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Case Report

A rare case report of tubercular osteomyelitis of skull presenting as subdural empyema: post autologous cranioplasty

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ABSTRACT

Tuberculosis is very rampant disease in LMICs, which has the potential to infect almost every organ/tissue of the body. Subdural empyema (SDE) is the suppurative infection of subdural space confined between duramater and arachnoid mater. In this study we present a case report of 66 year old male presenting with pus discharge from the right side of temporal skin flap for 1 month post autologous cranioplasty and was clinically diagnosed as SDE after radiological investigations, and underwent removal of infected cranioplasty flap. The removal of infected cranioplasty flap sent for histopathology examination revealed necrotizing granulomatous inflammation, suggestive of tubercular osteomyelitis, skull. Post-surgery patient started on ATT. Tubercular osteomyelitis of skull can be radiologically misdiagnosed as SDE, hence warranting the HPE/microbiological confirmation.

Keywords: Cranioplasty, Tubercular, Osteomyelitis, Subdural empyema

INTRODUCTION

Subdural empyema (SDE) is a suppurative infection that forms in the space between the duramater and the arachnoid membranes, which has no anatomic barrier to spread over the convexity and into the interhemispheric fissure.[1,2]

Tuberculosis is endemic in developing countries like India. However, calvarial tuberculosis is very rare. Since flat bones of skull contain little cancellous tissue, there is comparative rarity of disease in skull.[3] Here, we report a case of 66-year-old male clinically diagnosed with SDE with histological confirmed diagnosis of Tubercular osteomyelitis of skull.

CASE REPORT

A 66-year-old male came with complaints of pus discharge from the right side of temporal skin flap for 1 month. Associated with pain over right side temporal region. No history of fever. No history vomiting. Past history of traumatic injury to head 1 year back, following which 2 days after decompressive craniotomy was done.

Skull graft was placed in abdomen. He underwent autologous bone cranioplasty 2 months after his last decompressive craniotomy.

Subsequently after 1 year he had history of pain over graft region over temporal aspect of head along with pus discharge for which burr hole evaluation surgery done 15 days back for draining pus which drained approximately 50 CC of pus.

On examination patient had pus discharge from the wound site of temporal region. With the help of imaging, it was clinically diagnosed to have SDE.

Patient underwent removal of infected cranioplasty bone flap and repair under general anaesthesia. The excised bone flap and granulation tissue was sent for biopsy. Post

op was uneventful and was discharged on POD 3 once patient's condition improved.

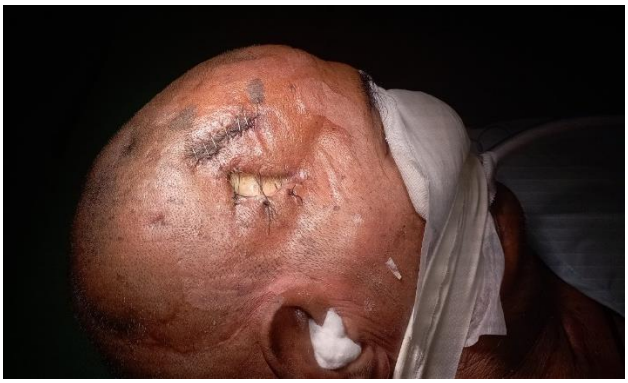


Figure 1: The pre op image pus discharge from right side temporal region.

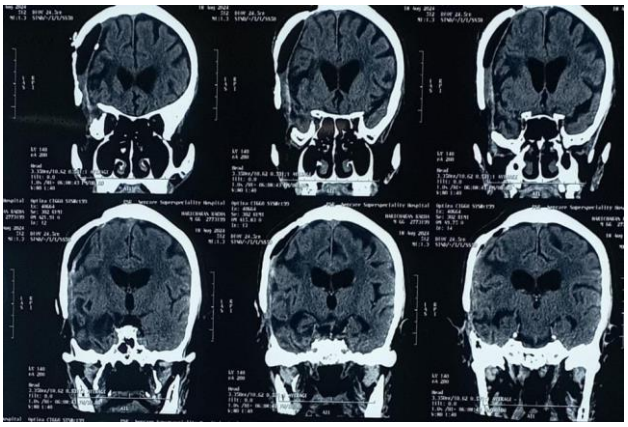
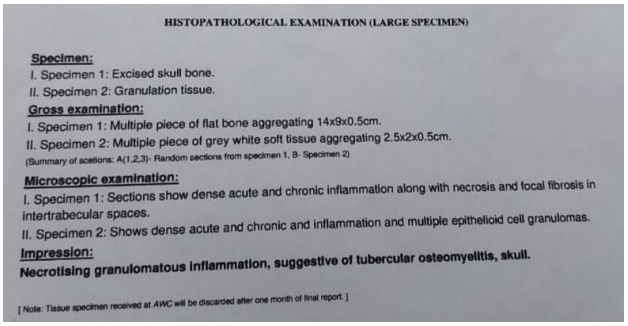


Figure 2: SDE in NCCT brain.

