CASE REPORT

Tubercular Osteomyelitis of Talus in a Child: A Case Report and Review of Literature

RITESH RUNU*, MANTU JAIN†, VIDYA SAGAR‡, ARNAB SINHA‡, SAURAV KUMAR‡, SANTOSH KUMAR#

ABSTRACT

Introduction: Talar tuberculosis is very rare presentation of osteoarticular tuberculosis. Affection of foot is less than 10% in osteoarticular tuberculosis. Presentation of this disease in peripheral bones is highly unusual posing diagnostic dilemma and missed diagnosis. Delayed diagnosis may lead to complications. **Case report:** A 19-month-old male child presented with painful swelling over left foot and inability to bear weight. Hemogram was inconclusive. Radiograph showed lytic lesion in talus with cortical breach in the superior cortex. Aspiration biopsy was inconclusive and open curettage was done under anesthesia. Culture reports were negative but histopathological examination proved tuberculosis. Patient was given antitubercular therapy for 9 months and improved. **Conclusion:** Tuberculosis can affect any part of skeleton and high level of suspicion is essential. Culture negative lesion should be investigated and histopathological examination is essential for any lytic or infective lesion.

Keywords: Tuberculosis, talus, osteomyelitis, osteolytic

Tubercular talar osteomyelitis is an uncommon entity in children. Although tuberculosis of foot is well reported but talar tuberculosis is rare[1,2]. Involvement of talus due to subacute hematogenous osteomyelitis in children has been reported by several authors[3-8]. But, tubercular involvement of talus in children less than 2 years is rare[1,2,9-17]. Moreover, the mimicking radiological features with aneurysmal bone cyst, giant cell tumor and other infections poses diagnostic dilemma[18-20]. Here, we report a rare case of tubercular talar osteomyelitis in a 19-month-old male child who presented with pain and inability to bear weight on left lower limb.

CASE REPORT

A 19-month-old baby presented to our OPD with pain and intermittent low-grade fever for 5 months. Repeated consultation was done for fever with poor response. Limp was not noticed earlier, since child started walking at 14 months and repeated falls were taken as normal. The child had no history of cough, night sweating, loss of weight and appetite. Birth history and perinatal history were insignificant. Immunization schedule was followed as per guidelines including BCG vaccination at birth.

On examination, the general condition was fine. Vitals were stable and child was afebrile. On examination of left foot, it was swollen, tender and warm below the medial malleolus (Fig. 1). There was a boggy swelling over the talonavicular area medially. Ankle range of motion was normal. Foot pronation and supination was restricted. Distal neurovascular assessment was unremarkable. On investigation, hemoglobin (Hb) - 9.90 g/dL, total leukocyte count (TLC) - 14,680/mm^3, differential leukocyte count (DLC) showed neutrophils - 30%, lymphocytes = 56%, blood urea - 7.3 mg/dL, serum creatinine - 0.6%, erythrocyte sedimentation rate (ESR) - 55 mm and C-reactive protein (CRP) titer was raised. Test for viral markers was unreactive. X-ray showed osteolytic lesion in talus with breach in dorsal cortex (Fig. 2). On needle aspiration from talus, we found sanguineous fluid. It was sent for culture sensitivity, which was found sterile. On histopathological examination, only blood cell was found. The patient was kept on below knee pop slab, antibiotics and analgesics with no improvement.

