Brief Reports

Tubercular Osteitis of Skull

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Skeletal tuberculosis is very common in many parts of the world, but at the same time tubercular osteitis of skull is rare, and very few cases have been reported. We are presenting a case of tubercular osteitis affecting parietal bone along with review of literature because of its rarity and differential diagnosis.

Case Report

A seven-year-old male child presented with dull aching pain and swelling over left parietal region for the last two and a half months. He did not have any constitutional symptoms. Examination showed a 5 cm size, oval boggy, fluctuant swelling over the left parietal region which was tender on palpation. The child was otherwise healthy with no other skeletal abnormality. The ESR was raised (52 mm in first hour) and other biochemical parameters were normal. *X*-ray of skull showed multiple osteolytic lesions with irregular, ill defined margins, without any periosteal reaction, in the left parietal bone (*Fig. 1*). *X*-ray of chest and skeletal survey were normal. Mantoux test was negative. On clinical and radiological evidence, a definite diagnosis could not be established and the swelling was surgically explored. It contained greyish white caseating material and histopathology of specimen showed granulation tissue with well defined granulomas among the bony trabeculae (*Fig. 2*). The granulomas consisted of epitheloid cells and Langhan's giant cells with variable number of lymphocytes. The histological features were highly suggestive of tuberculosis.

Antitubercular treatment with rifampicin, isoniazid and ethambutal was started. Within four months, the swelling disappeared and radiologically parietal bone lesion also healed (*Fig. 3*). Treatment was stopped after twelve months and the child remains well three years after initial presentation.

Discussion

The incidence of tuberculosis of skull is reported to be 0.1 to 3.7% of all cases of skeletal tuberculosis(1-3). It is mainly a disease of children with 50% patients below ten years of age(1-4). The condition is rare in infancy owing to small amount of cancellous bone in skull(5). Most cases of tuberculosis of skull are secondary to pulmonary tuberculosis(1,4) although direct spread of infection from orbit, paranasal sinuses, face and nasal mucosa has also been implicated. From lung, infection spreads by hematogenous route or lymphatics. Lymphatic spread is more likely as this explains rarity of skull

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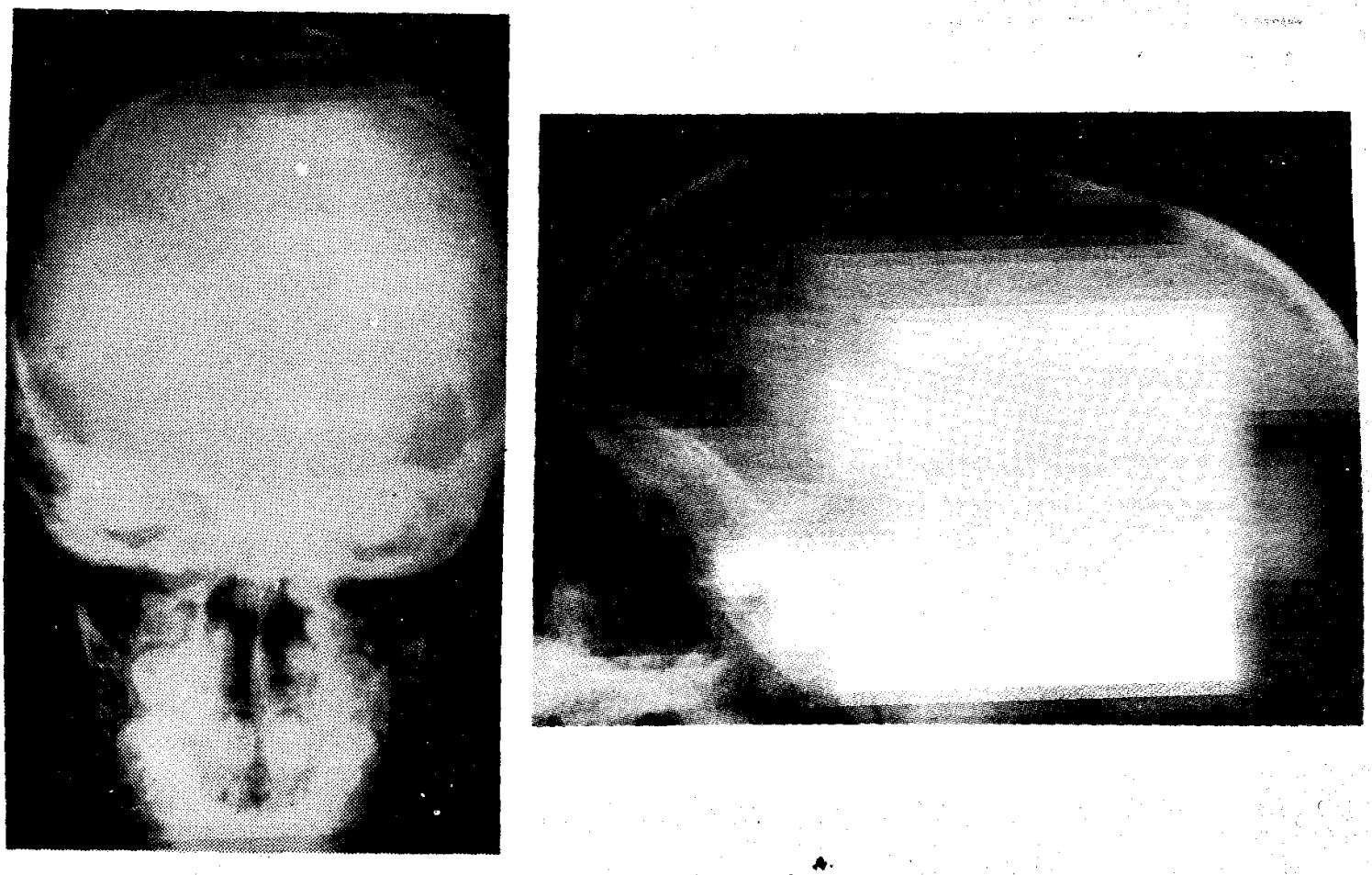

