

OUTCOMES OF ENDOSCOPIC AND MICROSCOPIC APPROACHES IN THE MANAGEMENT OF ACQUIRED CHOLESTEATOMA

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INTRODUCTION

Cholesteatoma is defined as the presence of stratified squamous epithelium in the middle ear cleft and / or temporal bone.

The clinical presentation of cholesteatoma includes offensive otorrhea, hearing loss and complications such as facial palsy, vertigo, meningitis and brain abscess

Imaging modalities include High Resolution CT scan (HRCT) petrous bone, MRI petrous bone especially Diffusion Weighted MRI (DW-MRI) non Echo Planar image (Non-EPI)

Classical Surgical approaches to cholesteatoma include Canal Wall Up Mastoidectomy (CWUM) and Canal Wall Down Mastoidectomy (CWDM)

Recently, Endoscopic Assisted CWUM and Transcanal Endoscopic Ear Surgery (TEES) have been implemented to merge the merits of canal wall up and canal wall down approaches.

The addition of endoscope has led to significant reduction of cholesteatoma recidivism compared to pure microscopic tympanomastoidectomy.

AIM OF THE WORK

The aim of this study is to evaluate the outcomes of cholesteatoma surgery in three groups of patients namely: Endoscopic assisted CWUM, TEES and CWDM.

SUBJECTS AND METHODS

The study was conducted at the ENT department, Faculty of medicine, Alexandria University. 24 patients diagnosed as having atticotympanic CSOM in the period from 1/1/2020 till 1/10/2020 were included, excluding recurrent CSOM, extensive complicated cholesteatomas and congenital cholesteatoma cases.

Patients were categorized into 3 groups according to the conducted approach: Endoscopic assisted CWUM (eight patients), TEES (eight patients) and CWDM (eight patients).

Pre-procedure assessment included demographic data, otoscopy, PTA and imaging (HRCT and DW-MRI non EPI to suspicious cases)

Post-procedure assessment included otoendoscopy, HRCT scan, DW-MRI non EPI sequence (to all intraoperative proved cases of cholesteatoma) and hearing results.

RESULTS

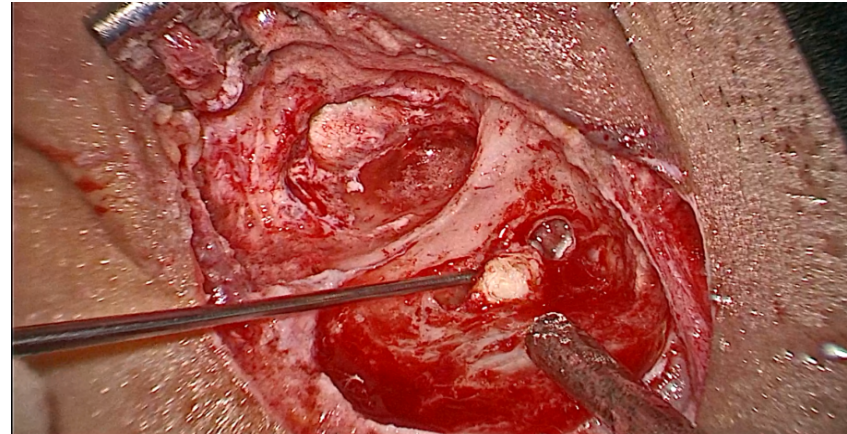


Figure 1: Dissection and removal of cholesteatoma from the mastoid cavity of the left ear via endoscopic assisted canal wall up mastoidectomy approach

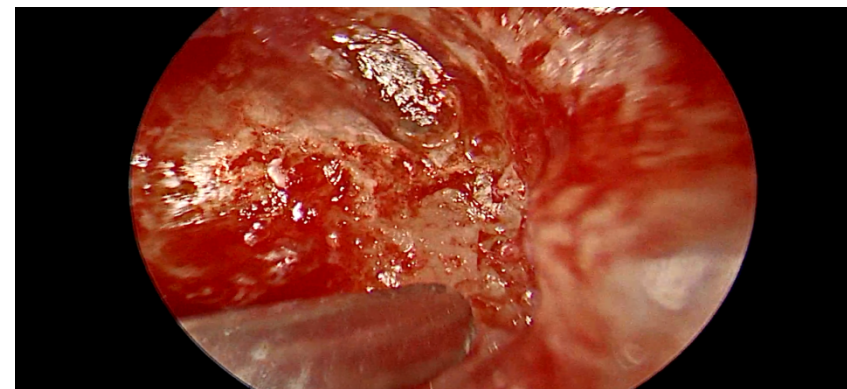


Figure 2: A panoramic view of left ear showing the sinus tympani, tympanic segment of facial nerve, oval window and round window using a 45 degree endoscope after removal of cholesteatoma from all tympanic cavity subsites.

Table 1: Comparison among the three studied groups according to the presence of residual or recurrent disease by otoendoscopy.

The presence of residual or recurrent disease by otoendoscopy	Group A (n=8)		Group B (n=8)		Group C (n=8)		χ^2	MCp
	No.	%	No.	%	No.	%		
No residual or recurrence	8	100.0	7	87.5	7	87.5	1.331	1.000
Residual or recurrence	0	0.0	1	12.5	1	12.5		

Table 2: Comparison between the two studied periods according to DW-MRI non EPI sequence in each group

DW-MRI non EPI sequence	Preoperative		Postoperative		MCp
	No.	%	No.	%	
Group A (n=8)					1.000
Not done	4	50.0	0	0.0	
Negative	0	0.0	8	100.0	
Positive	4	50.0	0	0.0	0.763
Group B (n=8)					
Not done	4	50.0	4	50.0	
Negative	4	50.0	3	37.5	
Positive	0	0.0	1	12.5	0.763
Group C (n=8)					
Not done	3	37.5	0	0.0	
Negative	0	0.0	7	87.5	
Positive	5	62.5	1	12.5	

CONCLUSIONS

- Cholesteatoma is defined as the presence of keratinized squamous epithelium in the middle ear cleft and/or temporal bone. It causes bone erosion leading to extracranial as well as intracranial complications.
- Diagnosis involves the combination of history, otoendoscopy, HRCT petrous bone and DW-MRI non EPI sequence petrous bone.
- Exclusive microscopic management of cholesteatoma is restricted by the straight line view which hinders visualization of hidden areas such as the sinus tympani.
- Endoscopic Assisted Canal Wall Up Mastoidectomy is an effective approach, compared to CWDM, in lowering cholesteatoma recidivism while avoiding cavity problems, hearing aid fitting issues following CWDM.
- Transcanal Endoscopic Ear surgery is an effective approach for cholesteatomas limited to the middle ear even with minimal extension to the mastoid antrum (not extending beyond the lateral semicircular canal).