*Associate Professor
Dept. of Orthopedics, IGIMS, Patna, Bihar, India
†Assistant Professor
Dept. of Orthopedics, AIIMS, Bhubaneswar, Odisha, India
‡Senior Resident
#Additional Professor
Dept. of Orthopedics, IGIMS, Patna, Bihar, India
Address for correspondence
Dr Mantu Jain
106 Mahadev Orchid, Cosmopolis Road, Dumduma, Bhubaneswar - 751 019, Odisha, India
E-mail: montu_jn@yahoo.com

After a week, the patient was operated with differential diagnosis of chronic osteomyelitis of talus and aneurysmal bone cyst. Through anteromedial incision along tibialis anterior, the talus was approached. Talonavicular joint was exposed to confirm the talus. The talus was drilled over the neck proximal to talonavicular joint and it was thoroughly curetted. Material obtained was sent for Gram staining and Ziehl-Neelsen (ZN) staining, aerobic culture and sensitivity and histopathological examination. Once the normal endosteum was found then the wound was thoroughly lavaged and closure done. Postoperatively, the patient was kept on intravenous antibiotics and below knee plaster-of-Paris (POP) cast in equinus. ZN staining was positive for acid-fast bacilli. The culture and sensitivity report showed no growth, after 10 days; histopathological report confirmed tuberculosis. At 12th day, the stitches were removed and antitubercular therapy was started. After consultation with pediatric department. The patient was discharged on below knee POP cast in equinus. Total 9 months of antitubercular therapy was given with 3 months each for intensive, continuation and maintenance phase. At 1-year follow-up, the patient is doing well with complete healing of the lesion.

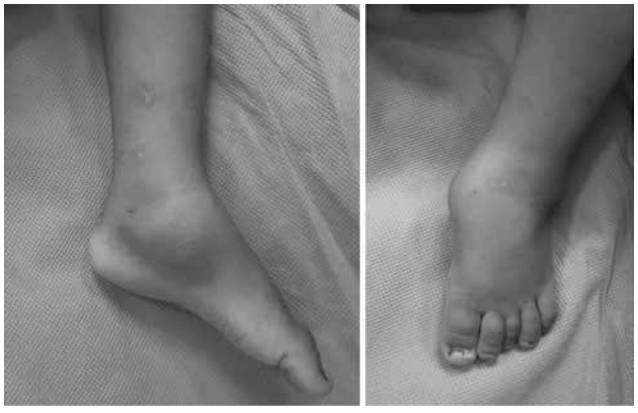

Figure 1. Clinical picture of the patient showing swelling and signs of inflammation.

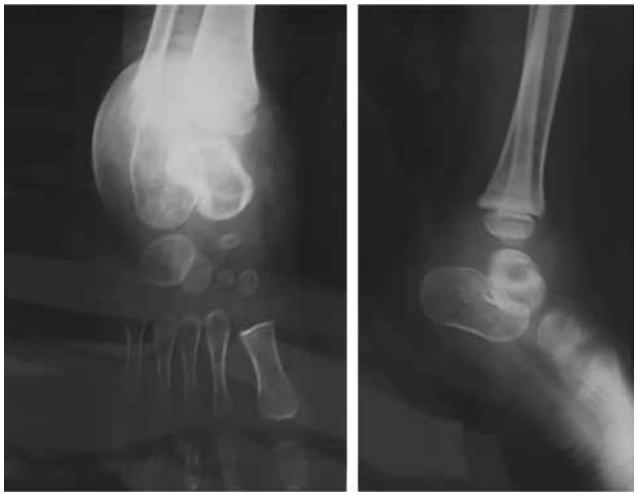

Figure 2. X-ray anteroposterior and lateral view showing a lytic lesion involving the talus.

DISCUSSION

Tuberculous involvement of skeleton is 1%-3% of extrapulmonary tuberculosis[1]. Involvement of foot among osteoarticular tuberculosis is less than 10%[1]. Among all bones of foot, osteomyelitis of talus is rare[1-8]. Our search in electronic and print media revealed cases mostly about subacute hematogenous osteomyelitis of talus and foot bones[3-8]. Dhillon[1] and Mittal[2] have reported exclusively on tuberculosis of foot bones. Only one case of talar osteomyelitis out of 24 cases was reported by Dhillon et al[1] and none out of 44 cases in a series by Mittal et al[2]. Isolated case reports on talus have been reported in recent years and are given chronologically in Table 1[9-17]. Our patient is the youngest case to be reported.

