



A COMPARATIVE STUDY OF THE OUTCOMES OF CANAL WALL DOWN MASTOIDECTOMY WITH POSTERIOR SOFT WALL RECONSTRUCTION AND MASTOID OBLITERATION.

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ABSTRACT **Objective :** Atticoantral CSOM has high incidence in india. It is usually treated by modified radical mastoidectomy followed by an option of either soft wall reconstruction and mastoid obliteration. This study throws light on which of the two modalities of MRM cavity closure is better and their effect on the overall outcomes. **Methods :** After Satisfying criteria, total 66 patients were enrolled in this study for 2 years. For soft wall reconstruction the canal wall was reconstructed with tragal and conchal cartilage. **Results :** soft wall reconstruction has an unflinching upper hand over mastoid obliteration

KEYWORDS : Canal wall down mastoidectomy , mastoid obliteration , soft wall reconstruction .

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a common clinical condition affecting ear which can be classified as mucosal and squamous type. Mucosal type involves perforation of pars tensa with or without inflammation of middle ear whereas squamous involves retraction of pars flaccida or tensa with or without retained squamous debris associated with inflammation of adjacent mucosa.^[1]

Atticoantral CSOM is a chronic inflammatory condition of the middle ear confined to postero-superior part of the mesotympanum, attic and antrum associated with bone erosion disease also called as cholesteatoma with thick, purulent, scanty, foul smelling, blood stained and persistent ear discharge which is associated with retraction/ perforation in the pars flaccida or attic. Being one of the most dreaded disease in the otology it requires an immediate and prompt medical/ surgical intervention.^[2]

The surgeries implied for cholesteatoma are radical mastoidectomy, modified radical mastoidectomy ,atticoantrostomy, combined approach tympanoplasty, Trans canal hypotympanotomy etc .^[3] Modified radical mastoidectomy is a canal wall down surgical treatment which involves preservation of hearing mechanism along with exteriorising the disease in one single procedure. It minimises the recurrence, tackles the residual disease easily and is cost effective. Modified radical mastoidectomy is often followed by an option of either soft wall reconstruction and mastoid obliteration. The decision of the above is taken up by the surgeon based on certain criterias.^[4]

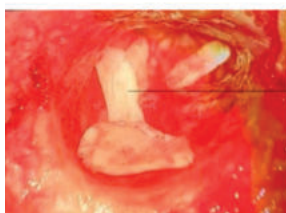
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Surgical Protocol And Methodology

After Satisfying criteria, total 66 patients were enrolled in this study for 2 years. For soft wall reconstruction the canal wall was reconstructed with tragal and conchal cartilage.



CONCHAL CARTILAGE



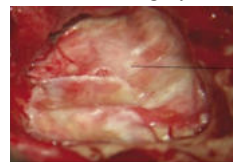
TRAGAL CARTILAGE

For mastoid obliteration the palvas flap that is composed of the muscle, fascia and periosteum situated posteroinferiorly was used to cover the entire mastoid cavity after rotating it.



PALVA FLAP

Mastoid obliteration using myocutaneous flap Sealing the cavity



TEMPORALIS FASCIA GRAFT

RESULTS

Distribution of According to Outcome:

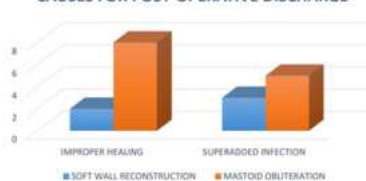
Post-operative discharge	In soft wall reconstruction approach	%	In mastoid obliteration approach	%
At the end of 1 st month	30	90.9	32	96.96
At the end of 3 rd month	05	15.15	13	39.39

The outcome can be assessed by the presence of discharge at 1st month and 3rd month. In first month discharge was present in 30 individuals undergoing soft wall reconstruction while 32 patients had discharge undergoing mastoid obliteration. In the 3rd month, discharge was present in 5 individuals undergoing soft wall reconstruction while 13 patients undergoing mastoid obliteration had discharge at the end of 3rd month.

