University Journal of Surgery and Surgical Specialities

ISSN 2455-2860 **2018, Vol. 4(2)**

Sub-Acute Metaphyseal-Diaphyseal Osteomyelitis Of Femur-A Rare Case Report.

SENTHIL RAJAN
Department of Orthopaedic Surgery,MADURAI MEDICAL COLLEGE AND HOSPITAL

Abstract : Sub-acute osteomyelitis is of diagnostic challenge. We report a case of sub-acute osteomyelitis of right proximal femur in a 16 year old boy which is rare in location and radiological presentation

Keyword : Sub-acute osteomyelitis, Infection

INTRODUCTION

Primary subacute haematogenous osteomyelitis may be difficult to diagnose because the characteristic signs and symptoms of the acute form of the disease are absent. It has an insidious onset, lacks a systemic reaction and may mimic various benign and malignant conditions, resulting in delay in diagnosis and treatment.[1-7].Gledhill described four radiological types of subacuteosteo-myelitis. Roberts et al expanded and modified the classification based on anatomical location, morphology and the similarity of the lesions to various neoplasms into six forms including the spine infections. Subacute osteomyelitis most commonly involve the metaphseal or diaphseal region of tibia, we report a case subacute osteomyelitis in a rare location and presentation.

CASE REPORT

A 16 year old boy presented with pain and swelling over the right hip for one month duration. Pain was localized to the right hip. He had an episode of fever. He had no history of trauma or weight loss. On examination the swelling was tender and warm, skin over the swelling was normal, no erythema, no sinus, no regional lymphadenopathy, no dilated vein. Right hip was in flexion, abduction and external rotation. Range of movements were painfully restricted. No distal neuro-vascular deficit. The lab investigations showed leucocytosis, moderate elevation of ESR(42mm) and positive CRP (11mg/dl). Mantoux was negative. The initial radiograph showed three metaphyseal osteolytic lesions with surrounding sclerosis of the right proximal femur which resembled a brodie's abscess, 2 weeks later x-ray showed extensive osteolytic lesion of Right proximal femoral metaphysis and extend to diaphysis with "onion skin" periosteal reactions. We proceeded with x-ray,CT and MRI. CT showed extensive osteolytic lesions with "onion skin" periosteal reaction of proximal femur extending upto mid shaft.

Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

pre-operative clinical picture(Fig1,2)
pre-operative x-rays--
patient on admission x-ray Rt proximal femur showed three osteolytic lesions with sclerotic
margin(Fig.3).
2 weeks later x-ray showed extend of osteolytic lesion from metaphyseal to diaphyseal region,with
"onion skin" periosteal reaction(Fig4,5)
Fig 6

Fig 7

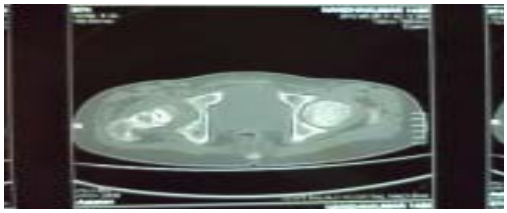
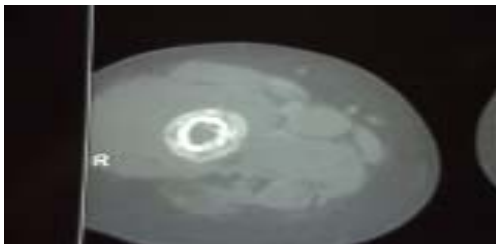


Fig 8



Pre-operative CT showed osteolytic lesion in head and neck of femur(metaphyseal), "onion skin"periosteal reaction in diaphyseal region.
Fig 9

Fig 10

Fig 11

An Initiative of The Tamil Nadu Dr. M.G.R. Medical University
University Journal of Surgery and Surgical Specialities

Pre-operative MRI showed lytic lesion with fluid level, Report suggestive ?Osteomyelitis, ?Ewings sarcoma. for clinical corelation.

Treatment

He underwent curettage of lytic lesion, under spinal anesthesia, in Lt lateral position(Fig.12), through lateral approach(Fig.13), window was made over the lateral cortex(Fig.14), serosanguinous pus was came out from the cavity(Fig.15). curettage of the cavity was done.specimen send for histopathological examination and culture sensitivity. Culture came as poor pure growth of staphylococcous aures which is sensitive to ceftriaxone,cefaperazone sulbactum, linezolid, amikacin.He was treated with 2 weeks of parenteral ceftriaxone and amikacin followed by 4 weeks of oral linezolid antibiotics.Biopsy report came as non-specific osteomyelitis with chronic inflammation.
Fig 12

