

ORIGINAL ARTICLE**Assessment of outcome of canal- down mastoidectomy**

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ABSTRACT:

Background: Chronic Suppurative Otitis Media (CSOM) is a persistent inflammation of the middle ear that often results in a perforated tympanic membrane (eardrum) and chronic ear discharge (otorrhea). The present study was conducted assess outcome of canal- down mastoidectomy. **Materials & Methods:** 75 cases of CSOM of both genders underwent canal- down mastoidectomy using the postauricular technique. When there were difficulties, additional treatments were performed in the same sitting, including evacuation of cerebral abscesses and investigation of the facial nerve, lateral sinus, and internal jugular vein. Outcome of treatment was noted. **Results:** Out of 75 patients, 45 were males and 30 were females. Malleus was intact in 65, eroded in 7 and absent in 3 cases. Incus was intact in 25, eroded in 38, absent in 9 and not specified in 3 cases. Stapes superstructure was intact in 56, eroded in 15, absent in 3 and not specified in 1 case. The difference was significant ($P < 0.05$). Complications were temporal abscess in 3, meningitis in 1 and facial paralysis in 2 cases. The difference was significant ($P < 0.05$). **Conclusion:** The canal-wall-down technique with wide meatoplasty is recommended to ensure a best possible one-time treatment.

Keywords: Chronic Suppurative Otitis Media, mastoidectomy, Tubotympanic

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INTRODUCTION

Chronic Suppurative Otitis Media (CSOM) is a persistent inflammation of the middle ear that often results in a perforated tympanic membrane (eardrum) and chronic ear discharge (otorrhea).¹ CSOM is a common condition worldwide, particularly in developing countries, and can lead to significant hearing loss if not properly managed.²

CSOM can be classified into two main types. Tubotympanic (safe type) involves the anterior and inferior parts of the middle ear, particularly the eustachian tube and tympanic cavity. The perforation is usually central, and the disease is typically less aggressive. Hearing loss is usually conductive and varies depending on the size of the perforation and extent of ossicular damage.³ Atticoantral (unsafe type) involves the posterior and superior parts of the middle ear, particularly the attic and antrum. The perforation is usually marginal or located in the attic. Associated with the presence of cholesteatoma (an abnormal skin growth in the middle ear) which can erode bones and cause more severe complications.⁴

A canal-down mastoidectomy (also known as a modified radical mastoidectomy or radical mastoidectomy) is a surgical procedure performed to treat chronic ear infections, cholesteatoma, or other ear conditions that have not responded to more conservative treatments.⁵ The primary goal of the

surgery is to remove disease from the mastoid air cells (located in the temporal bone behind the ear) and middle ear, prevent further infections, and create a dry, self-cleaning ear.⁶ The present study was conducted assess outcome of canal- down mastoidectomy.

MATERIALS & METHODS

The present study was conducted on 75 cases of CSOM of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. All of these patients underwent canal- down mastoidectomy using the postauricular technique. When there were difficulties, additional treatments were performed in the same sitting, including evacuation of cerebral abscesses and investigation of the facial nerve, lateral sinus, and internal jugular vein. Using an arterial embolectomy catheter, thrombi from the internal jugular vein and lateral sinus were extracted. Depending on availability, patients with infective complications received intravenous penicillin or chloramphenicol in addition to full dosages of the most recent generation of cephalosporin, gentamycin, and metronidazole. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 75		
Gender	Males	Females
Number	45	30

Table I shows that out of 75 patients, 45 were males and 30 were females.

Table II Operative findings of ossicular chain condition

Parameters	Variables	Number	P value
Malleus	Intact	65	0.01
	Eroded	7	
	Absent	3	
	Not specified	0	
Incus	Intact	25	0.04
	Eroded	38	
	Absent	9	
	Not specified	3	
Stapes superstructure	Intact	56	0.02
	Eroded	15	
	Absent	3	
	Not specified	1	

Table II, graph I shows that malleus was intact in 65, eroded in 7 and absent in 3 cases. Incus was intact in 25, eroded in 38, absent in 9 and not specified in 3 cases. Stapes superstructure was intact in 56, eroded in 15, absent in 3 and not specified in 1 case. The difference was significant ($P < 0.05$).

