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Case Report

Osteomyelitis of Fibula in a Child: A Rare Case Report with a Huge Sequestrum

Vijay Varun[1], Srivastava Naveen[2], Rastogi Anuj[3], Kumar Gaurav[4], Srivastava Shilpi[5], Verma Vikas[6]
[1]D.Orth, DNB (Orthopaedics), [2]MS (Orthopaedics), [3]D.Orth, DNB (Orthopaedics), [4]MS(Orthopaedics),
[5]MD (Microbiology), [6]MS (Orthopaedics)
Integral Institute of Medical Sciences and Research, Lucknow, Uttar Pradesh, India

***Corresponding author**
Dr. Varun Vijay
Email: dr.varunvijay@gmail.com

Abstract: Osteomyelitis of the fibula is uncommon. It can occur secondary to trauma however it can also occur as a result of haematogenous spread from distant sites of infection. There is usually a period of sub clinical infection and this can lead to delay in diagnosis. Chronic osteomyelitis need not always be associated with a discharging sinus as was in our case. An ongoing disease unresponsive to antibiotic treatment warrants an operative debridement as was the scenario in our case.
Keywords: Osteomyelitis, fibula, haematogenous, sequestrum.

INTRODUCTION:

The term osteomyelitis was first used by the French surgeon Chassaignac in 1852 [1]. It is defined as an inflammation of bone and bone marrow caused by pyogenic bacteria, mycobacteria or fungi [2]. If untreated, osteomyelitis may lead to formation of "sequestrum", i.e. pockets of dead cortical bone with abscess formation, and "involucrum" new bone incorporating the sequestrum [3-6]. When the new bone is totally surrounding the sequestrum, the involucrum is called 'Totenlade' (coffin) in German. This involucrum may or may not be adequate in supporting the limb structurally once the sequestrum is removed [7]. Multiple openings in the involucrum develop which is called as "cloaca" through which pus and sequestrum comes out of the bone.

Chronic osteomyelitis often has insidious onset and difficult to diagnose. Often there is a previous history of trauma or open wound to the involved bone. It can also occur as a result of haematogenous spread from a distant foci of infection. In our case there was a delay of 6 months before the patient presented to us with chronic osteomyelitis of the fibula.

CASE REPORT

An 8 year old female child presented in our outpatient department with history of pain and swelling over left leg since 6 months. The pain was gradual in onset and progressive followed by appearance of swelling over the involved area after 1 month of start of pain. The pain was sharp shooting type associated with high grade fever and chills which got relieved on taking some medication from a local doctor. She experienced multiple similar episodes during the next one month for which her parents used to take her to a nearby doctor who used to give some medicines and the symptoms used to subside. Gradually the intensity of pain decreased and a swelling appeared over her left leg. She was taken to the district hospital where she was admitted for a month and intravenous antibiotics were administered after getting her blood investigations and radiograph of the involved extremity. Her symptoms reduced but complete cure was not achieved and she was discharged from the hospital on oral medication. The medication was continued for another 2 months and her symptoms have aggravated for the past 15 days. No history of any discharging sinus during the course of the disease was elicited.

On local examination of left leg, ill defined swelling present over lateral aspect of left leg with skin discoloration. Skin overlying the swelling was tense and shiny (Figure 1).