Fig 13

Fig 14

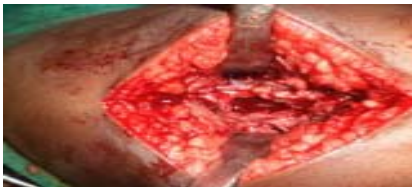


Fig 15

Fig.12-Lt lateral position
Fig.13-Lateral approach
Fig.14-Lateral cortex window made
Fig.15-curettage specimen
Fig 16

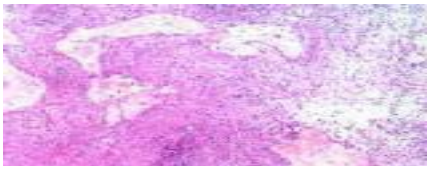


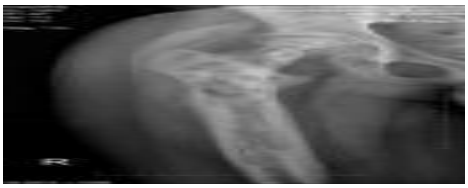
Fig.16 Histopathological examination showed non-specific osteomyelitis.

Post-operatively he was adviced non-weight bearing,after 4 weeks he was on partial weight bearing.at the end of 8 weeks he was examined clinico-radiologically.he had reasonable range of motion (Fig.18).8 weeks post operative x-ray showed healing, and segmental osteonecrosis in inferomedial region of head of femur which could probably due to the lytic lesion which was located in the head and neck of femur(Fig.19).

Fig 17

Fig 18

Fig 19



Discussion

Primary sub-acute osteomyelitis remains uncommon, but the incidence is increasing nowadays compared with that of the acute form. Sub-acute osteomyelitis develops when there is an altered host-pathogen relationship as a result of increased host resistance and decreased bacterial virulence.1-3,4 The acute process may also be masked by antibiotics administered early in the clinical course. True primary subacute haematogenous osteomyelitis occurs mainly in children without a history of previous antibiotic treatment.

The clinical course in subacute osteomyelitis has an insidious onset with mild symptoms. An occasional history of minor trauma has been noted in this and other series5,9,10,13 and may be regarded as a predisposing factor. Laboratory data, apart from a slightly raised ESR, does not support a diagnosis of infection and the radiological presentation may be suggestive of a benign or malignant neoplasm.

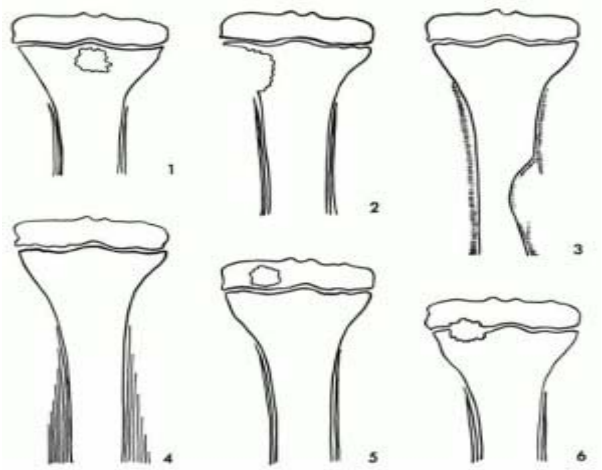


Fig.20 Roberts et al [7,16] modified Gledhill's[3] classification into six types Roberts et al [7,16] modified Gledhill's[3] classification into six types. including four basic forms of the disease occurring in the long bones and spine, defined as metaphyseal, diaphyseal, epiphyseal and vertebral. Type-Ia lesion is a punched out localised radiolucency mimicking eosinophilic granuloma. Type Ib is a punched out lesion with sclerotic margin, resembles a Brodie's abscess. Type II lesion is metaphyseal radiolucencies with cortical erosion resembling osteogenic. Type III lesions have a localised diaphyseal cortical lesion with periosteal reaction, often mimicking osteoid osteoma. Type IV diaphyseal lesions with onion skin periosteal reaction often resemble Ewing sarcoma. Type V lesions occur in the epiphysis with central radiolucency with faint sclerotic margin like in a chondroblastoma or chondromyxoid fibroma. Type VI lesions are vertebral erosive or destructive process as in tuberculosis. The vertebral form is usually seen in adults.[1,2,5,9,14,16,17,18]

