

Solitary Osteolytic Lesion of the Skull: A Rare Manifestation of Skeletal Tuberculosis

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Tuberculosis is known for its protean nature, when it comes to its presentation. This case is an affirmation of the above statement. Skeletal tuberculosis (T.B.) accounts for 10% to 35% of cases of extra-pulmonary tuberculosis of which 0.2_1.37 % of tuberculosis are of skull. Tuberculosis of skeletal system is well documented but reports of primary calvarial lesions are rare. 1

Tuberculosis of bone may evade diagnosis for a long time, as it usually remains silent till either involvement of a tissue swelling, due to cold abscess formation. Lytic lesions of skull are generally attributed to metastasis or multiple myeloma and rarely tuberculosis is implicated as a cause. A case of tuberculosis presenting with osteolytic soft tissue swelling of skull in a 15 years old female is reported here.

Case report

A 15 years old female patient presents in neurosurgery out-patient department with complaints of soft swelling on left side of head noticed by patient since 3 months, painless, gradually increasing in size with no complaints of fever, loss of appetite, night sweats or weight loss. Patient had complaints of off and on headache associated with nausea for a period of 2 years. Patient had no known

past history of tuberculosis, bronchial asthma, seizures, diabetes and hypertension. No family history of similar complaints or family history of tuberculosis.

On examination patient was well oriented in time place and person, vitally stable and no presence of pallor, icterus, cyanosis, clubbing, lymphadenopathy, edema. On local examination, a single, non-pulsatile, non-tender, fluctuant, soft tissue swelling of size 3 cm x 4 cm present at left side fronto-temporal region, had a smooth surface, well defined margins. However, erythema, sinus and cough impulses over the swelling were absent. No cervical lymphadenopathy was appreciable. Investigations revealed – Hb :10.1 g/dl, TLC- 7400, DLC –N-70, L-25,E-03,M-02,B-00. PLC-2.26 lac cells / m, ESR – 36 mm /1 hour. Muntoux test was negative. Chest x-ray was normal. Triple markers were negative. CT Scan Head ---Impression – osteolytic lesion at left frontal bone involving subcalvarial cerebral cortex with soft tissue swelling of scalp over the lesion. MRI Brain – Altered signal intensity space occupying lesion seen involving the soft tissue of scalp in left frontal lobe region appearing hypo-intense on T1 and hyper-intense on T2 w image with mild restriction of diffusion within the lesion causing focal erosion / destruction of the underlying left frontal

bone with a small component of lesion projecting extra cranially into the left frontal bone. Provisional diagnosis – osteomyelitis of skull bone with extradural extension. Patient was admitted to our side with a presumptive diagnosis of Eosinophilic granuloma involving the left sided fronto temporal region of calvaria. Patient was posted for wide local excision of the lesion and reconstruction of the defect created. Intra operatively soft yellowish white lesion (3cm x 4cm in size) was found, causing a lytic lesion in the underlying cranium with extension in the epidural with sparing of dura. Subgaleal space was involved.

Total excision of the lesion was done with excision of the involved cranial margin and galeal tissue , tissue obtained was send for histopathological examination. Cranioplasty was done using a titanium mesh with fixation at four points using screws. Histopathological specimen was sent to department of neuropathology in NIMHANS ,Bengaluru. Histopathological report shows dense fibrocollagenous tissue infiltrated by numerous epithelioid cell granulomas with langerhans and foreign body giant cell. Some of granulation show central necrosis. The stroma shows florid neovascularisation with perivascular lymphohistocytic infiltrate. No eosinophils noted. Few dead bone fragments are included. Special stain for AFB and fungal(PAS ,GMS) are negative.

Final Report

Tubercular granulation tissue with osteomyelitis. Intra operative as well as post-operative period was uneventful and the patient was discharged. Upon receiving the histopathological report, patient was started on anti-tubercular drug and is under regular follow up.

Discussion

Tuberculosis is one of the oldest diseases known to affect human and is likely to have existed in prehistoric times, it is a major cause of death worldwide.

