

A Complicated Case of CSOM with Sigmoid Sinus Thrombosis

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Abstract: We report a case of sigmoid sinus thrombosis in a clinical setting of Chronic Suppurative Otitis Media (CSOM) in a 16 year old female. She presented with left ear discharge of 7 days duration, associated with left unilateral headache of 1 month duration. Ear Nose and Throat examination revealed total perforation of the tympanic membrane with pinkish mass protruding in the external auditory canal. Further investigations revealed a thrombus (infective) in sigmoid sinus. Left modified radical mastoidectomy was done to completely eradicate the disease and source of infection. The patient was treated with anticoagulants and parenteral antibiotics, based on the culture and sensitivity report. After 5 weeks follow up, patient was found to be asymptomatic.

Keywords: Sigmoid Sinus Thrombosis - Chronic Suppurative Otitis Media - Intracranial complication of CSOM - Mastoiditis.

1. Case Report

A 16 year old female presented to OPD with complaints of unilateral headache since 1 month, which was throbbing in nature, initially mild which later on increased in intensity and was associated with nausea, vomiting and dizziness since 7 days. It was momentarily relieved on taking medications. She was also complaining of left ear discharge since 7 days, which was scanty, purulent, foul smelling and occasionally blood stained. There was history of ear discharge on and off since childhood which was associated with decreased hearing. It was initially gradual in progression, but showed rapid deterioration over a period of 1 month.

Left ear examination revealed total perforation of tympanic membrane with pinkish mass protruding in the external auditory canal. Ear ossicles could not be appreciated. Right ear examination was normal with intact tympanic membrane.

Tuning fork test showed a conductive deafness in left ear. Her clinical findings were normal and investigations revealed her haemoglobin 11.6mg/dl, WBC count 10, 500mmcc and Serum creatinine: 0.7mg/dl.

Aural swab for culture and sensitivity revealed *Proteus Mirabilis*, which was sensitive to piperacillin plus tazobactam, gentamicin, cefuroxime and resistant to doxycycline and cotrimoxazole.

Aural swab for Acid fast bacilli staining came out negative for tubercular bacilli.

Pure tone audiogram of Right ear: 16.6db hearing loss.
Left ear: 40db hearing loss.

CT Temporal bone showed * Expansive cystic lesion in the left mastoid and middle ear with thinning out of the bone and dehiscence along the medial aspect including some part of the sigmoid plate. There was erosion of the ear ossicles. Rest of the middle ear is obliterated with fluid or soft tissue density likely due to otitis media. (Figure 1&2)