Some authors have reported the presence of subacute osteomyelitis in other sites, such as the calcaneum,[2,11,15] pelvis,[6] clavicle and metatarsal bones.[9] Metaphyseal lesions are the most common and occur mainly in the tibia.[1,2,4,6,7,11] In our case patient had combined metaphyseal and diaphyseal sub-acute osteomyelitis in the same bone which is a very rare presentation. Subacute metaphyseal-diaphyseal osteomyelitis has received less attention in the literature than the other forms. In this case patient initially presented with three lytic lesions with sclerotic margin resembling brodie's abscess(type Ib) in metaphyseal region of right proximal femur which later progressed to combined mtaphyseal-diaphseal form where metaphseal region showed lytic lesion of type Ib and the diaphseal region showed periosteal(typeIV) form with laminated onion skin periosteal reaction simulating Ewings sarcoma. Similar findings have been

reported by Harris- Kirkaidy-willis et al in their study reporting combined metaphseal-diaphseal lesion, the diaphseal involvement indicating diffuse local Involvement, starting in the metaphysis.[8]

The recommended treatment for subacute osteomyelitis with a lucent lesion or nidus has been curettage, biopsy and culture followed by immobilisation and antibiotics. In diaphyseal lesions with a periosteal reaction, a core of bone should be taken which includes periosteum cortex and medullary contents. The diagnosis is usually confirmed by histological examination which shows an inflammatory component with scattered lymphocytes, plasma cells and granulation tissue.[2,4,6,7,12] *Staphylococcus aureus* is regarded as the causative organism by most authors.There are singlereports of other rare organisms such as *Pneumococcus*,[13] *Klebsiella*[3] and *Kingella kingae*.[6] Cloxacillin is the antibiotic of choice in the treatment of subacute osteomyelitis and is given orally forsix weeks after an initial intravenous course for up to five days.we have a 6 month follow up of this patient with no late complications such as chronic osteomyelitis,growth changes, pathological fractures or recurrence, except segmental osteonecrosis of head offemur which could probably due to the lytic lesion which was located in the head and neck of femur.

REFERRANCE

1.**Harris NH, Kirkaldy-Willis WH**. Primary subacute pyogenic osteomyelitis. J Bone Joint Surg [Br] 1965;47-B:526-32.

2. **King DM, Mayo KM**. Subacute haematogenous osteomyelitis. J Bone Joint Surg [Br] 1969;51-B:458-63.

3. Gledhill RB. Subacute osteomyelitis in children. Clin Orthop 1973;96: 57-69.

4. **Kandel SN, Mankin HJ**. Pyogenic abscess of the long bones in children. Clin Orthop 1973;96:108-17.

5. **Cabanela ME, Sim FH, Beabout JW, Dahlin DC**. Osteomyelitis appearing as neoplasms: a diagnostic problem. Arch Surg 1974;109:68-72.

6. **Lindenbaum S, Alexander H**. Infections simulating bone tumours: a review of subacute osteomyelitis. Clin Orthop 1984;184:193-203.

7. **Roberts JM, Drummond DS, Breed AL, Chesney J**. Subacute hematogeneous osteomyelitis in children: a retrospective study. J Pediatr Orthop 1982;2:249-54.

8. **Rasool MN**. Primary sub-acute haematogenous osteomyelitis in children. J Bone Joint Surg [Br] 2001;83-B:93-8.

9. **Jones NS, Anderson DJ, Stiles PJ**. Osteomyelitis in a general hospital: a five-year study showing an increase in subacute osteomyelitis. J Bone and Joint Surg [Br] 1987;69-B:779-83.

10. **Bogoch E, Thompson G, Salter RB**. Foci of chronic circumscribed osteomyelitis (Brodie's abscess) that traverse the epiphyseal plate. J Pediatr Orthop 1984;4:162-9.

11. **Ross ERS, Cole WG**. Treatment of subacute osteomyelitis in childhood. J Bone Joint Surg [Br] 1985;67-B:443-8.

12. **Hoffman EB, de Beer JD, Keys G, Anderson P**. Diaphyseal primary subacute osteomyelitis in children. J Pediatr Orthop 1990;10:250-4.

13. **Andrew TA, Porter K**. Primary subacute epiphyseal osteomyelitis: a
report of three cases. J Pediatr Orthop 1985;5:155-7.

14. **Waldvogel FA, Vasey H.** Osteomyelitis: the past decade. New Engl J Med 1980;303:360-70.

15. **Hamdy RC, Lawton L, Carey T, Wiley J, Marton D**. Subacute hematogenous osteomyelitis: are biopsy and surgery always indicated? J Pediatr Orthop 1996;16:220-3.

16 **Roberts JM, Drummond DS, Breed AL, et al**: Subacute hematogenous osteomyelitis in children: a retrospective study, J Pediatr Orthop 2:249, 1982

17. **Campbell's Operative Orthopaedics**, text book 11th ed.

18. **Turek's Orthopaedics text book** - 6th Ed