

# A Study on Intracranial Complications of Otitis Media

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**Abstract:** *Because of efficient use of antibiotics, their proper use and patient awareness, complications of otitis media is becoming less. The intracranial complications are meningitis, brain abscess, extradural abscess, subdural abscess and lateral sinus thrombosis. Sample size for the present study was thirty. This study was done in the Department of ENT, Travancore Medical College, Kollam. In the present study, 19 cases belonged to male sex. Based on age group, 14 cases belonged to age group 0-20 years. Based on intra cranial complications, 9 cases showed meningitis and 9 cases showed extradural abscess.*

**Keywords:** Otitis media, intracranial, ENT, meningitis, extradural abscess.

## 1. Introduction

Complications arising from acute otitis media and chronic otitis media in the central nervous system have reduced over the years greatly yet they are present in lesser numbers in the present scenario. The reason behind the decline was due to the development of efficient antibiotics and their judicious use. The scenario now has changed with the emergence of systemic disorders like diabetes mellitus, immune deficiency disorders and a great increase in immunosuppression for transplant and chemotherapy in patients with malignancies. In this changed scenario the complication still persists for a different reason altogether. They still challenge the practitioner and poses problems in early identification and treatment.

Intracranial complications of otitis media can be in the following forms:

### A. Extradural Abscess

The space between bone and duramater is the extradural space and any collection of pus in this space is called extradural abscess. It can arise due to an acute or chronic infection.

Acute otitis media causes hyperaemic decalcification destroying the bone and dura is reached whereas in chronic otitis media cholesteatoma burrows into the bone and infection is directly brought into the dura. Infection can also spread by venous thrombophlebitis as the harversian system is linked to dural venous sinusous. Extraduralabscesses usually are seen in the middle or posterior cranial fossa.

### B. Subdural abscess

Here the collection of pus is found in the subdural space between duramater and arachnoidmater. Spread of infection is from the ear by bony erosion then through the duraor via thrombophlebitiswith intervening bone being intact. There is a rapid spread of pus in the sub dural space impinging on the cerebral hemisphere causing pressure symptoms in the patient. At times the pus can get loculated forming multiple loculated abscesses.

### C. Meningitis

It is the most common intracranial complication. Inflammation of pia mater and arachnoid mater (leptomeninges) is called meningitis. It is seen with the spread of infection to cerebro spinal fluid (CSF) present in subarachnoid space. It can be seen with acute otitis media and chronic otitis media.in children blood bore infection spread is common compared to adults where it is mainly by thrombophlebitis.

### D. Brain abscess

Results from the direct spread of middle ear infection through the tegmen tymphani or by thrombophlebitis. It is often associated with other abscess and complications. Cerebral abscess through four stages.

- Invasion (initial encephalitis) - Goes unnoticed due to vague symptoms.
- Localization (latent abscess) - asymptomatic, capsule formed around the abscess.
- Enlargement (manifest abscess) - Abscess enlarge causing oedema around. Features of raised intracranial pressure and focal neurological deficit may be seen.
- Termination (rupture of abscess) – Abscess ruptures depending on its location and can be fatal at times.

### E. Lateral sinus thrombosis (syn. Sigmoid sinus thrombosis)

It is a complication of acute coalescent mastoiditis or CSOM where there is an inflammation of the inner wall of lateral dural venous sinus resulting in the formation of an intramural thrombus. Involves following stages:

- Perisinus abscess- Abscess is formed around the outer dural sinus wall.
- Endophlebitis and thrombus formation – as inflammation spreads to the inner wall of the venous sinus fibrin deposition takes place and a full blown thrombus will be formed.
- Obliteration of lumen and intrasinus abscess -As the mural thrombus enlarges and occludes the lumen organisms invade causing intrasinus abscess which may cause septicaemia.

- Extension –once formed the thrombus progresses both proximally and distally can involve all the sinuses of brain till the internal jugular vein.

#### F. Hydrocephalus

Raised intracranial pressure with noabnormality in CSF findings. Seen after the development of Lateral sinus thrombosis and its extension proximally and distally. There will be obstruction for arachnoid villi to absorb CSF and also for the venous drainage resulting in raised intracranial pressure. To analyse the current scenario on intracranial complications we have conducted this study.

## 2. Aims and Objectives

To study the intracranial complications of otitis media.

## 3. Materials and Methods

Sample size for the present study was thirty.

This study was done in the Department of ENT, Travancore Medical College, Kollam.

Detailed clinical history was taken and the clinical examination was conducted.

The complications were noted and reported.

#### Inclusion Criteria

Patients with intracranial complications of otitis media.

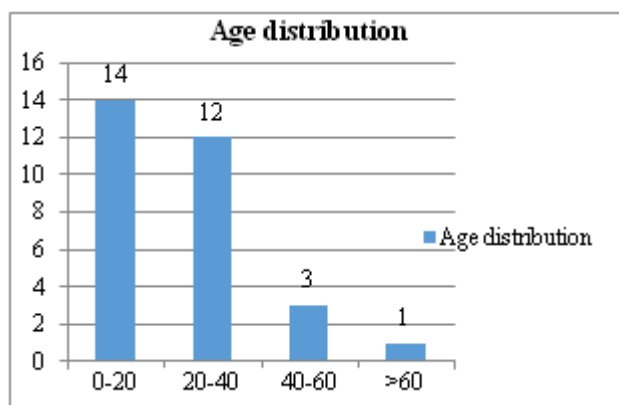
#### Exclusion criteria

Patients without complications.

## 4. Results

**Table 1:** Showing gender distribution

Gender	Frequency
Male	19
Female	11



**Figure 1:** Showing age distribution

**Table 2:** Showing the intracranial complications

Intracranial complications	Frequency
Meningitis	9
Brain abscess	5
Extra dural abscess	9
Sub dural abscess	4
Lateral sinus thrombosis	3

## 5. Discussion

In the present study, 19 cases belonged to male sex, 11 cases belonged to female sex. Based on age group, 14 cases belonged to age group 0-20 years, 12 cases belonged to age group 20-40 years, 3 cases belonged to age group 40-60 years and 1 case belonged to age group >60 years.

Based on intra cranial complications, 9 cases showed meningitis, 9 cases showed extradural abscess, 5 cases showed brain abscess, 4 cases showed sub dural abscess and 3 cases showed lateral sinus thrombosis.

Out of the 30 cases studied, 9 cases had been to the opd for CSOM and had been prescribed with antibiotics. Out of 30 cases, 6 cases were suffering from diabetes mellitus.

The above findings are similar to the findings seen by other researchers. [3][5]

## 6. Conclusion

Inspite of judicious usage of antibiotics, intra cranial complications of CSOM can arise. The reason can be systemic disease like diabetes mellitus or immune compromised states like HIV or transplantation surgeries. So one has to look out for the intracranial complications and diagnose it at the earliest so as to decrease the morbidity and mortality of the patients.

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