



EXTRA-CRANIAL COMPLICATIONS OF CHRONIC SUPPURATIVE OTITIS MEDIA - A RETROSPECTIVE STUDY

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ABSTRACT

Introduction: The Objective is to study the risk of extra-cranial complications in cases of CSOM and to study the common extra-cranial complications of CSOM with respect to age, sex and socio-economic status. **Materials and Methods:** The present study comprises of 62 patients with extra-cranial complications secondary to CSOM who attended to the Department of ENT, Agartala Government Medical College, Tripura. An analysis was made regarding the demographic profile, clinical features, surgical techniques, operative findings, and the outcome of the study. **Results:** In this study of 62 cases, the commonly encountered extra-cranial complications of CSOM were mastoiditis (50%), post-aural abscess (11.3%), facial nerve paralysis (11.3%), post-aural fistula (6.5%) and zygomatic abscess (1.6%). Complications were commonly found in squamosal type of CSOM. **Conclusion:** The extra-cranial complications of CSOM pose a great challenge to the developing countries despite its declining incidence. This can be attributed to the lack of public health awareness and inadequate health care delivery system. Early diagnosis and prompt surgical intervention are most important for the decreased morbidity and mortality of these patients.

KEYWORDS : Chronic Suppurative Otitis Media (CSOM), Extracranial complications.

INTRODUCTION

CSOM is a chronic inflammation of the middle ear cleft associated with perforation of the tympanic membrane and otorrhoea. The development of complications in CSOM is due to the bone eroding properties of cholesteatoma, spread of infections through the natural anatomical openings and natural dehiscences in temporal bone, spread through the venous route by progressive retrograde thrombophlebitis of the mastoid emissary veins, patient related factors like age, immune status, debilitated patients and patients with diseases like diabetes mellitus. Failure to take appropriate antibiotics also leads to spread of infection to cause complications. Virulence of the infecting organisms and increasing resistance of the organisms towards antibiotics plays a role. Tissue-delivery of the antimicrobials is compromised due to the presence of granulation tissue and fluid in the mastoid cavity. These complications of CSOM can be lethal if they are not identified and treated properly.

The present clinical study highlights on the various clinical presentations of these complications, the importance of early clinical detection and diagnosis through various imaging techniques and the appropriate treatment modalities in the form of medical therapy and surgery.

Aim and Objectives

- 1) To study the risk of extracranial complications in cases of CSOM.
- 2) To study the common extracranial complications of CSOM with respect to age, sex and socio-economic status.

MATERIALS AND METHODS

The retrospective study comprises of 62 patients with extracranial complications secondary to CSOM who attended at Department of ENT, AGMC and GBP Hospital, Tripura. The study period was January 2023 to June 2024.

Inclusion Criteria

- 1) All patients with extra-cranial complications of CSOM with or without intra-cranial complications.
- 2) Patients of all age groups and both sexes were included.

Exclusion Criteria

- 1) Cases with exclusive intra-cranial complications of CSOM were excluded.
- 2) Patients with chronic systemic illness like diabetes, hypertension, tuberculosis were excluded.

METHODOLOGY

Detailed history of the patient like ear discharge with duration, side, nature of discharge, otalgia and the symptoms like swelling or discharge behind the ear, diplopia, vertigo, asymmetry of face, fever, headache, vomiting, altered sensorium, convulsion were inquired. A past history of any previous ENT illness and systemic illness like tuberculosis, diabetes, hypertension was inquired.

General condition of the patient and vital signs was recorded. Detailed ENT examination with careful observation of the otoscopic findings, preauricular and postauricular regions, mastoid tenderness, fistula test and tuning fork tests was carried out. Neurological examination for features of raised intracranial pressure also carried out. Routine haematological examination, culture and sensitivity of the ear discharge, X-ray of mastoids, CT scan of temporal bone, pure tone audiometry was done.

The patient was started on parenteral broad-spectrum antibiotics with third generation Cephalosporins, Gentamycin and metronidazole. Further antibiotic therapy was guided by bacteriological culture and sensitivity.

Neuro-surgeon's opinion was taken during an associated intra-cranial complication. The sub-periosteal abscesses were incised and drained. Mastoid exploration was done in all indicated cases. Operative findings like presence of cholesteatoma, granulations, facial canal dehiscence, and erosion of semi-circular canals, sinus plate, tegmen plate and ossicular chains were noted.

RESULTS

In our study, out of 62 patients, males and females were 34 (54.8%) and 28 (45.2%) respectively. 5 (8.1%), 17 (27.4%), 19 (30.6%), 5 (8.1%), 8 (12.9%), 4 (6.5%), 2 (3.2%) and 2 (3.2%) patients were in the age group of 1-10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70 and 71-80 years respectively. The mean age in our study was 33.2 years.

44 (70.9%) and 18 (29.1%) patients were from rural and urban area. 40 (64.4%), 18 (29%) and 4 (6.5%) patients belong to lower, middle and upper socio-economic group respectively. Right, left and both ear was involved in 28 (46%), 22 (35%) and 12 (19%) cases.

4 (6.5%), 16 (28.5%), 14 (22.6%) and 28 (45.1) patients had ear discharge for less than 1 year, 1-5 years, 6-10 years and for more than 10 years respectively.