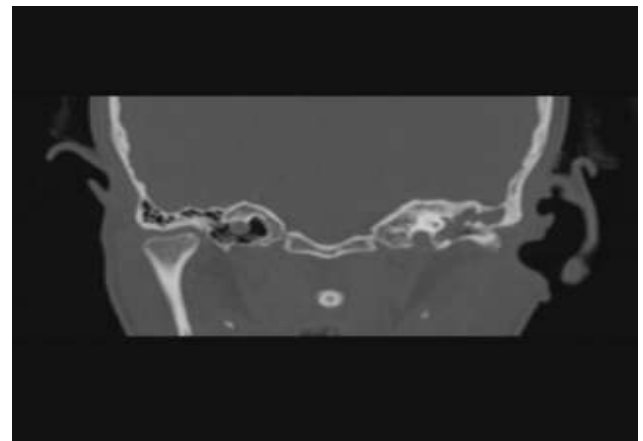


Figure 1: CT temporal bones, coronal view, demonstrating left otitis media

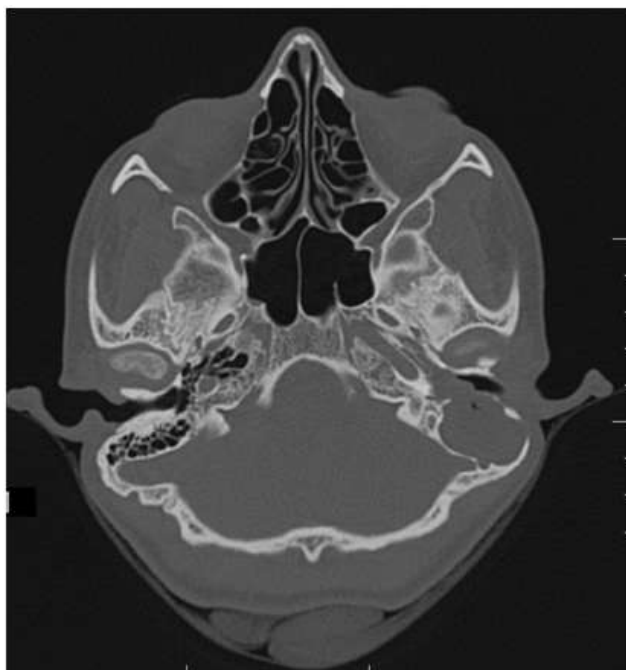


Figure 2: Axial view of CT Temporal Bone, demonstrating left Otitis Media

MRI Brain plain and contrast revealed a collection completely filling the middle ear cavity and mastoid air cells which is non homogenously hyperintense on T2 and hypointense on T1 with restricted diffusion. Contrast administration reveals peripheral enhancement - likely Abscess. Expansion with ground glass abnormality and cortical break in the adjacent posterior squamous temporal bone with homogenous enhancement - likely infective. There was a filling defect in the adjacent sigmoid sinus - likely thrombus. (figure 3)

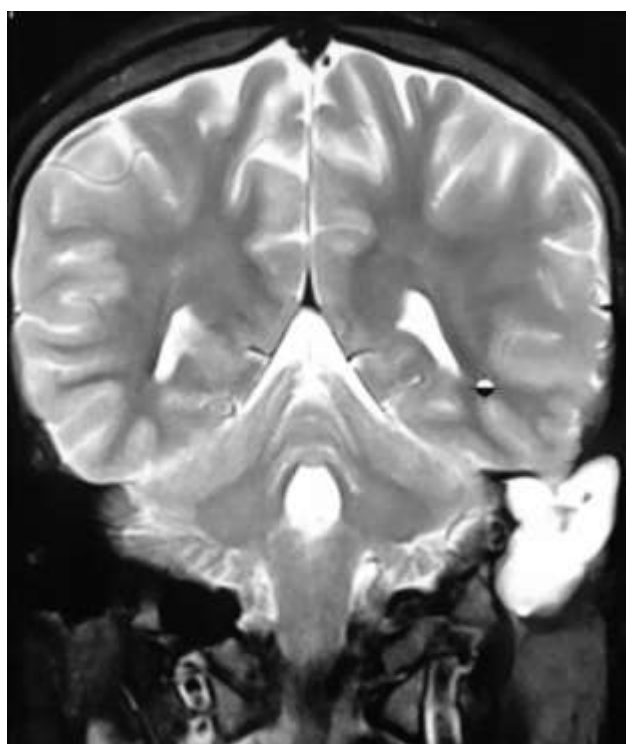


Figure 3: MRI brain with contrast showing the collection on left side

MR Venogram revealed focal attenuation of local sigmoid sinus likely due to partial thrombus. (figure 4)

