A STUDY ON OUTCOME OF CORTICAL MASTOIDECTOMY WITH TYMPANOPLASTY IN CSOM

Suresh Palukri[1], P. Narayana Rao[2]

[1]Assistant Professor, Department of ENT, Katuri Medical College and Hospital, Guntur.
[2]Professor, Department of ENT, Katuri Medical College and Hospital, Guntur.

ABSTRACT: OBJECTIVE: To perform tympanoplasty with mastoidectomy in chronic supporative otitis media cases. To periodically evaluate the post operative benefit in terms of graft take up and hearing improvement.
METHODS: A prospective study where 42 patients with CSOM underwent tympanoplasty with cortical mastoidectomy in department of ENT at Katuri Medical College and Hospital. Underlay technique with temporalis fascia graft, cortical mastoidectomy was done in all cases. Follow up at 3 months, 6 months and 1year was done for graft takeup and hearing improvement.
RESULTS: Post op AB gap closure at the end of 1 year follow-up below 10 db was achieved in 74% of cases, between 11-20 db was achieved in 21% of cases. Graft uptake at the end of 1year was 88%.
CONCLUSION: Our study emphasizes the fact that overall satisfactory hearing outcome and graft uptake can be achieved after tympanoplasty with cortical mastoidectomy in dry and quiescent ears.

KEYWORDS: CSOM, Tympanoplasty and Cortical Mastoidectomy.

HOW TO CITE THIS ARTICLE: Suresh Palukri, P. Narayana Rao. "A Study on Outcome of Cortical Mastoidectomy with Tympanoplasty in CSOM". Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 45, November 05, 2015; Page: 8175-8177, DOI: 10.18410/jebmh/2015/1099

INTRODUCTION: Chronic suppurative otitis media (CSOM) is an inflammatory process of the mucoperiosteal lining of the middle ear space and mastoid.(1)

Surgery plays an important role in its management and the outcome measures are closure of tympanic membrane perforation in tympanoplasty, eradication of disease and achievement of a dry and safe ear in mastoidectomy and improvement of hearing.

Myringoplasty with mastoidectomy has been identified as an effective method of treatment of chronic ear infection resistant to antibiotic therapy. This study was done to know the postop benefit in terms of graft takeup, hearing improvement after doing tympanoplasty with cortical mastoidectomy.

METHODS: This is a prospective study carried out on 42 chronic otitis media tubotympanic type of patients who attended the outpatient ENT department.Patients with dry(ears which remained dry for a period of 6 months) and quiescent (ears which remained dry for 1 month preoperatively) were taken up for tympanoplasty with cortical mastoidectomy.

Inclusion Criteria: More than 12 years, dry perforation for 1 month at least dry and quiescent ears, central perforation, and tubotympanic disease.

Exclusion Criteria: Less than 12 years, wet ears, Cholesteatoma cases.

Submission 02-11-2015, Peer Review 04-11-2015,
Acceptance 05-11-2015, Published 05-11-2015.
Corresponding Author:
Dr. P. Suresh, Flat No. 302,
Sri Sai Santhoshini Nilayam, 2/17,
Brodipet, Guntur-522002, Andhra Pradesh.
E-mail: dr.sureshent@gmail.com
DOI: 10.18410/jebmh/2015/1099