Table 1: Showing Distribution Of Symptoms In The Patients

Symptoms	Number of patients	%
Ear discharge	62	100
Hearing loss	56	90.3
Discharge behind ear	6	9.6
Swelling behind ear	8	12.9
Facial weakness	6	9.6
Fever	14	22.6
Giddiness	5	8.1
Headache	12	19.3
Otalgia	16	22.8

On examination of external auditory canal, 62 (100%), 4 (6.5%), 6 (9.6%) and 5 (8.1%) patients had discharge, granulations, polyp and sagging in the posterior-superior wall.

Table 2: Showing Findings Of The Tympanic Membrane

Perforation of TM	Number of cases	%
Postero-superior quadrant	8	12.9
Attic	40	64.6
Subtotal/Total	12	19.3
Not seen	2	3.2
Total	62	100

Pus CST shows, positive in 54 (87.1%) and negative in 8 (12.9%) patients. 30 (48.4%) patients show positive for *Pseudomonas aeruginosa*, 16 (22.8%) *Staphylococcus aureus*, 2 (3.2%) *Proteus*, 1 (1.6%) *Streptococcus*, 1 (1.6%) *Escherichia coli*, 3 (4.8%) *Klebsiella* and 1 (1.6%) *Peptostreptococcus*.

10 (16.2%) patients had mucosal type of CSOM and 52 (83.8%) patients had squamous type of CSOM.

Table 3: Showing Various Extra-cranial Complications Of CSOM In Patients

Extra-cranial complications	Number of patients	%
Mastoiditis	62	100
Port-aural fistula	6	9.6
Post-aural abscess	8	12.9
Zygomatic abscess	1	1.6
Facial nerve paralysis	10	16.2

20 (32.2%) patients underwent cortical mastoidectomy, 38 (61.3%) modified radical mastoidectomy and 4 (6.5%) patients underwent radical mastoidectomy. Intraoperatively, cholesteatoma was found in 18 (29%) patients, granulation tissues in 36 (58.1%) and both cholesteatoma and granulation were found in 8 (12.9%) patients.

Single complication was seen in 5, 4, 5, 16, 5, 7, 1 and 1 patients of age group of 1-10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70 and 71-80 respectively. Multiple complications were seen in 2, 5, 2, 3, 3, 1, 1 and 1 patients of age group of 1-10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70 and 71-80 respectively.

Single complication was seen in 22 male and 20 female patients. Multiple complications were seen in 12 male and 8 female patients. Single complication was seen in 24, 14 and 4 patients of lower, middle and upper socio-economic groups respectively. Multiple complications were seen in 16 and 4 patients of lower and middle socio-economic groups respectively.

DISCUSSION

A total number of 62 patients with extra-cranial complications of CSOM were included in the study. Out of 62, male and female patients were 34 and 28 respectively which is similar to a study by Ahmed M Alabbais [1]. Most common age group of involvement was 21-30 years which is similar to a study by Alam J et al [2]. The mean age in our study was 33.2 years which is similar to a study by Vartiainen E [3].

44 patients belong to rural area and 40 patients belong to lower socioeconomic status which is similar to Vikram BK et al. [4]. Improving living conditions with better sanitation and good access to medical care can reduce the incidence of CSOM and its complications [5].

Most of the patients i.e. 50 were presented with unilateral involvement of the ear which is similar to Akinpelu OV et al. [6] and Maharjan M et al. [7]. Most common presentation was ear discharge and the maximum number of patients had ear discharge for more than 10 years which is similar to Vikram BK et al. [4].

External auditory canal polyp was seen in 6 cases. Prasannaraj et al. [8] stated that the presence of an aural polyp signifies well established disease of the middle ear cleft with a greater potential for complications. Tympanic membrane perforation was seen in 60 cases.

Pus culture and sensitivity showed positive in 54 patients and most common cultured bacteria was *Pseudomonas aeruginosa* which is similar to Kamran Iqbal et al. [9] and Shymala R et al. [10].

Squamous type was found in 52 patients and mucosal type in 10 patients. Attico-antral disease and its complications were more than that of tubo-tympanic disease in this study, which are consistence with other studies by Amin ASA et al. [11].

In our study, the most common extracranial complication was mastoiditis, which is similar to Moustafa et al. [12] and Grewal et al. [13]. Single extracranial complication was found in 42 patients, in the age group of 31-40 years (16 patients) with lower socio-economic status (24 patients). Multiple extracranial complications were found in 20 patients, in the age group of 11-20 years (5 patients) with lower socio-economic status (16 patients).

Cortical mastoidectomy was performed in 20 patients, modified radical mastoidectomy in 38 and radical mastoidectomy in 4 patients. The most common pathology found during surgery was granulations tissues in 36 patients, followed by cholesteatoma in 18 patients and in 8 patients both pathologies were found. Samuel et al. [14] in their study found granulations in 62% of cases, cholesteatoma in 38% of cases and stated that granulations had a bigger role in the spread of disease than cholesteatoma.

CONCLUSION

The extracranial complications of CSOM pose a great challenge to the otolaryngologist despite its declining incidence. Early diagnosis and prompt surgical interventions are the most important for the decreased morbidity and mortality of these patients.

Ethical Approval: All ethical principles for medical research studies established by our institution have been followed.

Conflict Of Interest: Nil

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