

Case report

Tuberculous Osteomyelitis of Orbit- A Case Report

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Abstract

Background: Orbital tuberculosis is a rare manifestation of extrapulmonary tuberculosis. We report an interesting case of osteomyelitis of orbital bone in an Indian child. **Case Report:** A 9- year old girl presented with a gradually increasing painless swelling of left upper lid and blepharoptosis along with swelling of left side of forehead for last two months. The swelling was soft, fluctuating and non-tender. Diagnostic tap revealed thick pus which prompted us to do an incisional drainage of the abscess. The pus was sterile on microbiological examination. A diagnosis of osteomyelitis of orbit along with cold abscess of infratemporal fossa was made on the basis of clinical examination, positive Mantoux (MX) test, high erythrocyte sedimentation rate (ESR) and bony erosion of frontal and zygomatic bones in contrast enhanced computerized tomography (CECT). Patient showed marked improvement with antitubercular drug (ATD) but a sinus developed at the incision site. Six months later patient presented with occasional serous discharge from the sinus. The patient underwent excision of the sinus along with curettage and debridement of the left frontal bone and the tissue was sent for histopathological and microbiological examination. ATD was continued for 15 months. Her post-treatment three year follow up was without any recurrence. **Conclusion:** High index of suspicion should be kept for early diagnosis and timely treatment of the orbital tuberculosis. We want to report the case because of its rarity and clinical interest.

Keywords: Tuberculous osteomyelitis, zygoma, frontal bone, cold abscess, discharging sinus.

Introduction

Tuberculosis (TB) of orbit is rare, even in places where tuberculosis is endemic. The disease may involve soft tissues, the lacrimal gland, or the periosteum or bones of the orbital wall (Agrawal P K et al,1977,Sundar V I et al,2013). Calvarial TB is usually a disease of children with 50% patients below 10 years

and 70-90% are younger than 20 years of age (Rout AA et al,2004). The incidence of TB of skull bone is increasing in developing countries because of malnutrition, poor socioeconomic status, and immunodeficiency state. A painless scalp swelling with or without a discharging sinus is the usual presentation. It commonly involves the frontal and parietal bones (Abhijit A et al,2004). TB osteomyelitis of zygomatic bone has been rarely reported in the literature (Malik MK et al,1977, Rangila R ,2016).

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Case Report

A nine-year-old Indian girl from a poor socioeconomic background presented with complaint of gradually increasing painless swelling and drooping of left upper lid along with swelling of the adjacent area for last two months. There was a history of trauma at the local site three months back which was not associated with any swelling or bleeding. One month after the injury her mother noticed a swelling over the left temporal fossa, which gradually spread to the adjacent area. She had been treated elsewhere with oral antibiotics, analgesics but without any relief. CECT of head and orbit was inconclusive. There was no history of fever or any other systemic diseases.

On examination, a non-tender, soft, fluctuating diffuse swelling of left upper lid extending over the left fronto-temporal area was found (Fig.1). The overlying skin was erythematous, local temperature was not raised. Her vision was 20/20 in both the eyes. Ocular movements were normal. Anterior segment and fundus oculi were within normal limit. Systemic examination detected left sided palpable preauricular and sublingual lymph nodes. The child was otherwise healthy with no constitutional symptoms.

Complete haemogram showed Haemoglobin-11.2 gm/dl, total white blood cell count of 14,000 cells /mm³, ESR 58 mm in the 1st hour. Mantoux test showed 15x15mm induration. Chest X- Ray revealed multiple calcific lesions in lower lobes of both lungs. Sputum for acid-fast bacilli (AFB) was negative.

Diagnostic aspiration yielded yellowish creamy pus, which prompted us to do an incisional drainage. Incision and drainage of the swelling yielded about 50 ml of pus. The Gram and Ziehl-Neelsen staining of pus smear was negative, culture and sensitivity for pyogenic organisms and AFB were sterile. The patient was treated

with intravenous Ceftriaxone (1 gm) once daily for 5 days, topical antibiotic (Gatifloxacin) and systemic analgesic. The swelling subsided temporarily but reappeared within a week. The incision site ultimately developed a discharging sinus (Fig.2). Fine needle aspiration cytology of left preauricular lymph node showed reactive hyperplasia. Polymerase chain reaction of the pus for *Mycobacterium tuberculosis* was negative. Repeat CECT revealed an excavating bony erosion of the frontal and zygomatic bone of the left orbit (Fig3a, 3b).

On the basis of positive MX test, bony erosion in CECT and high ESR, tuberculous osteomyelitis with cold abscess of left orbit was diagnosed. Diagnosis was supported by other findings such as being a female child, unilateral affection, slowly progressive swelling and involvement of left orbit. Category 1 Anti tubercular therapy (ATT) consisting of rifampicin(R) 225mg, isoniazide (H) 225 mg, pyrazinamide (Z) 750 mg, ethambutol (E) 600 mg on alternate day were started. R and H were continued for next ten months.

