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Tuberculosis around the tarsal navicular: A rare entity

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HIGHLIGHTS

- Three cases of tubercular infection around the tarsal navicular are presented with different presentation.
- The key to good results is high index of suspicion and obtaining tissue for histo-pathological examination.
- Good functional results can be expected if the diagnosis is achieved early and adequate anti-tubercular therapy is given.

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ABSTRACT

Osteoarticular TB around the tarsal navicular is a chronic, uncommon condition affecting the midfoot, which causes significant morbidity to the patient. Tuberculosis around the tarsal navicular is rarely described in the literature. A series of three cases – two involving the talo-navicular joint and one involving the naviculo-cuneiform joint is described. Biopsy was used in all the cases for achieving diagnosis. All patients had good to fair outcome following medical management with anti-tubercular therapy. Due to the pauci-bacillary nature of the disease, a positive culture of the disease is not always possible. The diagnosis depends on a positive histopathology finding. Once an early diagnosis is achieved, antitubercular therapy is usually the mainstay. Clinical awareness of the rare presentations of this disease can help in early detection, adequate treatment and good to fair outcomes. Due to the destruction of the midfoot joints, some patients report difficulty in walking on uneven surfaces and barefoot, for which triple arthrodesis may be offered.

1. Introduction

Tuberculosis (TB) has no more remained an endemic disease having been labeled a "Global Emergency" by WHO [1]. This declaration is due to the occurrence of illness in the developed world due to population immigration and an aging population. Also, the human immunodeficiency virus (HIV) pandemic has added to the resurgence of tuberculosis [2]. Even though the number of cases of pulmonary tuberculosis has remained constant (and has even declined in the developed world), the number of extra-pulmonary tuberculosis (EPTB) patients has consistently risen. This increase in the number of EPTB patients led to the involvement of unusual sites more frequently. An early diagnosis and adequate medical management play a critical role in achieving a fair to a good outcome. The knowledge of rare sites of infections and unusual presentations, thus, makes the clinician more adept at picking the subtle early signs of tuberculosis.

Osteoarticular TB affecting the foot is uncommon. The incidence of osteoarticular TB is less than 3% of EPTB cases, with foot and ankle comprising <1% of all instances of osteoarticular TB [3,4]. The symptoms in the foot are non-specific, and hematological investigations are often inconclusive, making the diagnosis difficult.

Tuberculosis around the tarsal navicular is a highly rare entity, and very few cases have been reported in the literature as case reports [5]. A case series of three patients, two with TB of the talonavicular and one patient with TB of naviculo-cuneiform joint, along with a brief discussion of the possible differential diagnoses and the course of management is presented.

2. Case series

2.1. Case 1

A 25-year-old lady presented with pain and swelling in the midfoot, which was insidious in onset and gradually increased over a period of four months. The anteroposterior and lateral radiographs

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Fig. 1. Oblique radiograph of the foot showing typical lytic lesion in the talo-navicular joint with peri-lesional osteoporosis and collapse of the navicular.

of the foot were done. These showed a reduction of the talonavicular joint space (Fig. 1). The ESR was high (54 mm in the first hour). MRI of the foot was done which revealed a reduction in the talonavicular joint space and presence of edema in the *peri*-articular area which was hyperintense on T1 and hypointense on T2 image (Fig. 2a, b). An aspiration from the joint was done, and the fluid was sent for real-time PCR, which revealed the presence of Mycobacterium tuberculosis complex. The confirmation of diagnosis was done from the tissue culture taken from the local site.

The patient was started on the intensive phase of anti-tubercular therapy (ATT) consisting of Isoniazid (H), Rifampicin (R), Pyrazinamide (Z) and Ethambutol (E) for two months. The patient was followed up with serial radiographs and ESR. The patient's ESR responded to ATT and decreased to 27 mm/h at the end of the intensive phase.

The first radiographic sign of response to therapy was the improved density of the periarticular region. The radiographs showed increasing sclerosis along the articular margins on sequential radiographs (Fig. 3a, b). The patient was later shifted to the continuation phase of ATT of Isoniazid, Rifampicin, and Pyrazinamide (HRZ) for three months. The ATT was further continued until further 12 months with isoniazid and rifampicin due to the chronic nature of the disease.