All the patients were subjected to full history taking including onset, course and duration of the disease, associated symptoms, previous medications and operations or trauma. Patients were subjected to full otological examination to exclude scar of previous operation, condition of the tympanic membrane, condition of the middle ear mucosa, tuning fork tests, and also nasal and oral examination to exclude predisposing factors as allergy or causes of recurrence of the condition. All patients were subjected to preoperative pure tone audiometry and it was repeated at regular intervals at 3 months, 6months and 1 year postoperatively. Routine preoperative labs were done for all patients. Patients were operated upon after dryness of their perforations for at least 1 month. All the patients were operated via post auricular approach, temporalis fascia was put using the under lay technique. Cortical mastoidectomy was performed in all the cases to clear the disease from antrum and to make aditus patent. Most of the cases have hypertrophied or polypoidal mucosa occluding the aditus. All patients were followed for one year after the operation. Postoperative period antibiotics, analgesics and antihistamines were kept. The first postoperative visit was on the 10th day, during which the ear dressing, packing and skin sutures were removed. After removal of the dressing, the patient was instructed to keep the ear dry. Bacitracin was applied by the patients to the post auricular incision twice a day for 1 week. The second follow-up visit was 3–4 weeks later. There- after, the patient was monitored 3 months postoperative until the graft uptake could be judged to allow a comparative post-operative audiogram. Assessment of graft uptake and dryness was done at 3 months, 6 months and 1 year by using the microscope and suction tools if needed for aural cleaning in all the visits of the patients. Good graft uptake was considered if there is no residual perforation seen after the end of follow- up period. Post-operative AB gap was

documented at 3 month, 6 months and 1 year by doing puretone audiometry.

RESULT: The study includes 42 cases of csom who underwent tympanoplasty with cortical mastoidectomy. Among them 17 were male patients 25 were female patients. Most of the patients were in the age group of below 30.The youngest patient was found to be 13 and the oldest was 56 years. The most common presenting symptoms of these patients were otorrhea and hearing loss. All patients have central perforation tubotympanic type.

Pre-operative air-bone gap, post-operative air-bone gap at 3months, 6months, 1 year and association of good Graft take up with dryness assessed periodically at 3months,6 months and 1 year was shown in following tables

DISCUSSION: Chronic supporative otitis media is an inflammatory process of the mucoperiosteal lining of the middle ear space and mastoid. 49% of the patients gave a history of duration since childhood and 49% of patients gave up to 10 years MORRISON (1955) and SHAMBAUGH (1977)[2] said that the duration of ear discharge is not important but PAPERELLA (1977)[3] pointed out that the duration is important as it plays a major role in the natural history and morbidity of CSOM.

Tympanoplasty is an operation performed to eradicate disease from the middle ear cleft, and to reconstruct the hearing mechanism with tympanic membrane grafting. Mastoidectomy is one of the most common otological operations performed today. Indications for mastoidectomy range from eradication of chronic infection to approaches for various neurotological procedures. Mastoidectomy was first described by Louis Petit in the 1700s, although the concept did not gain wider acceptance until 1958, the cortical mastoidectomy was popularized by William House. This procedure attempted to avoid the common problems with radical mastoidectomy.[4]

There are a number of studies in the literature highlighting the advantages and disadvantages of performing mastoidectomy in the surgical treatment of mucosal type of chronic otitis media. Our study emphasizes the fact that overall satisfactory hearing outcome with adequate air–bone closure can be achieved with cortical mastoidectomy and tympanoplasty.

Bhat et al in 2008 compared outcomes for mastoidotympanoplasty and for tympanoplasty alone in cases of quiescent, tubotympanic CSOM. There were no statistically significant differences in hearing improvement.[5]

In 2012, Albu et al found that cortical mastoidectomy offers no additional benefit regarding hearing gain over myringoplasty.[6] In contrast to their studies, Jackler and Schindler in 1984 studied 48 patients with chronic otitis media with tympanic perforations who underwent myringoplasty with mastoidectomy. In their study, it was found that simple mastoidectomy was found to be an effective means of re-pneumatizing the sclerotic mastoid and restoring the hearing.[7]

Our study revealed that post op AB gap closure was below 10 decibel in 74 % of patients at the end of 1 year. Dry ears at the end of 1 year were 88% postoperatively in patients with tympanoplasty and cortical mastoidectomy.