RESULTS

The infected cranioplasty flap was sent for histopathology examination which revealed necrotizing granulomatous inflammation, suggestive of tubercular osteomyelitis, skull. Post-surgery patient started on anti-tubercular therapy (as per ATT guidelines) and was followed for 6 months in OPD and was doing well.



HISTOPATHOLOGICAL EXAMINATION (LARGE SPECIMEN)

Specimen:
I. Specimen 1: Excised skull bone.
II. Specimen 2: Granulation tissue.

Gross examination:
I. Specimen 1: Multiple piece of flat bone aggregating 14x9x0.5cm.
II. Specimen 2: Multiple piece of grey white soft tissue aggregating 2.5x2x0.5cm.
(Summary of sections: A(1,2,3)- Random sections from specimen 1, B- Specimen 2)

Microscopic examination:
I. Specimen 1: Sections show dense acute and chronic inflammation along with necrosis and focal fibrosis in intertrabecular spaces.
II. Specimen 2: Shows dense acute and chronic and inflammation and multiple epithelioid cell granulomas.

Impression:
Necrotising granulomatous inflammation, suggestive of tubercular osteomyelitis, skull.

[Note: Tissue specimen received at AWC will be discarded after one month of final report.]

Figure 3: Histopathological examination of excised skull bone suggestive of necrotising granulomatous inflammation, suggestive of tubercular osteomyelitis, of skull.

DISCUSSION

Suppuration involving the epidural and subdural spaces is a rare occurrence in modern neurosurgical practice.[4]

In our case we encountered SDE. SDE accounts for 15%-22% of all intracranial infections.[5]

In our experience, we have dealt with SDE which is also being studied in this case report.

The symptoms of SDE may be mild and may be the same as those associated with sinusitis, or the infection may result in alteration of the level of consciousness and focal neurologic deficits.[6]

Presentation of our case report patient had complaints of pus discharge from the right side of temporal skin flap for 1 month. Associated with pain over right side temporal region.

Spread of the infection to the intracranial compartment may occur through the valveless diploic veins, often with associated thrombophlebitis.[7]

Modern imaging techniques, especially contrast enhanced CT and MRI, have improved the speed and accuracy of radiological diagnosis of this condition, with an associated reduction in mortality.[8]

Sometimes its dicey to sure shot confirm diagnosis of SDE on radiology, we have to HPE for confirming diagnosis in our case also we sent the excised skull bone and granulation tissue for HPE in which tubercular osteomyelitis skull was confirmed.

At age ≥60 years, obtundation or coma at presentation, and SDE related to surgery or trauma (rather than sinusitis) carry a worse prognosis.[9]

Treatment of patients with SDE consists of immediate surgical evacuation only in rare circumstances where there are contraindications to surgery or significant mortality risks avoided; conservative treatment is advised. The antibiotics should be given for a period of 3 to 6 weeks with close monitoring of clinical status. Aggressive management of SDE has reduced the mortality rate.[10]

Treatment of advancing age pose a threat of life and hence treatment of patient of SDE is always immediate surgical evacuation, unless contraindicated due to associate other mortality risk. In such cases conservative management is done which include Antibiotics for a period of 3 to 6 weeks and close monitoring.

Craniotomy with removal of bone flap improves the outcome.[11]

Tuberculous osteomyelitis of skull is a rare form of tuberculosis with an incidence of 0.2-1.3% of all skeletal tuberculosis.[12]

Prompt diagnosis of tubercular osteomyelitis is by early tissue sampling and appropriate treatment are of utmost importance to prevent or limit further complications such as intracranial extension, empyema, or death.[13]

Though skull is involved secondarily from lung or lymph node focus, at times primary focus is not found leading to hesitation in starting the treatment. Biopsy in these cases confirms the diagnosis.[14]

CONCLUSION

Tubercular osteomyelitis, though is a very rare condition of skull but should be kept as diagnosis in such cases. It can be easily radiologically misdiagnosed as subdural empyema. Therefore, HPE/microbiological confirmation is necessary to make the diagnosis and execute the management plan.

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