Tubercular Osteomyelitis of Skull : A Case Report

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MJAFI 2006; 62 : 288-290

Key Words : Tuberculosis, Osteomyelitis

Introduction

Skeletal tuberculosis constitutes about 1% of all tuberculosis cases. Usually spine and limb bones are involved. Tubercular osteomyelitis of skull is a rare entity and therefore diagnosis is not suspected. 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. Previous surgery can lead to confusion. Our case highlights all these aspects of skull tuberculosis.

Case Report

A ten year-old girl presented with history of insidious onset of gradually progressive swellings in the scalp of one month duration. She was diagnosed to be a case of multiple sebaceous cysts of the scalp and subjected to surgery by a general surgeon. After the surgery her wounds did not heal and she started to have serous discharge. She came to us with non-healing postoperative wounds one month after her first surgery. She denied any history of fever, loss of appetite and loss of weight. Clinical examination revealed thin built, fairly well nourished child. Vital parameters were normal. She had no fever. Local examination of the scalp revealed two ulcers on each parietal eminence and one in the left occipital region with inverted margins and ulcers were fixed to the underlying bone. There was yellowish slough in the floor along with serous discharge. She had no neurological deficit and examination of other systems was normal. Investigations revealed haemoglobin 11 gm%, erythrocyte sedimentation rate (ESR) 40mm fall 1st hour, total lymphocyte count 8400/cmm, differential lymphocyte count P56, L38, M02, E4. Urine examination was non contributory. Radiograph of skull showed multiple osteolytic lesions in the skull vault and in addition showed small extradural granulations in contrast enhanced computed tomography scan (Figs 2 a,b). Routine wound cultures were sterile. Chest radiograph was normal. Tuberculin test was positive. Blood tests for human immunodeficiency virus and syphilis were negative. She was put on antitubercular treatment (ATT) with isoniazid (INH), rifampicin, ethambutol and pyrazinamide. She was taken up

for excision biopsy of the ulcers of which two were excised, the third being small was left as such. During surgery the material was found to be caseous. The wounds were closed primarily. Post operatively her ATT was continued with 4 drugs for 2 months and then on 2 drugs (INH & Rifampacin). However her wounds did not heal primarily. Histopathology revealed granulomatous lesions with central caseating necrosis and surrounding palisaded histiocytes with langhans giant cell and lymphocytes cuffing (Figs 3 a, b), thus confirming the diagnosis of tubercular osteomyelitis. At 3-month follow up, her wounds had completely healed. We intend to continue her ATT at least for a year and then review whether to continue for 18 months or stop it.

Discussion

Although calvarial tuberculosis had been a known entity during the first half of 20th century, it became a rare clinical condition after the availability of antitubercular drugs during the second half [1-4]. Tuberculosis of the bone is known to affect 1% of all cases of patients with tubercular infections [1].

Fig., 1 : Radiograph of skull - showing multiple osteolytic lesion in parietal and occipital bones

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Fig. 2a : Head CECT scans - showing osteolytic lesion parietal bone

Fig. 2b : Head CECT scans - showing osteolytic lesions both parietal bones with epidural granulations

Tuberculosis of skull is a very rare occurrence and accounts for approximately 1% of skeletal tuberculosis [1,4,6]. It usually affects children, 50% being less than 10 years of age and 75-90% less than 20 years of age [1,2,5]. Painless swelling of scalp and discharging sinuses are common presentations but rarely seizures and motor deficit can occur [2,5,7-9]. Our patient initially presented with painless swellings, the picture became misleading due to surgical intervention for the assumed diagnosis of sebaceous cysts at previous hospital and not subjecting the tissue for histopathology examination. As sebaceous cyst also develops during adolescence and early adulthood, a scalp swelling due to tubercular osteomyelitis can be mistaken for sebaceous cyst [10]. It is emphasised that proper radiological examination, and a fine needle aspiration cytology (FNAC) can be very helpful. It is important to subject every surgical specimen for histopathological examination, as caseous

Fig. 3a : Sections revealing inflammation, dead bone and granulomas (H&E x 10)

Fig. 3b : Necrotising granulomas with multinucleated giant cells histiocytes and mature lymphocytes (H&E x 40)

material of tuberculous origin and cheesy material of sebaceous cyst may look alike on gross examination. Parietal and frontal bones are most commonly involved and have been attributed to relatively more cancellous bone elements in these bones as compared to other bones of skull vault [2]. Occipital and sphenoid bones are rarely affected [9,11]. Though dura acts as strong barrier against intracranial spread, such spread is rarely known to occur [1,5,12,13]. A raised ESR and positive tuberculin skin test are usually found. Calvarial tuberculosis is known to have three types of radiological findings, the common circumscribed lytic type or perforating tuberculosis of the cranium with small circumscribed punched out lesions, the diffuse type, in which there is widespread involvement of diploe with destruction of the inner table and epidural granulations and circumscribed sclerotic type [5,9]. CT scan though non specific, may reveal an irregular bony defect which is wider at inner table, a diffuse hypodense lesion with enhancing margins and a well circumscribed enhancing lesion. Other pathologies mimicking such picture include pyogenic osteomyelitis, eosinophilic granulomas, metastases, haemangiomas,

aneurismal bone cyst, meningioma, neuroblastoma and syphilis [6, 16, 17]. Ziehl – Neelsen stain and culture for mycobacterium are diagnostic [3,13] but may not be positive in every case. FNAC should be done in lesions with overlying intact skin [18]. Histopathology revealing epithelioid granulomas with langhans type giant cells and caseation necrosis is diagnostic. Surgery is indicated for removal of large extradural collections causing neurological deficit, large pockets of caseating material, associated sinus formation or fulminant secondary infection and when diagnosis remains uncertain [5,6,14]. Though some cases may respond to ATT only [5,19]. Jadhav, Palande, Mukherjee et al [14,15], did not have any problem with primary closure of the wound, but in our patient the wound did not heal primarily, though it finally healed with antitubercular treatment. ATT has been recommended for 18-24 months [3,13,14] but one-year course has also been found adequate [19].

Conflicts of Interest

None identified

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