Along with our results, Sheehy in 1985 recommended performing simple cortical mastoidectomy routinely for all tympanoplasties because it is "good practice" and because "it's better to be safe than sorry." Jackler and Schindler in 1984 found that simple mastoidectomy was found to be an effective means of re-pneumatizing the sclerotic mastoid and eradicating mastoid sources of infection. The study concluded that simple mastoidectomy is a safe and useful adjunct to tympanoplasty.[7]

Mastoidectomy impacted the clinical course in patients by reducing the number of patients requiring future procedures and by decreasing disease progression. This suggests that combining mastoidectomy with tympanoplasty during repair of simple perforations in patients with no active evidence of infection remains an appropriate option, and may be valuable in reducing the need for future surgery.[8]

Role of mastoidectomy in the repair of tympanic membrane perforation has long been debated. Mastoidectomy was regarded as a means of surgically creating an air reservoir and eradicating sequestered mastoid disease. Yet, there is no scientific data indicating that tympanoplasty with mastoidectomy yields better results.

CONCLUSION: Our study emphasizes the fact that overall satisfactory hearing outcome and graft uptake can be achieved after tympanoplasty with cortical mastoidectomy in dry and quiescent ears. In case of wet ears mastoid antral exploration is a must to clear the pathology in antrum and make aditus patent.

REFERENCES:

1. Smyth GD. Tympanic reconstruction. Fifteen year report on tympanoplasty. Part II. J Laryngol Otol. 1976; 90(8): 713–741.
2. SHEEHY (1987) Middle ear reconstruction–current status Advaces in otolaryngology and head & neck surgery, 1: 143.
3. MARQUET J. (1977) Twelve years of experience with homograft tympanoplasty.Otolaryngology clinics of north America, 10: 581-587.
4. Martin MS. Mastoid Surgery, in Myers Otolaryngology Head and Neck Surgery, Ch 115. 2nd ed. Elsevier, ISPN-13: 9781416024453. 2008: 7–30.
5. Bhat KV, Naseeruddin K, Nagalotimath US, Kumar PR, Hegde JS. Cortical mastoidectomy in quiescent, tubotympanic, chronic otitis media: is it routinely necessary? J Laryngol Otol. 2008; 10:1–8.
6. Albu S, Trabalzini F, Amadori M. Usefulness of cortical mastoidectomy in myringoplasty. Otol Neurotol. 2012; 33(4): 604–609.

7. Jackler RK, Schindler RA. Role of the mastoid in tympanic membrane reconstruction. Laryngoscope. 1984; 94(4): 495–500. 11.

8. McGrew BM, Jackson G, Glascock ME. Impact of mastoidectomy on simple tympanic membrane perforation repair. Laryngoscope. 2004; 114: 506–511.

Age Group	No of Patients	Percentage
10 – 20	6	14%
21 – 30	15	36%
31 – 40	11	26%
41 – 50	6	14%
51 – 60	4	10%
Total	42	100%

Table 1: Age Distribution

The youngest patient was 13 year old and the oldest was 56.

Sex	No. of Patients	Percentage
Male	17	40%
Female	25	60%
Total	42	100%

Table 2: Sex Distribution

60% of the patents were female and 40% were male.

Pre-op AB gap closure (dB)	No of Patients	Percentage
0 – 20	17	40%
21 – 40	20	48%
41 – 60	5	12%
Total	42	100%

Table 3: Pre-op ABgap Closure

Out of 42 cases 17(40%)patients had below 20dB gap,20(48%)patients had between 20-40 dB gap and 5(12%)patients had between 41-60 dB air bone gap preoperatively.

Post of AB gap closure (dB)	3m	%	6m	%	1 year	%
0 – 10	12	29	18	44	31	74
11 – 20	24	57	22	54	9	21
21 – 30	6	14	2	2	2	5
> 30	0	0	0	0	0	0
Total	42	100	42	100	42	100

Table 4: Post operative AB gap closure after tympanoplasty with Cortical Mastoidectomy

The post-operative AB gap closure below 10 dB was 74% at the end of 1 year and between 11-20 dB was 21%. Overall AB gap closure below 20 dB was achieved in 95% of patients at the end of1year.

Graft	3m	%	6m	%	1 year	%
Taken up	39	93	37	88	37	88
Not Taken up	3	7	5	12	5	12
Total	42	100	42	100	42	100

Table 5: Status of the Graft in Tympanoplasty with Mastoidectomy

The graft take up was 88% at the end of 1 year but in 12% of the cases the graft was not taken up may be due to infections.