

Acute Multifocal Symmetrical Osteomyelitis

Ass. Prof. Dr. Younis A. Rasheed Al Radwany * M.B. Ch.B., F.I.B.M.S

Dr. Ahmad Saeed Tawfeeq ** M.B. Ch.B, F.I.B.M.S.

Abstract

Background: Acute osteomyelitis is almost invariably a disease of children [1]. The causal organism is usually staphylococcus aureus [3]. The primary site of infection is the metaphysis, where the blood flow becomes sluggish in the capillary loops [2]. The acute, focal bone pain is often, but not always, accompanied by systemic findings of fever or malaise.[4] WBC with differential, sed rate, C reactive protein, and plain radiographs are initially obtained, and technetium imaging is helpful if there is doubt about the diagnosis. The non-invasive nature of ultrasound and the lack of a need for sedation make the diagnostic imaging a less traumatic experience for the child [7]

Case presentation:3 years old child admitted to the pediatric unit , he treated there as a case of gastroenteritis and chest infection. The child referred to the orthopedic outpatient unit, US examination of the lower limbs revealed fluid collection around the lower ends of both femora.drainage of huge amount of pus from both femora revealed heavy growth of staph aureus bacteria.

Conclusion and recommendation:High index of suspicion of osteomyelitis is a must and bilateral symmetrical presentation should be expected and treated accordingly.

Introduction

Acute osteomyelitis is almost invariably a disease of children [1] children with malignancies or juvenile arthritis on immunosuppressives, or malnourished children; the incidence is higher [2]. The causal organism is usually staphylococcus aureus [3]. In the child, the primary site of infection is the metaphysis, where the blood flow becomes sluggish in the capillary loops [2]. The pathological

**Orthopaedic surgeon\ the head of the higher educational unit, The head of orthopaedic unit in the surgical *
department \ Tikrit University \ College of Medicine.**

**Radiologist, lecturer\ the head of the radiology unit in the surgical department \ Tikrit University \ College **
of Medicine.**

picture varies considerably depending on the patients age, the site of infection , the virulence of the organism and the host response. There is a characteristic pattern marked by inflammation, suppuration, necrosis, new bone formation and resolution [3]. The cardinal signs of early osteomyelitis are soft tissue swelling and marked bony tenderness with voluntary guarding of the affected limb.

Symptoms acutely and usually are evaluated within the first several days of the onset of their condition. The acute, focal bone pain is often, but not always, accompanied by systemic findings of fever or malaise. It is important to consider the most relevant conditions in the differential diagnosis like trauma, leukemia, malignant tumors such as Ewing's sarcoma or osteogenic sarcoma, and bone infarction from sickle cell crisis. People with osteomyelitis often feel severe pain in the infected bone [4]. They may have fever and chills, feel tired or nauseate, or have general feeling of not being well [5]. WBC with differential, sed rate, C reactive protein, and plain radiographs are initially obtained, and technetium imaging is helpful if there is doubt about the diagnosis. Bone aspiration and blood cultures (preferably drawn during rising portion of temperature spike) are the most initial valuable laboratory studies [4]. This condition is most similar to septic arthritis in its presentation [6]. Morbidity mostly occurs via delays in diagnosis that may be due to negative culture results and/or a poor understanding of the pathophysiology of bone infections that can lead to mismanagement of the patient [1]. The earliest presentation has no findings other than local tenderness and an elevated erythrocyte sedimentation rate (ESR)[7].

The treatment for AHO is usually antibiotic therapy and/or surgical intervention, which includes incision and drainage of abscesses, as well as debridement of infected, devitalized tissue and bone. One should begin empiric treatment by targeting gram-positive organisms [8].

Case presentation

3 years old child admitted to the pediatric unit in Tikrit Teaching Hospital, he had fever, chest infection , diarrhea, vomiting and reluctant to feed, he treated there as a case of gastroenteritis and chest infection. 5 days of his admission the treating doctor noticed inability of the child to move his knees and swelling appeared in the lower right femur just above the knee joint this associated with deterioration of the child general condition despite the antibiotic and general supportive treatment. The child referred to the orthopedic outpatient unit he was pale, ill looking, malnourished lethargic , with high fever, he was unable to move both knee joints (pseudoparalysis), the investigation showed elevated level of ESR , WBC count with low Hb, and elevated level of CRP.