In southasian subcontinent, especially in India it is rampant and the endemic condition with its ability to involve any organ present .2 Tuberculosis is the disease of poverty that affect mostly young adult in their most productive period.

Tuberculosis of musculoskeletal system involves about 10% of the total extrapulmonary cases out of which spine is considered as the most common site to be involved. The first authentic case of tuberculosis of skull was reported by Fried in 1842.3

Looking at past records skull is an unusual site for skeletal tuberculosis. This has been attributed to presence of less cancellous bone component in skull , whereas tuberculosis usually begins in the cancellous portion of the bone involved.4 The case reported as tuberculous osteomyelitis of skull is a rare entity as no other active tuberculous focus was identifiable in the patient to illustrate the role of hematogenous dissemination from a primary T.B. focus. Each year 3.8 million new cases of tuberculosis are reported in the world. Skull tuberculosis is found in approximately 1/1000 of all tuberculosis cases , and it concerns 0.2 -1.37 % of tuberculosis case affecting the skeletal system.1 In literature, most of the cases tuberculosis of the skull is secondary to haematogenous spread after pulmonary infections, although direct spread from the orbit, paranasal sinusitis , face and nasal mucosa have been described. But the presentation of a solitary osteolytic lesion of skull, with no primary active lesion found elsewhere, or any history of tuberculosis in a patient is a rare finding. Patient was of paediatric age group with apparently no known risk factors for tuberculosis. In skull tuberculosis early clinical signs are usually absent; appearance of a fluctuant swelling is usually the first symptom. Generalized headache can occur but pain localized to the site of the lesion is more common. The frontal and parietal bones are the most

common site of involvement.⁴ In India tuberculosis is a rampant disease with involvement of each and every organ.² This case is an example of such involvement. Only few cases of involvement of skull with tuberculosis have been reported. In literature there is mention of multifocal involvement, rather than unifocal. Involvement of atypical sites and unusual manifestation are seen specifically in paediatric age group.⁵

This case renders us to take into consideration that tuberculosis can be a cause of osteolytic skull lesion and present with no known signs or symptoms of tuberculosis in a patient.

References

1. Strauss DC. Tuberculosis of the flat bones of vault of the skull. Surg Gynecol Obstet 1993;57:384-98.
2. Global TB Report 2015”, WHO, 2015.
3. Reid E. Medizinisches Correspondenzblatt Bayerischer Arzte. Erlangen 1842. p. 33.
4. Malhotra R, Dinda AK, Bhan S. Tuberculous osteitis of the skull. Indian Pediatr 1993;30:1119-23.
5. LeRoux PD, Griffin GE, Marsh HT, Winn HR. Tuberculosis of the skull: A rare condition-case report and review of the literature. Neurosurgery 1990;26:851-5.

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Figure: 1

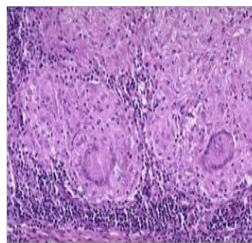


Figure 2 Dense fibrocollagenous tissue infiltrated by numerous epithelioid cell granulomas with langerhans and foreign body giant cell



Figure 3 .CT Head showing osteolytic lesion of outer and inner table

Figure : 2

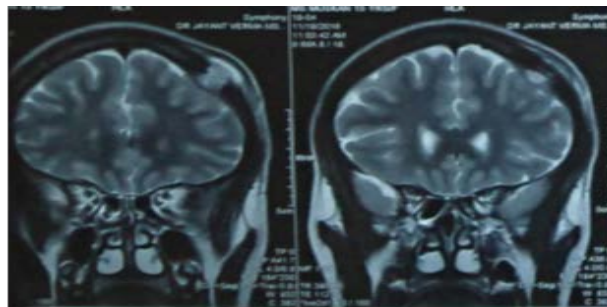


Figure 4. MRI T2w HEAD CORONAL SECTION -showing osteolytic lesion causing erosion of underlying left frontal bone

Figure : 3



Figure 5 Cranioplasty done using titanium mesh



Figure 6: Post operative 3D Ct head