Graph I Operative findings of ossicular chain condition

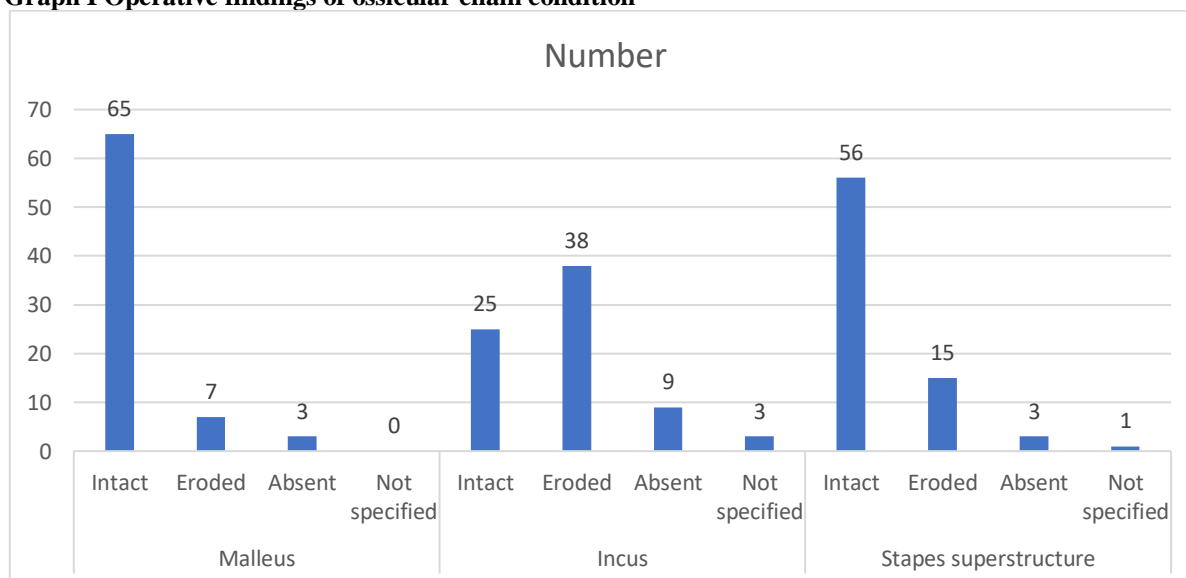


Table III Type of complications

Complications	Number	P value
Temporal abscess	3	0.52
Meningitis	1	
Facial paralysis	2	

Table III shows that complications were temporal abscess in 3, meningitis in 1 and facial paralysis in 2 cases. The difference was significant ($P < 0.05$).

DISCUSSION

After surgery, the patient will need regular follow-up to monitor healing and manage the mastoid cavity.⁷The ear cavity created by the surgery must be kept clean to prevent infection and the accumulation

of debris. Patients may need to visit an otolaryngologist regularly for ear cleanings.⁸ Postoperative antibiotics may be prescribed to prevent infection. Pain medications are provided to manage discomfort following the procedure. Hearing tests are

typically conducted after healing to assess the impact of the surgery and plan for any necessary hearing rehabilitation.⁹The present study was conducted assess outcome of canal- down mastoidectomy.

We found that out of 75 patients, 45 were males and 30 were females. Garap et al¹⁰ in their study eighty-one patients in all age groups who received a clinical diagnosis of chronic suppurative otitis media, with or without cholesteatoma, with or without its associated complications was noted. Adults were more commonly affected than adolescent or pediatric cases, and there was a male preponderance. The median age was 24 years (range, 13 months to 73 years). Otorrhea remained the most common presentation in all age groups. Postauricular abscesses and fistulae were seen frequently. Cholesteatoma and granulation with polypoidal mucosa were frequent operative findings; a high incidence involved both the attic space and the antrum. Five (6%) patients had preoperative facial paralysis; in addition, postoperative facial paralysis developed in three (4%) patients. The incidence of postoperative “wet ear” was high in all age groups. Meningitis was the most common intracranial complication, followed by lateral sinus thrombosis. There were seven (9%) deaths altogether, and all the deaths occurred as a direct result of otogenic intracranial complication

We found that malleus was intact in 65, eroded in 7 and absent in 3 cases. Incus was intact in 25, eroded in 38, absent in 9 and not specified in 3 cases. Stapes superstructure was intact in 56, eroded in 15, absent in 3 and not specified in 1 case. Cook et al¹¹ studied 153 tertiary referrals suffering from extensive disease who underwent MRM. In this study there were no dead ears and no significant changes in bone conduction despite prolonged drilling and extensive disease. Hearing results after MRM were found to be better after primary surgery than after revision and better in the presence of an intact stapes. No rigid prostheses were used at first-stage surgery. There were no significant differences found between hearing results obtained by MRM in this series and other published results of canal wall down mastoidectomy and ICWM, irrespective of the use of ossicular replacement prostheses.

We found that complications were temporal abscess in 3, meningitis in 1 and facial paralysis in 2 cases. Migirov et al¹² enrolled 4 children who underwent mastoidectomy for middle ear and mastoid disease and developed postoperative intracranial complications. One child was operated on for brain abscess 1 week after the initial mastoidectomy. Another child appeared with seizures 5 days after the initial mastoidectomy and a subdural empyema was drained during revision surgery. Large bone defects with exposed middle cranial fossa dura were found at revision surgery in both cases and *Proteus vulgaris* and methicillin-resistant *Staphylococcus aureus* were isolated from the mastoid and abscess cavities in these children. A small epidural collection was diagnosed in

the third patient 2 days after initial mastoid surgery and was managed with intravenous antibiotics only. The other child was found to have sigmoid sinus thrombosis the day after mastoidectomy that was performed for nonresponsive acute mastoiditis. This child received both intravenous antibiotics and anticoagulants. Timely revision surgery, combinations of third- or fourth-generation cephalosporins with vancomycin or metronidazole and the addition of anticoagulants in cases of sinus thrombosis can lead to full recovery.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that the canal-wall-down technique with wide meatoplasty is recommended to ensure a best possible one-time treatment.

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