Causes of Post operative Discharge

	Soft wall reconstruction	percentage	Mastoid obliteration	Percentage
Improper healing	02	6.06 %	08	24.2%
Superadded infection	03	9.09%	05	15.1%

CAUSES FOR POST-OPERATIVE DISCHARGE



In patient undergoing soft wall reconstruction, 2 patients had improper healing at the end of 3 months while 3 patients showed the signs of superadded infection which caused postoperative discharge at the end of 3 month. In patient undergoing mastoid obliteration, 8 patients had improper healing at the end of 3 months while 5 patients showed the signs of superadded infection which caused postoperative discharge at the end of 3 months.

Distribution Of According To Hearing Improvement:

Hearing Improvement	Modified Radical Mastoidectomy with Soft Wall Reconstruction		Modified Radical Mastoidectomy with Mastoid Obliteration		χ^2 Value	p-Value
	No	Percentage (%)	No	Percentage (%)		
Air Bone Gap > 20dB	07	21.21	21	63.64	12.158	0.000 Sig.
Air Bone gap < 20dB	26	78.79	12	36.36		p=0.05
Total	33	100	33	100		

DISTRIBUTION ACCORDING TO HEARING IMPROVEMENT



Hearing outcomes is measured at third month post operatively which shows reduction of air bone gap (less than 20dB) seen in 26 patients undergoing soft wall reconstruction and 12 patients undergoing mastoid obliteration. It was seen more than 20dB in 7 patients undergoing soft wall reconstruction and 21 patients undergoing mastoid obliteration. Patients who underwent canal wall down mastoidectomy with posterior soft wall reconstruction showed an improvement in hearing as compared to the ones with mastoid obliteration.

DISCUSSION

All the 66 patients underwent MRM post which 33 were subjected to soft wall reconstruction remaining 33 were subjected to mastoid obliteration. The outcomes of these two procedures were compared based on 3 criteria : discharges from the cavity at the end of 3 months , effect on hearing at the end of 3 months, and presence of dry ear cavity at the end of 3 months.

When the various parameters pertaining to the outcomes of soft wall reconstruction and mastoid obliteration were considered analysed and studied, we found that soft wall reconstruction held a superior position in patient condition and prognosis of the surgery in terms of lesser discharge, more incidence of dry healthy cavity and higher chances of hearing improvement. While there are many other parameters which could be considered while talking about the outcomes of the above procedures viz volume of the cavity etc, the inability to document the appropriate data regarding the above factors was a limitation of the study and opens up avenues for further research and analysis. Our study was an attempt to genuinely document the outcomes to much possible extent inorder to give an unbiased opinion about the two closure methods of MRM that is soft wall reconstruction and mastoid obliteration and we undoubtedly say that soft wall reconstruction has an unflinching upper hand over mastoid obliteration.

CONCLUSION

The above findings of presence of discharge at the end of 3rd month, presence of dry ear at the end of 3rd month and hearing improvement at the end of 3rd month in patients undergoing SWR and mastoid

obliteration proves that SWR has a better outcome in terms of the above 3 factors in comparison with Mastoid obliteration. It is worthwhile to note that the above 3 factors were also dependent on factors such as nutritional status, presence of superadded infections, various environmental factors which contribute towards the rate of healing and graft uptake. These factors though minor might negatively impact the overall outcome of the surgery and need to be taken care of by proper counselling of the patient. SWR proves to be a sophisticated procedure aiming at adequate eradication of the disease along with appropriate reconstruction and restoration of the functional unit of middle ear and mastoid cavity and the documented data of our study is just apt to prove the above fact right.

REFERENCES

- Goma Sundar M. A Study of Ossicular Pathology in CSOM and Its Management by Various Types of Cartilage Tympanoplasty (Doctoral dissertation, Tirunelveli Medical College, Tirunelveli).
- Islam MR, Taous A, Hossain MM, Ekramuddaula AF, Islam MS. Comparative study of tubotympanic and atticofacial variety of chronic suppurative otitis media. Bangladesh Journal of Otorhinolaryngology. 2010;16(2):113-9.
- Khan F. A Study of Correlation Between Clinical Features, Radiodiagnosis and Operative Findings in Chronic Suppurative Otitis Media with Cholesteatoma (Doctoral dissertation, Rajiv Gandhi University of Health Sciences (India)).
- Binti Abdullah A, Hashim SM, Awang MA, Saim L. Outcome of canal wall down mastoidectomy: experience in sixty three cases. Med J Malays. 2013 Jun;68(3):217-21.