The diagnosis is usually difficult since presentation is vague and nonspecific[4,7]. Flexion at hip and knee with limb in external rotation may be present[4]. Swelling and redness in the foot may be delayed feature[4]. Location of swelling is variable. Verbeek[4] reported swelling on the lateral aspect while Ganaisan[5] reported swelling over the ankle area. We noticed swelling on the medial aspect of mid-foot. Constitutional symptoms are usually nil[1,2,6,7]. In our case, low-grade fever and inability to bear weight for 5 months was the only complaint.

Delayed diagnosis is usually due to lack of constitutional symptoms, poor localizing signs, low level of suspicion and simulating radiological features[1-8,18,19]. Symptoms

Table 1. Isolated Cases of TB Talus as Reported in Chronological Order

Author	Year of reporting	Age of patient (years)
Anand et al[9]	2002	8
Teklali et al[10]	2003	20 months
Ebrahimzadeh et al[11]	2006	7
Mardanpour et al[12]	2010	52
Arora et al[13]	2014	45
Dahuja et al[14]	2014	14
Mohammad et al[15]	2015	42
Sekhon et al[16]	2015	14
Khan et al[17]	1999	5

to admission was 5 months average (Dhillon[1]), 1 month (Ganaisan[5]), 2-12 weeks (Ezra[6]), 5 days to 4 weeks (Grattan-Smith[7]) and 1-5 months (Skevis[8]). In our case it was 5 months.

Hemogram shows signs of infection with raised ESR[1,4-8], but CRP is rarely raised[4,6]. In our case, the ESR and CRP were raised along with lymphocytosis.

Conventional radiography is the primary tool for diagnosis. Phemister's triad of periarticular osteoporosis, marginal erosions and narrowing of joint space is usually seen in osteoarticular tuberculosis. But, this feature is not evident in foot bones always[2]. Mittal et al[2] observed five patterns of foot bone lesions in tuberculosis: cystic, rheumatoid, subperiosteal, kissing, and spina ventosa. In our case, it was cystic type of lesion, which has central osteolytic lesion with no sequestrum and no periosteal reaction.

The lesion in foot usually mimics other conditions as well[18-20]. Aneurysmal bone cyst, giant cell tumors, and infections of foot bones mimics cystic type of tuberculosis. Shirazi et al[20] noted aneurysmal bone cyst was as common as giant cell tumor of small bones of hand and feet. Infections and inflammatory simple cysts were equally prevalent in less than 10 years old children[20]. We found blood on aspiration from talus in our case. Hence, our differential diagnosis was aneurysmal bone cyst and chronic osteomyelitis.

Computed tomography (CT) scan, magnetic resonance scan and bone scan of foot is usually required to localize the lesion and to see the soft tissue condition[1,2,4-7,18]. Magnetic resonance imaging (MRI) shows changes consistent with chronic osteomyelitis[5]. Bone scan with gallium-67 (Ga-67) and technetium-99 (Tc-99) shows increased tracer uptake in the tarsal bones[6,7]. On getting negative report on aspiration cytology and culture sensitivity we directly opted for curettage exploration of the lesion as suggested by Dhillon et al[1]. The same has been done by other authors[1,7,18,20]. The culture report is usually negative since osteoarticular tuberculosis is a paucibacillary condition[1,2,7]. Open curettage and biopsy is usually required for diagnosis[1,2,7,8,18-20].

Minimal pus and granulation tissue is found with evidence of necrotic bone and polymorphonuclear infiltrate[7]. As a rule, we send sample for culture in every case of suspected tumor and we do histopathological examination of every abscess.

Following the rule, we found granuloma in our case. Culture negative and lack of conclusive diagnosis can be curtailed by early biopsy. Delay in diagnosis may lead to complete destruction of bone and joints. Hence, early diagnosis is the priority.

