

Original Article

Results of Tympanomastoid Surgery in CSOM with Cholesteatoma (Attico-Antral Variety) - A Study of 30 Cases

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Abstract

In this prospective study 30 case of CSOM with cholesteatoma, admitted in 3 tertiary level hospitals, where modified radical mastoidectomy with type III tympanoplasty were done, then results of operation were assessed in follow up.

The objectives of study to assess the clearance of disease, recurrence of disease and the cavity problem and to find the take rates of graft and improvement of hearing level after surgery. In this study most of the cases were younger age group (40%), male (60%), poor-socio-economic condition (73.33%), Illiterate (46.67%), day laborer (26.67%) & rural peoples (80%).

It was observed that hearing status was improved 46.67%, unchanged 33.33% and deteriorated 20% cases. The mean, hearing gain was 10.79 dB. Also post mastoidectomy discharging ear was 20%, facial palsy 3.33%, recurrence of cholesteatoma 13.33%, dead ear 0%. Early detection and management of CSOM with cholesteatoma should be our goal to prevent complications. If good tympanomastoid surgery is done meticulously there will be improvement of hearing and less complications.

Key words: Tympanomastoid surgery, CSOM, Cholesteatoma.

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Introduction

Chronic suppurative otitis media (CSOM) is a worldwide health problem and is still prevalent in the modern antibiotic ear¹. CSOM is typically a persistent disease, insidious in onset, present with aural discharge & impairment of hearing, often capable of causing severe destruction and irreversible sequelae².

Poor living conditions, overcrowding and poor hygiene and nutrition have been suggested as a basis for the wide spread prevalence of CSOM in developing countries³. CSOM & its complications are a major health problem in

Bangladesh though the prevalence of CSOM in our Country is not available⁴.

Hearing loss arising from CSOM is a matter of serious concern globally particularly in children. In Bangladesh 16.95% of mild to moderate conductive hearing loss in children and young adult was due to CSOM⁵.

CSOM is usually classified into two main groups, Tubo tympanic (safe) and Atticoantral (unsafe). Atticoantral is usually associated with cholesteatoma which is histologically benign but may be aggressive locally and associated with significant morbidity or mortality if untreated⁶.

Various techniques for cholesteatoma surgery have been developed but choice of the techniques to be used is still a matter of discussion. The main objectives of cholesteatoma surgery are removal of the disease and preservation of a good hearing function. Now canal wall down tympanoplasty (CWDT) are widely performed, recurrences are reduced in CWDT and the hearing outcome is not sacrificed⁷.

Tympano mastoid surgery is a new method of surgery which is one stage mastoidectomy with tympanoplasty. It has been in a state of constant evolution from the early 1980's. The original technique has gradually been moulded and improved as newer methods of ear surgery⁸.

The outcome of the surgery depends on diagnosis category of CSOM (with cholesteatoma and without cholesteatoma), pathogenic organisms, extent of mastoid pneumatization, regional factors such as associated mucosal disease of the nose & paranasal sinuses and systemic factors such as diabetes⁹.

Hearing gain after tympanomastoid surgery is 10-25dB¹⁰ & recurrent rate is 5-71%¹¹.

CSOM with cholesteatoma is fatal disease. Appropriate surgery helps in clearance of disease, prevent recurrence of disease, improvement of hearing status & cavity problem. The aims of my study was to investigate different outcomes of tympanomastoid surgery and to investigate various parameters that might play a role in determining the outcome. The worldwide practice of performing of tympanomastoid surgery and it's good outcome had encouraged me to do this research work.

Objectives

- 1) To assess the clearance of disease, recurrence of disease and the cavity problems.
- 2) To find the take rates of graft and improvement of hearing level after surgery
- 3) To see the complications that occur during the operation and in the postoperative period.

Materials & Methods

Type of study: Prospective study.

Sampling method: simple Random sampling

Sample size: 30

Study population: Admitted cases of CSOM with cholesteatoma

Duration of study: May 2008 to December 2008

Places of study: Department of otolaryngology & head-Neck Surgery in Sir Salimullah Medical College & Mitford Hospital, Dhaka, Dhaka Medical College, Dhaka & Bangobondhu Sheikh Mujib Medical University.

Inclusion criteria: Patients with CSOM with cholesteatoma

Exclusion criteria: i. Tubo-tympanic variety of CSOM (dry), ii. Patients dropped out from follow up.

Results**Table-I***Age distributions of patients (n=30) (Inclusive)*

Age Groups (years)	No of patients	Percentage
0-10	01	3.33%
11-20	12	40%
21-30	9	30%
31-40	5	16.67%
41-50	2	6.67%
>50	1	3.33%
Total	30	100%

Table-II*Sex distributions of patients (n=30)*

Sex	No of patients	Percentage
Male	18	60%
Female	12	40%
Total	30	100%

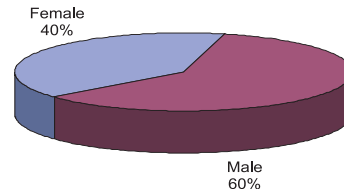
Table-III*Socioeconomic condition (n=30)*

Socioeconomic condition	No of patients	Percentage
Poor	22	73.33%
Middle Class	7	23.34%
Affluent	1	3.33%

Table-VII*Presenting signs in patients of CSOM with cholesteatoma in operated ears. (n=30)*

Signs	No of patients	Percentage
Attic perforation	22	73.33%
Postero Superior marginal perforation	8	26.67%
Discharge	25	83.33%
Granulation Tissue	14	46%
Aural Polyp	6	20%