After two months of ATT the swelling started to reduce and discharge from sinus stopped. Six months later, patient presented with occasional serous discharge from the sinus (Fig 4). Excision of the sinus along with curettage and debridement of the left frontal bone was performed by neurosurgery team and the tissue was sent for histopathological and microbiological examination. Culture and sensitivity report came negative. Histopathological examination(HPE) showed a sinus tract, lined by stratified squamous epithelium but there was no evidence of any epithelioid granuloma. ATT was continued for 15 months and her post-treatment three-year follow up was without any recurrence. Repeat CECT at one year showed complete healing of the bony lesion.



Figure 1: Child with swelling over left upper lid and forehead



Figure 2: Discharging sinus in left upper lid

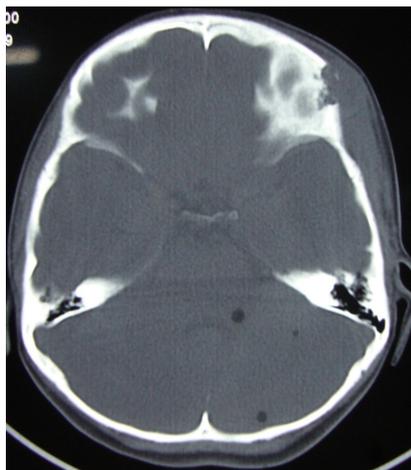


Figure 3a: Axial CT showing osteolytic lesion of skull bone



Figure 3b: Coronal CT showing erosion of frontal & zygomatic bone



Figure 4: Sinus at 6 month

Discussion

Although several reports of orbital TB have been published since it was first described by Abadie in 1881, the condition is still rare (Madge SN et al, 2008). Haematogenous spread from a primary tubercular focus or contiguous spread from paranasal sinuses may affect the orbit. Involvement of the lateral wall suggests a haematogenous source of infection. Involvement of the medial wall of the orbit is suggestive of spread of infection from an adjacent paranasal sinus (Raina UK et al, 2004). Trauma is one of the predisposing as well as an important precipitating cause of osteomyelitis in many cases (Agrawal P K et al, 1977; Jadhav RN et al, 1999). In our case as the chest x-ray was not suggestive of a primary focus, it could be a case of primary TB osteomyelitis.

Orbital tuberculosis usually presents with destruction of bone, most commonly the frontal and sphenoid bones, with or without sclerosis, extraconal inflammation or abscess formation, extension into the infratemporal fossa, or intracranial usually extradural extension. Tuberculous periostitis is the usual manifestation of tuberculous infection and usually affects the outer margin of the orbit. Bony involvement can also be seen in the form of cortical irregularity and destruction. Bony thickening and sclerosis are seen in longstanding cases (Narula M K et al, 2010). Other causes of bone destruction in the paediatric age group are neuroblastoma, without an associated abscess and Ewing sarcoma, which usually shows a

speculated periosteal reaction with a soft tissue mass (Narula M K et al 2010).

The clinical course of the disease is slow, with erythematous swelling and oedema. The oedema spreads slowly to the lids and conjunctiva and eventually a cold abscess is formed. Often these abscesses are incised ignorantly as ordinary inflammatory abscess resulting in a non healing sinus like in our case. Sometimes they burst spontaneously resulting in cicatricial contraction and ectropion.

While treating such cases certain principles should be observed: a) the ATT should be prescribed in combination of two or more drugs, b) The treatment should be regular and at least for a period of one year or more (Agrawal P K et al, 1977, Babu K et al 2014). c) Drugs should be prescribed in adequate dosages. Incomplete treatment and secondary infection may lead to a refractory type of lesion that could spread to the orbital contents, sinus formation and sometime spread to the brain. Sometimes, during treatment, radiological evidence of repair lags behind clinical evidence of improvement (Agrawal P K et al, 1977).

Surgery is indicated in cases of extensive destruction, presence of secondary infection, and intracranial involvement. The treatment may be in the form of drainage of cold abscess, scraping of granulation and unhealthy tissue, and removal of dead bone (Agrawal P K et al, 1977).

Tubercular osteomyelitis should be differentiated from the more common pyogenic osteomyelitis because of the difference in treatment regimens. A positive family history, patients residing in high prevalence area and infection not responding to conventional antibiotics, as in the present case, are indications to suspect and investigate for tuberculosis. Diagnosis and management of these lesions depends on the close coordination of the ophthalmologist, microbiologist, pathologist, radiologist and physician.

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