CONCLUSION

Age is no bar for osteoarticular tuberculosis. Any osteolytic lesion in talus or foot bones should be investigated and high level of suspicion is essential to rule out tuberculosis. All the abscesses should be biopsied to prevent missed diagnosis. Early diagnosis and complete treatment of tuberculosis should be the aim.

REFERENCES

1. Dhillon MS, Aggarwal S, Prabhakar S, Bachhal V. Tuberculosis of the foot: an osteolytic variety. Indian J Orthop. 2012;46(2):206-11.
2. Mittal R, Gupta V, Rastogi S. Tuberculosis of the foot. J Bone Joint Surg Br. 1999;81(6):997-1000.
3. Pabla R, Tibrewal S, Ramachandran M, Barry M. Primary subacute osteomyelitis of the talus in children: a case series and review. Acta Orthop Belg. 2011;77(3):294-8.
4. Verbeek PA, de Roest JG, van Raaij TM. Osteomyelitis of the talus in a limping child. Ned Tijdschr Geneeskd. 2012;155(35):A5103.
5. Ganaisan P, Singh A, Kumar C, Manikam R. A limping child: on a first look it is hip or knee in origin! No! It's a Talus osteomyelitis. Int J Orthop Surg. 2013;20(1).
6. Ezra E, Wientroub S. Primary subacute haematogenous osteomyelitis of the tarsal bones in children. J Bone Joint Surg Br. 1997;79(6):983-6.
7. Grattan-Smith JD, Wagner ML, Barnes DA. Osteomyelitis of the talus: an unusual cause of limping in childhood. AJR Am J Roentgenol. 1991;156(4):785-9.
8. Skevis XA. Primary subacute osteomyelitis of the talus. J Bone Joint Surg Br. 1984;66(1):101-3.
9. Anand A, Sood LK. Isolated tuberculosis of talus without ankle and subtalar joint involvement. Med J Malaysia. 2002;57(3):371-3.
10. Teklali Y, El Alami ZF, El Madhi T, Gourinda H, Miri A. Tuberculosis of the talus in the child. Eur J Orthop Surg Traumatol. 2003;13(1):52-4.
11. Ebrahimzadeh MH, Sadri E. Isolated tuberculosis of the talus bone. Arch Iran Med. 2006;9(2):159-60.
12. Mardanpour KK, Rahbar M. Isolated tuberculosis of the talus bone. Casp J Intern Med. 2010;1(2):75-7.
13. Arora K, Choudhry P. Tuberculosis of talus bone in middle aged man - A case report. Int J Orthop Trauma Nursing. 2014;18(1):35-8.
14. Dahuja A, Dahuja G, Kaur R, Bansal K. Isolated tuberculosis of talus: a case report. Malays Orthop J. 2014;8(1):61-2.
15. Mohammad F, Singh S, Lal AK, Kumar S. Tuberculosis of talus: a case report. Indian J Orthop Surg. 2015;2(2):46-7.

16. Sekhon G, Gill SS, Singh M, Gautam R. Tuberculosis of the talus bone. Int J Develop Res. 2015;11:5993-5.
17. Khan FA, Khoshhal K, Saadeddin M. Tuberculosis of talus and cuboid - a report of 2 children. Acta Orthop Scand. 1999;70(6):627-39.
18. Sharma S, Gupta P, Sharma S, Singh M, Singh D. Primary aneurysmal bone cyst of talus. J Res Med Sci. 2012;17(12):1192-4.
19. Luna AR, Fahandez-Saddi H, Garcia AV, Reina Cde J, Martin JV. Aneurysmal bone cyst in children involving infrequent locations. Report on two cases. Chir Organi Mov. 2004;89(4):347-52.
20. Shirazi N, Gupta V, Kapoor I, Harsh M, Chauhan N, Ahmad S. Osteolytic lesions of hand and feet: a seven-year experience from a tertiary referral centre of North India. Malays J Pathol. 2014;36(2):115-24.

■■■■