This patient had persistent pain on walking barefoot and on uneven surfaces to residual joint incongruity in the talonavicular joint (Fig. 3a, b). The patient was offered triple arthrodesis. The patient, however, refused any surgical intervention and was satisfied with the overall outcome of the treatment.

2.2. Case 2

A 50-year-old male presented with pain and multiple discharging sinuses over the medial border of the foot for 12 weeks. The pain was insidious in onset and dull aching in character, aggravated on walking and prolonged standing. The patient took initial treatment from a local doctor who prescribed him oral antibiotics. The discharge reduced slightly but continued, and the pain was only mildly relieved on rest and analgesics.

On local examination, there was swelling and redness over the medial border of the foot with multiple discharging sinuses around the mid-foot (Fig. 4a, b). The routine investigation revealed hemoglobin 14.2 gm%, and ESR was 47 mm/h.

The chest X-ray was normal with no signs of active or healed TB. The anteroposterior radiograph of the foot revealed a reduction in the naviculo-cuneiform space and periarticular osteopenia. Curettage of the sinus tract was done to achieve a final diagnosis and tissue for culture. Local tissue was curetted and sent for Gram stain, AFB stain and aerobic as well as AFB culture & sensitivity.

The AFB, as well as Gram stain, was negative. The aerobic culture and AFB culture failed to show any growth. The tissue sent for histopathological examination of the tissue revealed caseating granuloma with the presence of Langerhans' type giant cell and epithelioid granuloma, consistent with a diagnosis of TB (Fig. 5).

The patient was started on ATT (4 drugs – H, R, Z, and E). The ESR had reduced to 32 mm/h at one month. The radiographs showed improvement after eight weeks. The ATT was again continued for a total of 17 months as per the same protocol followed in the first case.

The sinuses healed completely by secondary intention at the end of intensive phase of the therapy. At the end of final follow-up at two years his symptoms had resolved completely (Fig. 6a, b).

2.3. Case 3

A 26-year-old male presented with complaints of painful swelling in the left foot of 5 months duration. There were swelling and tenderness that was localized to the talonavicular joint in the foot. Lateral radiographs of the foot revealed a reduction in talonavicular joint space and osteopenia in the articular margin of the head of the talus (Fig. 7).

Concomitantly, a chest radiograph of the patient revealed signs of active tubercular infection. Sputum examination was positive for acid-fast bacilli. An open biopsy of the foot showed typical Langerhans' type giant cells with epithelioid granuloma. On the basis of the sputum positivity and the concomitantly positive histopatho-

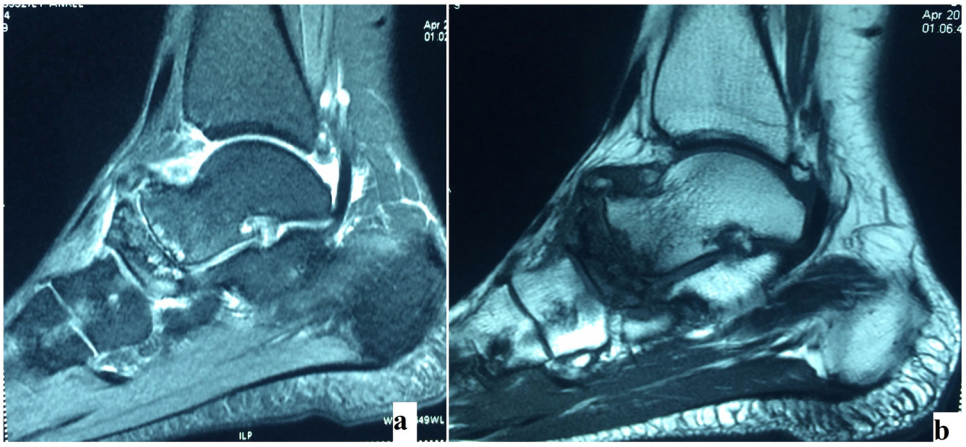

Fig. 2. (a) T2 weighted MRI image of the foot showing fluid in the talo-navicular joint and edema in the adjoining areas of the talus and the navicular. (b) T1 weighted MRI image showing the destruction and collapse of the navicular.