Fig. 1. AP (a) and Lateral (b) radiographs of skull showing irregular, multiple, coalescing osteolytic lesion in the left parietal bone. Margins are not sharply demarcated and there is no sclerosis.

tuberculosis since skull is poor in lymphatics though rich in vascularity(3). Skull involvement is commonly seen in children with disseminated disease(1,6).

The tubercular lesion begins from diploe and can then destroy both outer and inner tables. Destruction of outer table usually occurs first. A cone like destruction of skull vault may sometimes occur and is believed to be characteristic of tubercular osteitis of skull lesions. These bones are thought to be having more cancellous bone than other bones of vault.(1) Involvement of base of skull(8), orbit and sphenoid(6,9) is very rare. The periosteum is usually spared(10). Craniovertebral junction may be involved and destruction of intervertebral joint can produce subluxation(7). The lesions may be single or multiple and are pathologically divided into two types—a circumscribed or perforating type and diffuse or progressive type(1).

Clinically the disease is characterized by lack of early symptoms and appearance of fluctuant swelling is usually the first symptom (it is one of the cause of Pott's Puffy tumor). The swelling has a soft, fluctuant centre with surrounding firmly attached base and can thus be differentiated from cephalhematoma. Skin attachment, discoloration

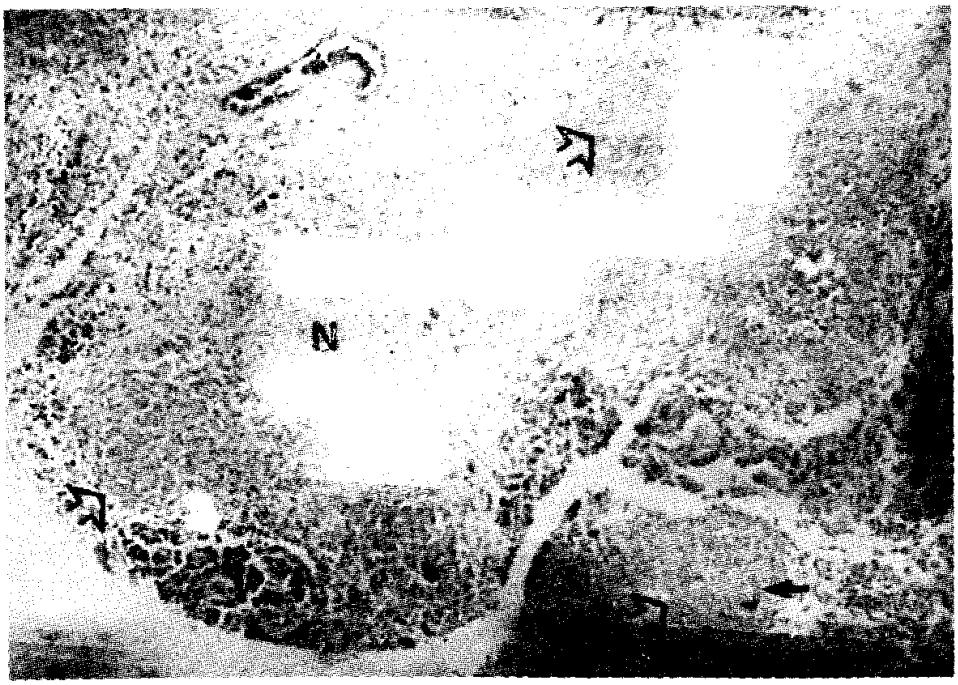

Fig. 2. Photomicrograph showing multiple epitheloid granulomas (arrow heads) with Langhan gaint c ells (arrow) and areas of necrosis (N) (H & E Stain, 90).

and sinus formation are late features. Headache can occur but more common is pain localized to the site of lesion(1). Transmitted pulsations in the swelling can occur when perforation in inner table has allowed the lesion to be in continuity with the extradural space. Symptoms from intracranial extension of lesion are very rare.(8)

The commonest radiological lesion of tubercular osteitis is of a single calvarial defect in frontal or parietal region. It may also present as expanding, destructive lytic lesion with ill defined, irregular margins having at first a sclerotic border and later osteoporotic edge. A "button sequestrum" or "bone sand" may be seen within the lesion(5,7). Multiple lesions can occur, which may coalesce and spread across the suture line.

Differential diagnosis is from tumors (sebaceous cyst, lipoma, angioma, eosinophilic granuloma and epidermoid), infections (acute and chronic pyogenic osteomylitis, yaws, syphilis, actinomycosis, blastomycosis, coccidiomycosis, hydatid), sarcoidosis, osteitis fibrosa and cephalhematoma(11).

Diagnosis is by a high index of clinical suspicion, positive Mantoux test, radiological features, aspiration of swelling for bacteriological examination and biopsy for histopathological examination. Treatment is mainly conservative. The operation is indicated in cases of extensive destruction, presence of secondary infection and intracranial involvement. Surgery is not indicated for small lesions(8) and presence of sequestrum is also not a definite indication for surgery. During treatment, radiological evidence of repair lags behind clinical evidence of improvement. Prognosis depends on gravity of associated tubercular lesions and extent of local disease(1), but now-a-days with chemotherapy prognosis is usually good. It, however, remains a mystery as to why tubercular osteitis of skull is so rare in communi-