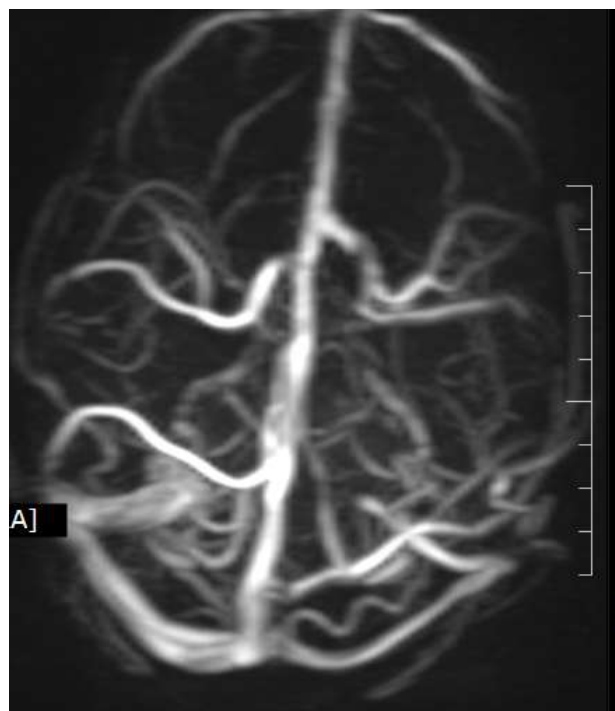


Figure 4: MR Venogram showing thrombosis of left sigmoid sinus thrombosis

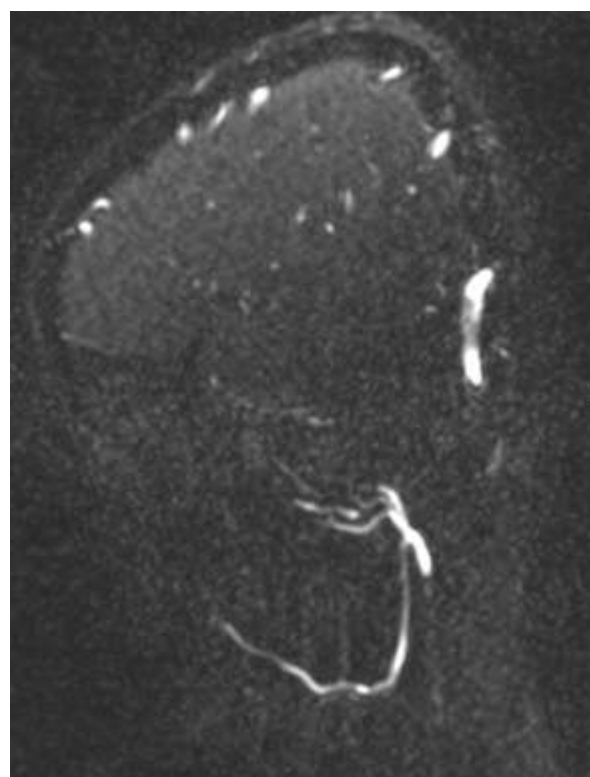


Figure 5: MR Venogram Saggital view

The opinions of the general physician, Vascular Surgeon, Neurosurgeon, Neurophysician, Ophthalmologist and Interventional radiologist were sought.

The patient was started on parenteral antibiotics which included piperacillin+tazobactam for 7days. Gentamicin ear

drops for 7 days. She was also started on intravenous mannitol.

Left modified radical mastoidectomy under general anesthesia was done. Mastoid radical mastoidectomy revealed granulations in attic and well defined thick whitish encapsulated sac which was delineated all over and the pus and cheesy material was evacuated from the sac. The sac

was completely removed. During surgery we also cleared the granulation tissue from the mastoid air cells. After removal of the sac a thorough wash with betadine was given and entire pus was removed. Left sigmoid sinus was skeletonized and granulations removed from the wall of sigmoid sinus. Ossicles were found to be completely eroded.