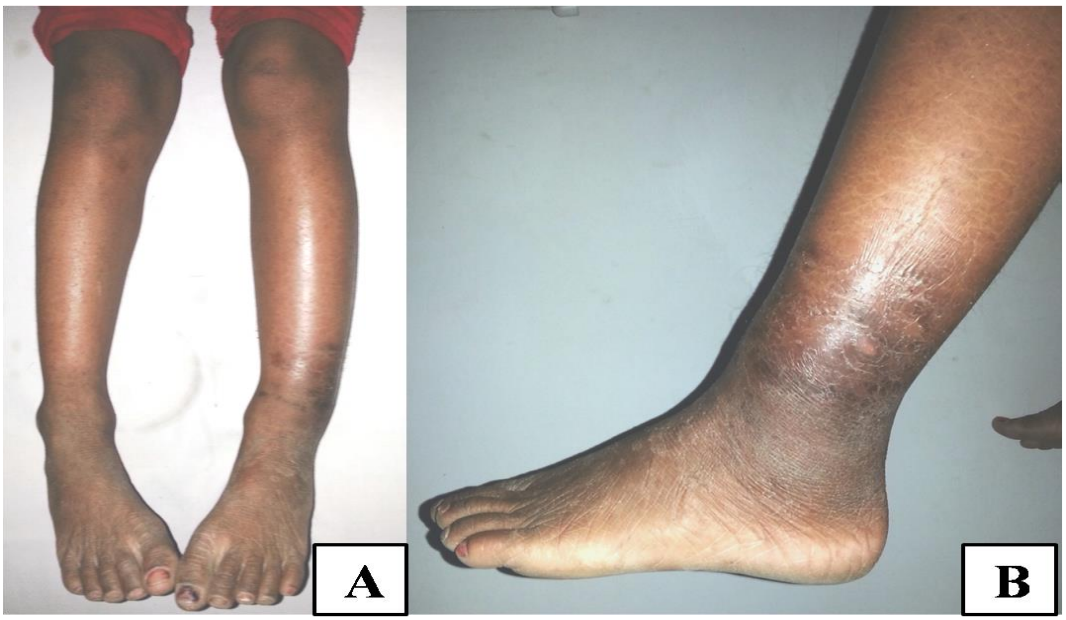

Fig-1: (A and B): Clinical picture of the patient showing ill defined swelling over lateral aspect of leg with tense, shiny skin and discolouration of skin.

No local rise of temperature was present. Skin overlying the swelling was pinchable and bony tenderness was present along the fibula. Fibula felt thickened and irregular on palpation in lower third. A radiograph of the involved extremity showed extensive involvement of the fibula and a large sequestrum lying inside the medullary canal (Figure 2A). Her blood investigatioins were as following: Hb:11.2gm%, TLC:14900/cumm, DLC(N-78,L18,E-4), ESR: 85mm after 1 hour, CRP: 30.4mg/l. A MRI of left leg was done which showed large ill defined area of patchy hyperintensities in whole of fibula shaft with irregular cortex. Periosteal thickening in whole of fibular shaft is seen which is suggestive of fibular osteomyelitis (Figure 2B).

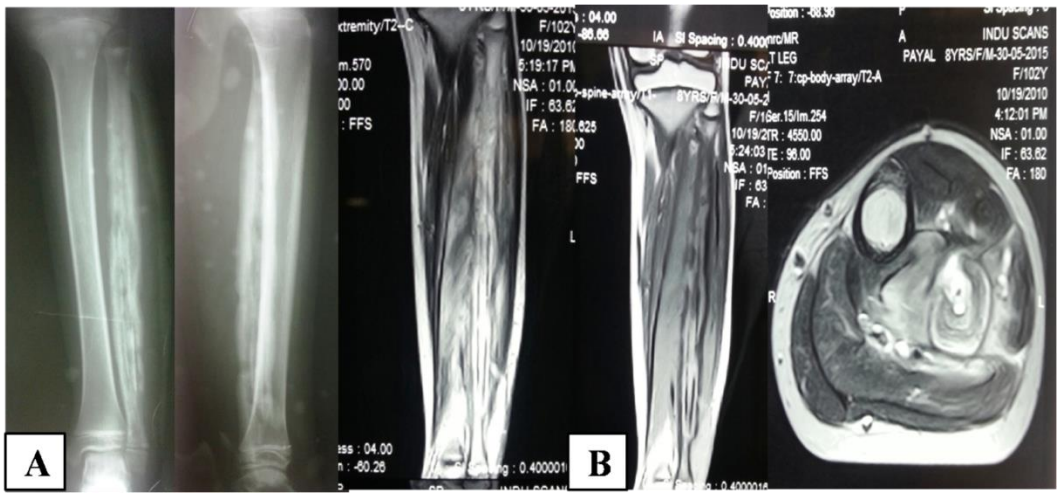

Fig-2A: Radiograph showing extensive involvement of the fibula with sequestrum in the medullary canal.
Fig-2B: MRI showing hyterintensity on T2 image and hypointensity on T1 image of the fibula with cross section showing surrounding tissue oedema and sequestrum inside the medullary canal.

A trial of 2 weeks of intravenous broad spectrum antibiotics was given to the patient but her symptoms did not subside and then a decision for operative debridement of the lesion was made. After getting anaesthetic clearance, the patient was posted for surgery. Through a lateral approach about 3/4th of fibula exposed which showed gross thickening and numerous cloaca on its surface and thickened periosteum and fibrosis all around it (Figure 3A). A decision was made for en block excision of the fibula leaving about 5cm of proximal and distal part. Around 14cm long fibula was removed (Figure 3B) and 13cm long en block sequestrum was removed from the medullary cavity of the excised fibula (Figure 3C).