XR examination of both lower limbs was normal on the left side, however there was periosteal elevation on the right lower femur (fig.1) The patient send for US examination of the lower limbs which revealed fluid collection around the lower ends of both femora.

Crossed matched blood prepared and the patient admitted urgently to the operative theatre, through longitudinal incision over the lateral aspect of both lower femora drainage of huge amount of pus was done(fig.2) , the pus was yellowish in colour, and was send for bacteriological examination which later revealed heavy growth of staph aureous bacteria. The wounds closed over corrugated drains. The child discharged to the word after dressing and back slab application. Systemic triple antibiotics started because the child was on the verge of septicaemia, this together with other supportive treatment and nursing.



Figure(1): normal XR apart from mild periosteal elevation in the right side.



Figure (2): drainage of the lower femoral collection from both sides.

The child condition started to improve dramatically, after the stoppage of pus discharge the drains removed and after the fever subsided we changed him to oral antistaphilloccal antibiotics, the antibiotics stopped after 6 weeks and a negative CRP, the child send for blood film which was normal apart from picture of iron deficiency anaemia. VDRL test send and was negative, abdominal US examination was normal. This in addition to thorough historical information from the family to exclude any similar conditions in the family or in relatives.

Discussion

Acute haematogenous osteomyelitis (AHO) somewhat uncommon, Pediatric haematogenous osteomyelitis may occur secondary to a traumatic injury and/or an acquired illness or other immunosuppressive condition. The condition can be quite dangerous in prognosis if the diagnosis is delayed. Therefore, it is essential to be able to differentiate between AHO and other conditions [8]. This case represent a malnurtied child from a rural area, and a product of an overcrowding house and a malnurtied multiparous mother, the mother was young uneducated, pale she is busy all the time in the farm, and she has poor planning of her previous pregnancies, and she used to lactate her children, so the child in addition to his natural poor immunity of he is being a preschool child, his general social and health conditions were poor. The child of such community can sustain a blunt trauma easily during his playing outdoor without being noticed by the family, this is greatly agreed by Guler, et. al., who establish the role of blunt trauma without fracture or obvious wound as a risk

factor in children admitted for community-acquired Staphylococcus septicaemia. They showed that skeletal involvement was multifocal and more frequent in traumatized, older patients. The period between the symptoms of infection and diagnosis was also shorter in traumatized patients [9]. In addition to his primary chest infection and secondary diarrhea, this may explain the bilateral symmetrical involvement of both lower femora i.e. the child may have had a fall on both knee joints without being noticed. Periosteal elevation is usually noticed 2 weeks after AHO [1] but in this condition it was noticed 5 days after his admission to the hospital; this may be because the family already brought him late which is usual and as we mentioned above the child may have had blunt trauma which may make the presentation faster and earlier. Blood film is essential to exclude sickle cell anaemia, and VDRL is important to exclude congenital or acquired syphilis especially in this condition with multiple AHO. Complete blood count (CBC) with differential, arthritic panel, peripheral smear, ESR, C-reactive protein (CRP) and blood cultures [9]. Ultrasound is great in detecting intraarticular, soft tissue and subperiosteal fluid collections. Benefits of using this modality include a lower cost and ready availability. The non-invasive nature of ultrasound and the lack of a need for sedation make the diagnostic imaging a less traumatic experience for the child [7] and this was of great help in our case where it detected the collection in the left side which was no positive obvious clinical sign apart from decreased knee movement.

Conclusion and Recommendation

AHO is a disease of children and should be expected in any child presented with ill health especially if he is neglected with poor general condition, ESR and CRP are easy and applicable methods of investigation, high index of suspicion of multifocal osteomyelitis is a must and ultrasound is an easy, cheap, trustworthy diagnostic method.

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