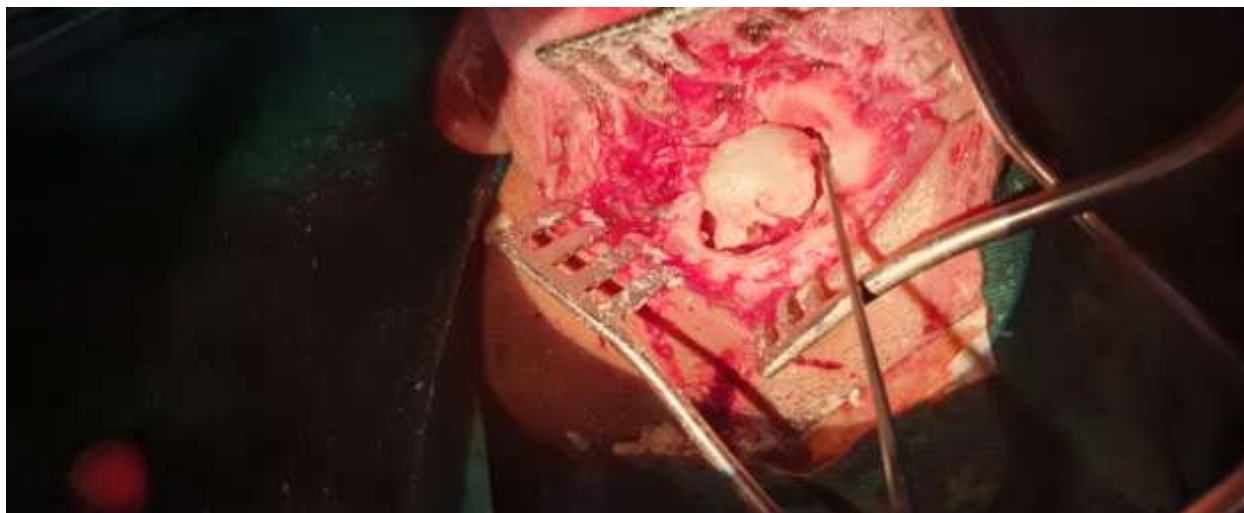


Figure 6: Intra operative image of left mastoid antrum

Post operatively the patient was administered oral antibiotics and anticoagulants for 6 weeks. INR every 2 weeks was advised. Patient was asymptomatic in 8 weeks.

Histopathological impression was of Abscess and Cholesteatoma.

2. Discussion

Chronic suppurative otitis media leading to lateral venous thrombosis is a rare complication in this era due to the advent of effective antimicrobial medications. However, in some instances due to highly virulent organisms, host factors or noncompliance to treatment, progression of CSOM to such complication can occur. It is a rare form of thromboembolism¹ affecting predominantly younger people. The estimated incidence for children is 7 per million whereas in adults it is 3 - 4 per million.² Septic thrombosis³ of sigmoid sinus can result in either from direct extension or hematogenous spread. Direct extension can occur as a sequelae to the mastoiditic or septic graft tissue overlying the sinus wall or extension of infection through emissary vein draining from mastoid to the sinus. The incidence of complications after otitis media after antibiotics usage has fallen from 3 - 0.15%⁴. The clinical presentation of sigmoid sinus thrombosis has changed due to the widespread use of systemic antibiotics⁵. Inadequate or inappropriate treatment may lead to life threatening complications⁶ as septic thrombi may propagate or embolize to the inferior jugular vein or other Dural venous sinuses. Hence high degree of suspicion and timely management in such cases can prevent disastrous complications⁷. The most preferred diagnostic modality for Sigmoid sinus thrombosis is MRI with contrast and magnetic resonance venogram⁸. The surgical removal of focus of infection with systemic antibiotic therapy and

appropriate anticoagulant therapy is the treatment of choice in cases of CSOM with sigmoid sinus thrombosis⁹. In our patient, modified radical mastoidectomy with skeletonisation of the wall of the sigmoid sinus was done. A study by Ichord et al¹⁰ that studied patients ages 1 month to 19 years, found otitis media, mastoiditis, and sinusitis were risk factors for developing CSVT in 78 of 169 patients (46%). In 42 patients with CSVT, Sebire et al¹¹ found that lateral/sigmoid sinuses involvement, which is usually the case in otogenic CSVT, is associated with better cognitive outcomes.

3. Conclusion

In this era of highly effective antibiotics, state of art diagnostic techniques and increased health awareness, complications resulting from chronic suppurative otitis media are quite rare. However when present they have high degree of morbidity and mortality. Not all patients with complicated chronic suppurative otitis media causing sigmoid sinus thrombosis show the classical fever spikes and positive cultures due to antibiotic usage. Hence, we report this case to highlight the importance of prompt diagnosis with high degree of suspicion and relevant radiological investigations to facilitate treatment which can improve the quality of life of patients protecting them from lethal complications.

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