidectomy, 7 patients were lost during follow-up and out of the remaining 63 patients graft take-up was noticed in 55 patients after 1 year period of observations (87.3%). 2 cases developed infections and reperforations within first 4 months (64%) and another 4 between 4 months to 1 year (12.8%).

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In this group also 2 patients were noticed graft failure due to improper tugging and medialisation of the graft.

In Group-A patients where mastoidectomy was done to clear the infections from mastoid air cell system and aditus patency was re-established by carefully cleaning the oedematous mucosa and granulations the graft take-up success rate after 4 month & 1 year are 94% and 89.5%, respectively. In Group-B patients, where cortical mastoidectomy was not done the success rate after 4 month and 1 year are 93.6 and 87.3% (Table-1).

P value: calculated on 1 year success rate found to be 0.7, which is very high and considered to be insignificant which suggests that there is no statistical significant difference between the two surgical methods.

DISCUSSION: In the present study it is revealed that, in both wet and quiescent ears irrespective of the surgical procedure of myringoplasty with or without mastoidectomy the percentage of graft uptake is almost similar. There is no statistical significant difference between the two methods.

In a study by Islam et al. (2014), it was revealed that in wet ear the percentage of success rate in terms of graft uptake with and without mastoidectomy are 87% and 88.6%, respectively.⁴ it is comparable to the present study of 89 and 87.3%.

The result of this study is also consistent with the study of Chavan et al. (2011), where success rate of myringoplasty with mastoidectomy after 4 month reported to be 97.33%, where as in the present study it is 94%. Similarly the results of myringoplasty without mastoidectomy was reported as 93.33%, which is similar to the present report of 93.6%.⁵

In another study by Kaur et al. (2014), they reported the success rate for tympanoplasty with and without mastoidectomy respectively were 88% and 76%. They also concluded that combining cortical mastoidectomy with tympanoplasty would not give additional benefits in terms of hearing gain, disease clearance and graft uptake.⁶

Mishiro et al. (2009) also in his study concluded that tympanoplasty with or without mastoidectomy does not make any difference in graft success rate and hearing results.⁷ Hall et al in a comparative study reported that tympanoplasty alone is sufficient for repair of simple and uncomplicated perforations.⁸ Krishnan et al. (2002), after a case series concluded that cortical mastoidectomy does not significantly improve the results in well selected cases.¹

Contrasting results are also reported by Nayak et al. (2009) in a study of a sample size of 40 patients which were followed up for a period of 20.4 months had a success rate of 100% in tympanoplasty with mastoidectomy and 60% in tympanoplasty without mastoidectomy.⁹ Similarly, mastoidectomy was inferred improving the chance of successful tympanoplasty for patients with CSOM without cholesteatoma (Holmquist and Bergstorm 1978).¹⁰

But findings of majority of the study are concurrent with the present study. May be this controversy can be more accurately addressed with a larger sample size, particular guideline for case selection, a particular fixed technique for the surgical procedure and a long duration follow-up.

CONCLUSION: The statistical inference in this study and the review of literature concluded that the concomitant cortical mastoidectomy does not alter the final outcome of the myringoplasty in terms of graft success rate even in cases of wet and quiescent ears.

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Mastoidectomy may be considered if middle ear mucosa is oedematous and polypoidal, if there is granulations and tympanosclerosis or suspected cholesteatoma and cholesterol granuloma. But in well selected cases even in wet and quiescent ears meticulously done simple myringoplasty is enough to give a dry ear and healthy neotympanum. Depending on empirical evidence the common practice of performing cortical mastoidectomy with myringoplasty can be avoided in view of impending complications and morbidity.

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