



TB Knee: Uncommon Presentation of Bone TB

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Abstract

Paediatric Tuberculosis (TB) is known to have a wide range of presentations, and if left untreated, primary TB may lead to bone and joint involvement. 1-6% children with primary infection may develop bone & joint TB in 1-3 yrs if untreated. Osteoarticular TB can involve any bone or joint but vertebral involvement is most common then hip, knee, ankle among extra spinal osteoarticular TB. Here we report a case of 10 yr mch who had swelling of right knee with discharging sinus on left side of neck with reactionary pleural effusion right side. After the diagnosis ATT was started as per NTEP regimen and advised for follow-up after 4 weeks.

Keywords: TB, Osteoarticular, sinus, ATT, NTEP.

Introduction

Extrapulmonary involvement accounts for approximately 20% of all TB infected patients^[1], and musculoskeletal manifestations may account for 10%–15% of this specific group^[2,3] but can reach 35%^[4]. Among skeletal TB spine (50%), next is hip (19%), next knee (10%)^[10]

For all cases of TB infection, bone and joint involvement may account for 4%–5% of the total patient population.^[3]

Paediatric TB is known to have a wide range of presentations, with a variety from limited pulmonary or nodal disease to severe extrapulmonary or disseminated disease. In children, untreated primary TB may lead to bone and joint involvement in up to 7%.^[5]

Musculoskeletal TB is a serious condition that may have severe consequences for the affected individual, especially in childhood. Often it is misdiagnosed as pyogenic bone or joint infection.

Appropriate treatment frequently delayed which influences better clinical outcome.

Case Report

A 10 yr male child product of non-consanguineous marriage from lower socioeconomic status with chief complain of swelling of right knee along with ulcer for 1 month and left cervical sinus for 15 days. He had a h/o trauma to right knee 2 months back.

He was immunised as per NIS. H/o contact with TB (father died of TB within 2 yrs). On examination child was conscious, oriented, afebrile, HR- 98/mn, RR – 24/mn, Spo2 – 98% in RA, BP – 100/60, wt – 17kg (<3SD), height – 123cm (<3SD), BMI-11.24(<3SD). On head to toe examination some pallor, bitot spot present. Cervical sinus present over left side. On systemic examination there was swelling around right knee along with a non-healing ulcer with limitation of

ROM across the knee joint. There was decreased breath sound over right side of the chest. Other system being normal.

On investigation TLC – 20000, Hb – 8.1 , PLT – 5 lakh, RBS – 135 , s.urea–35, s. creatinine – 0.6 , s. sodium – 142 , s. potassium – 4.2, HBsAg – negative, sickling – negative, sputum, ICTC – non reactive, AFB-neg, CBNAAT – negative, cervical sinus swab AFB -negative, CBNAAT – positive, CXR showing right sided pleural effusion, x ray right knee suggestive of areas of rarefaction, osteopenia and lysis of bone at medial condyle of femur.



Fig 1 suggest a chronic non healing ulcer at medial side of right knee



Fig 2 suggest left sided cervical partially healed sinus with scarring, one small healed scar over left side of face



Fig 3 suggests x ray knee with rarefaction over medial condyle



Fig 4 suggests x-ray chest suggesting reactionary pleural effusion on right side

Discussion

Tuberculosis is one of the most commonly encountered chronic disease. Although there is a significant steady decline in the incidence of active pulmonary tuberculosis due to early diagnosis and prompt treatment, the incidence of extra-pulmonary tuberculosis has remained constant due to delay in recognition of the condition because of nonspecific extra-pulmonary symptoms. Extrapulmonary tuberculosis is

considered as a treatable disease with good outcome, requiring strict compliance. The best outcome depends largely on timely diagnosis and early initiation of treatment^[6]

Tuberculous arthritis can result from direct invasion of *Mycobacterium tuberculosis* into a joint space or as a consequence of an aseptic reactive polyarthritis (Poncet's disease)^[7]. Tuberculous arthritis associated with direct invasion is often monoarticular and characterized by an insidious onset and not typically associated with signs of acute articular inflammation. Most patients presenting with tuberculous arthritis of a knee will present with indolent joint swelling due to synovial hypertrophy and fluid that can persist for months before diagnosis^[13]. Approximately 15% of patients with tuberculous arthritis of a knee will have warmth and redness accompanying the swelling suggesting septic arthritis^[8]. Non-specific indicators of inflammation, including fever and elevated acute phase reactants, are inconsistently present and cannot be relied on as discriminating diagnostic indicators. A positive Mantoux skin test (TST) is expected in almost all patients with tuberculous arthritis^[8]. Definitive diagnosis requires microbiological confirmation by isolating *Mycobacterium tuberculosis* from synovial fluid or synovium. Synovial membrane histopathology showing caseating granuloma is suggestive of tuberculous arthritis. Polymerase chain reaction (PCR) has been reported to have low sensitivity (but high specificity) in detecting *Mycobacterium tuberculosis* from the knee in children^[8]; however, the reliability of PCR in detecting *Mycobacterium tuberculosis* has been documented in other reports. Synovial fluid analysis is not always associated with characteristic features of tuberculous synovitis^[9]. Tuberculous arthritis can be associated with erosion through the joint capsule to create draining sinus, a circumstance which likely occurred in our patient and accounted for lower leg swelling and chronic ulcer with sinus.

Approximately 10% of patients with *Mycobacterium tuberculosis* knee arthritis will have a sinus at the time of initial presentation.^[8]

In our case there was long history of swelling of the knee joint with ulcer & draining sinus. There was also strong contact history of TB. He had history of trauma to the joint which can be a predisposing factor for the tuberculosis. There was also a cervical draining sinus present in addition to it and in respiratory system we got pleural effusion but without overt pulmonary symptoms.

The X-ray of the knee suggest lytic lesion over medial condyle of femur. Though the TST was negative and also the swab for AFB collected from the cervical sinus and the knee joint was negative. Luckily though CBNAAT of cervical sinus came negative but from knee ulcer came positive. Here the clinical correlation with strong contact history with the draining sinus and reactionary pleural effusion is pointing towards the uncommon presentation of bone TB (TB knee). ICTC came negative. We started ATT as per NTEP Guideline and advised to continue for 12 months. On follow up after 1mo both the sinuses healed, pain vanished, had shown better wellbeing. Further it was emphasized for continuation of 12 mo ATT and regular follow-up.

Conclusion

Any monoarticular chronic arthritis of major joint particularly of Hip, knee should be investigated in the line of TB. Though causes like insidious septic arthritis or Sickle arthropathy can present as chronic arthritis still TB has to be kept as first possibility in a developing country like India.

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