



## Research Article

## Section: Otorhinolaryngology

### Rare Case of Intracranial Complication of Cerebellar Abscess Following Chronic Otitis Media

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#### ABSTRACT

**Introduction:** Chronic otitis media (COM) is an inflammation of middle ear, can cause atelectasis, dimer formation, perforation, tympanosclerosis, development of retraction pocket or cholesteatoma which are abiding or more ineradicable changes in tympanic membrane. Worldwide incidence 65-330 million affective. Prevalence in India 7.8%. The study aimed to investigate the rare intracranial complication of cerebellar abscess, and management outcomes. **Case Report:** The article presents a rare case of Intracranial complication of cerebellar abscess following chronic otitis media. Patient presented with meningitis and it further complicated which lead to raised intracranial pressure due to compression of fourth ventricle. The patient was shifted to ICU Immediately and intra operative cerebellar drainage was done. After a period of 6 months and drainage of intracranial complications, mastoidectomy was performed. The patient improved significantly. **Conclusion:** Chronic otitis media if not managed at proper time it can lead to intracranial and extracranial complications, which can lead to increased mortality and high economic burden. Timely interventions can limit the complications.

#### INTRODUCTION

Chronic Otitis Media (COM), characterized by long-duration inflammation of the middle ear, can result in irreversible changes to the tympanic membrane (TM).[1] Globally, the prevalence of chronic suppurative otitis media (CSOM) varies due to differences in how the disease is defined, methods of sampling, and the quality of research.[2] A comprehensive study by Montasa et al. highlights that there are around 31 million cases of CSOM globally, with an incidence rate of 4.76 cases per 1,000 individuals.[3]

Hearing is essential for enjoying life, fostering relationships, and engaging in community activities.[4] By 2050, it is projected that one in ten individuals, equating to more than 700 million people, will experience debilitating hearing loss. When the better-hearing ear loses more than 35 dB. [5]

Around 63 million individuals in India are affected by severe hearing impairment. [6]. Research indicates that the direct costs related to otitis media disproportionately affect individuals in low-income countries.[7] Conversely, wealthier nations face substantial

loss (CHL) is the primary cause of hearing impairment in cases of COM[9]. Complications arising from otitis media refer to infections that extend beyond the mucous membrane of the middle ear (ME) cavity[10]. Recognizing the type of ear drainage, its underlying pathology, and any early complications is essential for reducing morbidity and mortality [11] However, due to the infrequency of such complications, many otologists may have limited personal experience, emphasizing the importance of established criteria for diagnosis and management. Prevalence rates for intracranial and extracranial complications related to chronic otitis media (COM) range from 0.5% to 0.69%[12]. The most common extracranial complication is a mastoid abscess. Often, both intracranial and extracranial issues are discovered in conjunction with the presence of cholesteatomas in the middle ear and mastoid cavity[13].

#### CASE PRESENTATION

A 17 year old male presented in the emergency department with severe headache, which started 1 day back, patient was evaluated, he had no history of vomiting and nystagmus was absent. There was

history of right ear discharge. On being asked about any relevant past medical history, there haven't been any significant surgical/medical intervention. All the family members are healthy and apparently enjoying good health, hence, no relevant family history obtained. The patient underwent general physical and local examination at the department itself.

During general physical examination, the patient was not oriented to time, place and person and conscious. While on local examination there was discharge from right ear. He was

admitted to ward immediately was observed and found to have fever with neck rigidity, signs of nystagmus was absent, patient was started on injectable antibiotics and fluids immediately and routine investigations were ordered along with CT scan. CT scan showed presence of abscess in right cerebellopontine angle, patient was shifted to ICU. All routine investigations were done and dyselectrolytes were corrected, patient was shifted to emergency OT and drainage of cerebellar abscess was done with placement of ventriculo-peritoneal shunt.



FIGURE 1



FIGURE 2

### Investigations

In local examination of right ear, discharge was seen, neck rigidity was present, wernickes and brudzinski sign were absent. the culture and sensitivity test was done for right ear discharge, and ncct brain with hrct temporomastoid scan was done. ncct scan was suggestive that there is 4.2 X 3 centimeter sized thick peripherally enhancing lesion noted involving right cp angle with hypodense non enhancing internal contents. it is causing mass effect in the form of effacement of 4th ventricle, adjacent folia and indenting the brain stem. mild perfolocal edema is noted. features are likely

suggestive of infective etiology abscess. hrct temporomastoid showed cholesteatoma with ossicles erosion. soft tissue density collection /thickening is noted involving right mastoid air cells and replacing the bony septae of right mastoid air cells with cortical breach noted involving the petrous bone as well as posterior wall of right external auditory canal. suspicious erosions of ossicles on right side is noted. mild ventricu lomegaly is noted. provisional diagnosis of complicated chronic otitis media with cerebellar abscess was made.

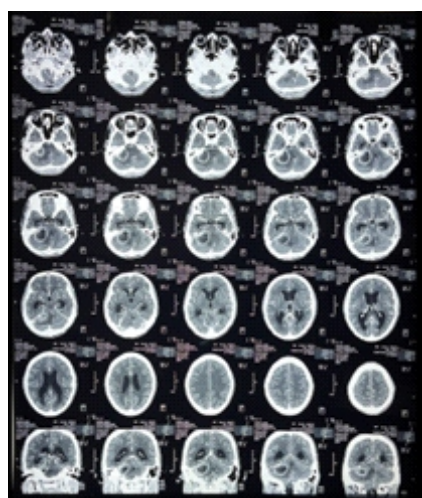


Figure 3(a): CT Brain

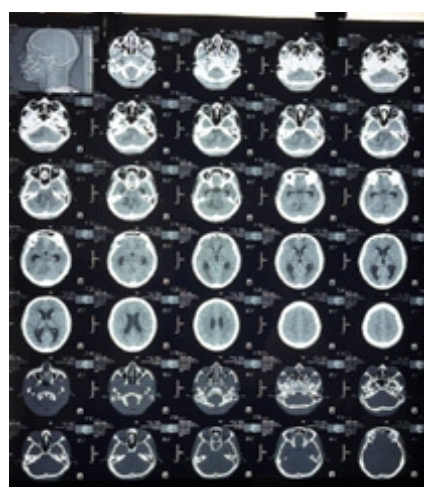


Figure 3(b): HRCT right temporomastoid

## DISCUSSION

Chronic ME and inflammation of the mastoid cavity in COM cause discharge from the ears and loss of hearing. The condition is reflected in the high number of ambulatory patients. Patients with uncomplicated COM have received medical treatment, including antimicrobials in sufficient concentrations to target pathogens. Other benefits of the treatment include the absence of surgical complications and the convenience of the treatment for the patient. Complicated if not properly managed, COMs can have serious consequences.. Many factors explain the limited success of medical treatment in some cases. Chronic inflammation indicates that the host's defences have been overwhelmed by resistant beta-lactamase-producing and anaerobic organisms. The mucociliary clearance is impaired by the perforation of the ME, which eliminates the protective effect of the thickening agent. Together with changes in the mucosa of the ME and the involvement of ET, this creates an ideal environment for middle ear infections to develop and cause problems. As progress continues, radiology can help plan interventions by determining susceptibility, specificity and spread of diseases. Surgery was focused on removal of disease, removal of ME cleft cilia, and pressure variation.

## CONCLUSION

Early intervention to chronic otitis media can help prevent complications and meticulous neurosurgical interventions can help prevent any adverse affect to patients.

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