Sex distribution of patients

**Table-IV***Residential distribution (n=30)*

Resident	No of patients	Percentage
Rural	24	80%
Urban	6	20%

Table-V*Educational Status (n=30)*

Educational Status	No of patients	Percentage
Illiterate	14	46.67%
Primary Education	8	26.67%
Secondary Education	4	13.33%
Higher Secondary Education	3	10%
Graduation	1	3.33%

Table-VI*Bathing habit (n=30)*

Bathing place	No of patients	Percentage
Pond and River	22	73.33%
Tube well and shower	8	26.67%
Total	30	100%

Table-VIII
Post operative follow up & results (except hearing status)

Finding	1 month after operation	3 month after operation
Dry ear	18 (60%)	22 (73.33%)
Discharging ear	12 (40%)	8 (26.67%)
Facial Paresis	1 (3.33%)	1 (3.33%)
Granulation Tissue	6 (20%)	4 (13.33%)
Graft taken	27 (90%)	25 (83.33%)
Vertigo	0	0
Dead ear	0	0
Graft failure	3 (10%)	5 (16.67%)
Recurrence of disease	3 (10%)	4 (13.33%)

Table- IX
Hearing Status Before Operations

Hearing Status (Hearing loss in dB)	No of patients	Percentage
26-40 dB	5	16.67%
41-70dB	19	63.33%
71-90dB	6	20%
Total	30	100%

Table-X
Post operative hearing status after 3 months (n=30)

Hearing Status	No of patients	Percentage
Improved	14	46.67%
Unchanged	10	33.33%
Deteriorated	6	20%
Total	30	100%

Table-XI
Hearing Improvement after 3 months of operation (n=30)
(According to WHO classification)

Preoperative Air Bone (AB) Gap	Post operative Air Bone (AB) Gap	Hearing Improvement / Closer of AB Gap
Mean (dB)	Mean (dB)	Mean (dB)
AC= 59.45 dB	AC = 48.64 dB	
BC= 20.35 dB	BC = 20.33 dB	10.79dB
AB Gap = 39.10dB	AB Gap = 28.31 dB	

Discussion

In this study 30 cases of CSOM with cholesteatoma where modified radical mastoidectomy with type-III tympanoplasty were done then results of operation were assessed in follow up. Goals of surgical management of cholesteatoma include the eradication of disease, restoration of hearing and restoration of normal anatomical configuration¹⁴.

CSOM with cholesteatoma is more common among younger age group (11-20 years)^{2,5}. The younger age group suffer more as because of cellular mastoid, horizontal position of Eustachian tube and enlarge adenoid⁵. In my study, most of the cases (40%) also found younger age group (11-20 years) which correlate with above studies.

In different studies, it was shown that CSOM affected more male than female^{1,2,5,6,12}. This might be due to increase prevalence of CSOM among the male or it might be simple reflection of overall high male attendance in hospital. Female are also reluctant to come forward for treatment in our country¹. In this study was shown that male (60%) and female (40%) with male & female ratio 3:2 which is also similar to above mentioned studies.

Majority of cases (62.5%) of CSOM with cholesteatoma come from low socio economic class^{2,3}. CSOM with cholesteatoma related to overcrowding, poor hygiene, poor sanitation, malnutrition^{3,6,15}. In my study about 73.33% patient's were in poor-socio-economic condition which is supported by above studies.

Illiterate, day labourer, rural people, who used to take bath river & ponds are affected more in CSOM^{2,4,5}. This reflects that lack of knowledge & awareness about the consequence of the diseases inadequate health care facilities, improper practice of hygiene⁵. In my study, rural people, illiterate

people, farmer & others day labourers and who taking bath in river & ponds were affected by CSOM with cholesteatoma which correlate with above mentioned studies.

The common clinical signs in CSOM with cholesteatoma are foul smelling scanty blood stained discharge with attic or marginal perforation in almost all cases.^{1,5,15} In my study the foul smelling scanty blood stained discharge in almost all cases, attic perforation in 73.33% cases & marginal perforation in 26.67% cases which also correlated with above studies.

A canal wall down mastoidectomy and wullstein type III tympanoplasty was done in 21 cases of CSOM with ossicular erosion resulting the mean hearing gain was 5dB.¹⁰ In my study results of 30 cases of modified radical mastoidectomy with type-III tympanoplasty in CSOM with cholesteatoma, with almost similar result of above study.

In one study was shown after operation hearing improved in 30%, remained unchanged in 55% and worsened in 15%. In my study hearing threshold was improved in 46.67% cases unchanged was 33.33% and hearing deterioration occurred in 20% cases. These results are more or less similar to above mentioned study.

In post operative follow up of patients with CSOM with cholesteatoma 20-25% patients were discharging ear¹². In my study post mastoidectomy discharging ear was 20% after 3rd month which consistent with above mentioned study.

In open cavity mastoidectomy facial palsy 0.8%, dead ear 1.9%, recurrence of cholesteatoma 12.8%¹³. In my study facial palsy 3.33%, dead ear zero percent and recurrence of cholesteatoma 13.33%. The results of my study consistent with above mentioned study.

Conclusion

The prevalence of CSOM with cholesteatoma are still high in rural people of younger age group in low socioeconomic class. Lack of awareness about the consequence of the diseases, inadequate health care facilities, lack of knowledge regarding the nature and complications of the disease in illiterate and under educated population lead to grave complications. Early detection and management of CSOM with cholesteatoma should be our goal to prevent complications. If good tympanomastoid surgery is done meticulously there will be improvement of hearing & less complications. So, tympanomastoidectomy are getting more popular. We recommended to organize health education programme for rural population at local and national level, so that morbidity due to CSOM with cholesteatoma could be minimized. Timely surgical intervention for CSOM with cholesteatoma can restrict the development of fatal complications.

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