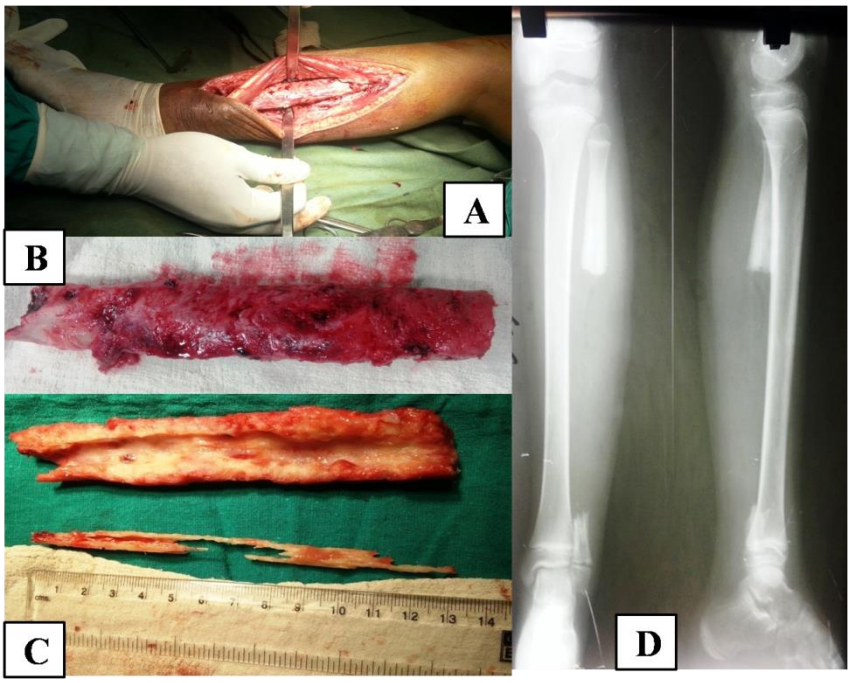

Fig-3A: Intra operative picture showing extent of involved fibula. 3B: Excised fibula with multiple cloaca. 3C: 13cm long en blocks excised sequestrum from the medullar canal of excised fibula. 3D: Post operative radiograph of the patient.

The specimen was sent for histopathology and culture sensitivity. Before closure of the wound one ampule of streptomycin was instilled inside the wound and an above knee plaster of paris slab given.
Culture sensitivity report came out to be sterile as the patient was already on broad spectrum antibiotics for 2 weeks pre operatively.

Histopathology report showed chronic inflammatory cells surrounding the dead bone which is suggestive of chronic osteomyelitis.
Intravenous broad spectrum antibiotics was continued for one more week and then converted to oral antibiotics for 4 more weeks.

At 2 months follow up the patient was asymptomatic and her fresh blood investigations were Hb:12gm%, TLC:9000/cumm, DLC(N-62,L30,E-6,M-2), ESR: 25mm after 1 hour, CRP: 4.2mg/l.

DISCUSSION

Waldvogel in 1970 was the first who described an osteomyelitis staging system [3]. He distinguished three etiologic routes, one of them being osteomyelitis secondary to hematological infection [3].
Changes in plain radiographs can include soft-tissue swelling, osteopenia, scalloping of the cortex and periostal reaction [6,8]

MRI is more useful for soft-tissue assessment and revealing early bony oedema [8]. Surgical management of osteomyelitis consists of two basic steps; debridement and obliteration of the subsequent dead space by soft tissue [9].
The dead space created following debridement may be replaced with viable vascularized tissue such as local muscle and skin flaps, or bone transport to fill large bone defects [8]. In the presented case, we decided to perform debridement with removal of the necrotic diaphysis of the fibula.

CONCLUSION

Chronic osteomyelitis of the fibula is a rare entity in children and should arouse a suspicion in children presenting with pain in the involved extremity along with fever. Swelling develops gradually over a period of few weeks and is not always the first sign. Early diagnosis and prompt treatment can ensure complete cure of the disease and helps in preventing complications. Intra venous antibiotics should be the 1st line of treatment in chronic osteomyelitis and should be given for a sufficient period of time before a decision on surgical debridement is taken.

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