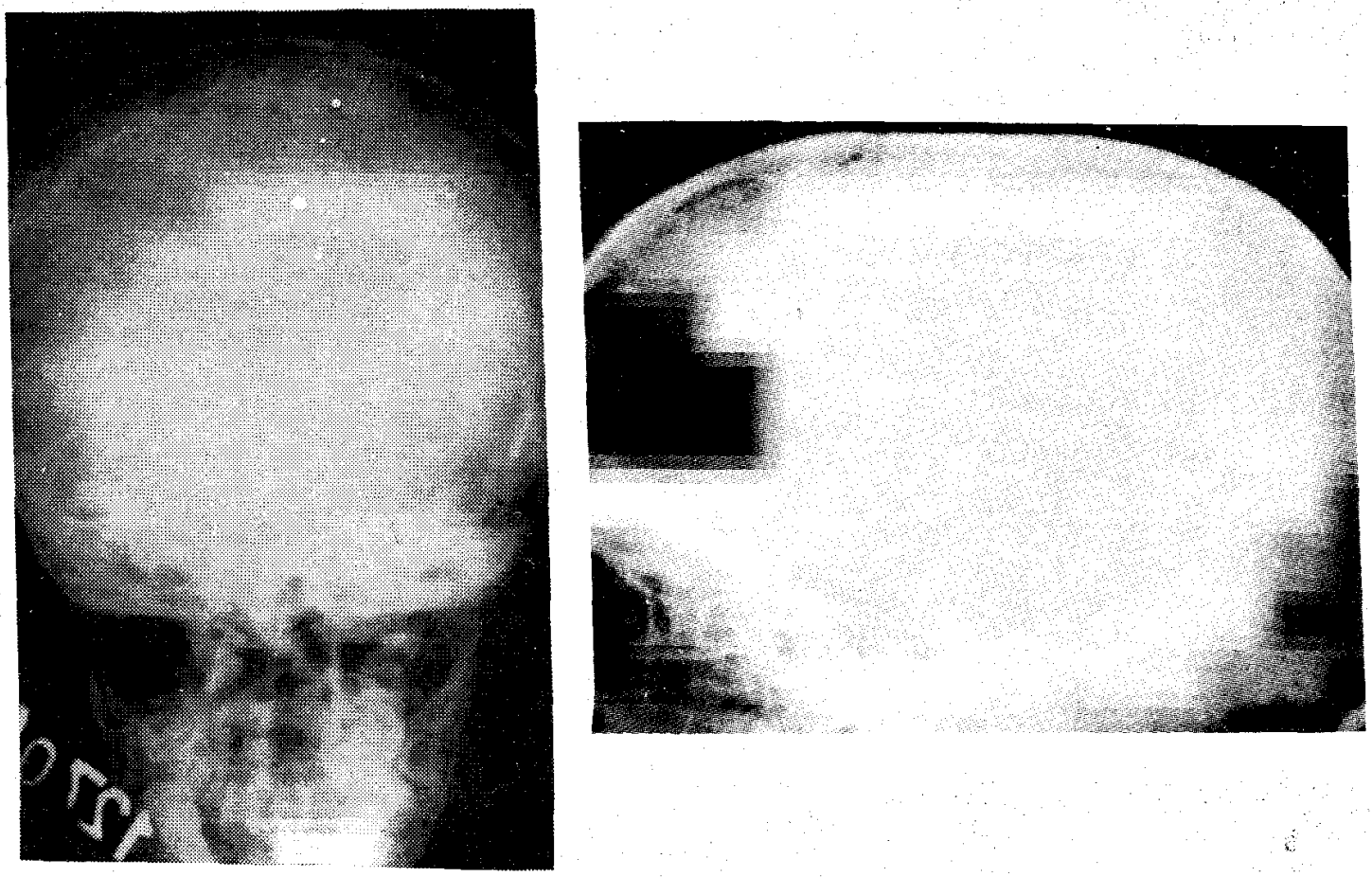

Fig. 3. AP (a) and Lateral (b) radiograph of skull four months after chemotherapy showing complete resolution of osteolytic lesion.

ties where other tubercular infections are common. Some possible reasons for this could be: (*i*) lesions may be asymptomatic and pursue a chronic indolent course; (*ii*) decreased awareness of this entity, and (*iii*) earlier diagnosis of pulmonary tuberculosis and greater efficiency of modern drugs in treating tuberculosis does not allow skull lesions to enlarge and develop chronic form of disease. A greater awareness and high index of suspicion are, therefore, important to recognize tubercular osteitis of skull.

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Ectrodactyly Fibular Aplasia

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Amongst the various skeletal hypoplasias, absence of fibula is the most frequent one, yet it does not find a place in standard pediatric books. The condition was first reported in 1936. Fibular aplasia or hypoplasia, when present in association with oligodactyly, absent metatarsals, absent tarsals and cleft hand, is termed as ectrodactyly fibular aplasia (EFA)(1). Other associated anomalies include femoral defects, absence of patella, congenital heart defects and renal anomalies(1).

Case Report

A full term boy, weighing 2800 g was born of a vaginal delivery to a third gravida mother. On examination, the baby was otherwise well but for the deformity of right leg and foot. He measured 49 cm in length and head circumference was 35.5 cm. There was no other apparent skeletal malformation. Systemic examination was unremarkable.

The right lower limb was 3.5 cm shorter than the left and the fourth and fifth toes were absent. There was an anteromedial angulation of tibia with dimpling of overlying skin. The right foot was in equinovalgus position and lateral malleolus was not palpable. The hip and knee joints on the right side were normal. *X*-ray of right foot and leg revealed absence of fibula, cuboid, talus, IV and V metatarsals and phalanges of IV and V toes (*Fig. 1*). There was an anteromedial angulation of tibia. There were no soft tissue calcification or abnormality of knee or hip joint. The *X*-rays of left foot and leg were normal. There was no history of similar anomaly in previous sibs or in the father. There was no history of irradiation, intake of drugs during pregnancy or any significant illness in the mother during first trimester.

Discussion

The fibula is partially or completely absent more often than in any other long bone. In a review of 291 patients with congenital shortening of an extremity, shortening of fibula of 10% or more was found in 44% of the

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