



CLINICAL IMAGES

Madura foot

M Arif, Z R Khan, I Moolla

We recently treated 3 cases of fungal infection of the foot, commonly referred to as Madura foot. The patients presented with painful, swollen, chronic foot infections, multiple discharging sinuses and granular exudate, with radiographic changes mimicking osteomyelitis. All 3 patients required amputation, which could have been avoided by early recognition. Strong clinical suspicion, repeat biopsy and histological examination may be required for any non-healing or unusually prolonged chronic infection, as diagnosis may be difficult.

Case 1

A 28-year-old man presented with a painful, foul-smelling infection of his left foot, of 18 months' duration, which started 2 months after a small surgical procedure on his big toe (Fig. 1).

Case 2

A 22-year-old man with a farming background, who often walked barefoot, had attended local clinics, hospitals and GPs for 8 years. The problem started as an itchy foot rash that deteriorated (Fig. 2) and did not respond to repeated change of antibiotics. He complained that copper-like granules exuded from the ulcer, but we did not see this.

Case 3

A 43-year-old man with a similar background presented with a 2-year history of chronic infection of both feet treated at the local clinic/hospital and by GPs (Fig. 3). He insisted on bilateral amputation because of unbearable pain.

Dr Arif was a consultant surgeon at Stanger Regional Hospital, KwaZulu-Natal, at the time of writing.

Mr Khan is principal specialist in general surgery at the hospital and head of the Department. His particular interest is the upper gastro-intestinal tract, but as a general surgeon he is involved with all surgical cases, including case 2, which was his introduction to Madura foot.

Dr Moolla is a very enthusiastic and hard-working community service doctor who has been promoted to senior MO. He was involved with all these cases and plans to become a surgeon.

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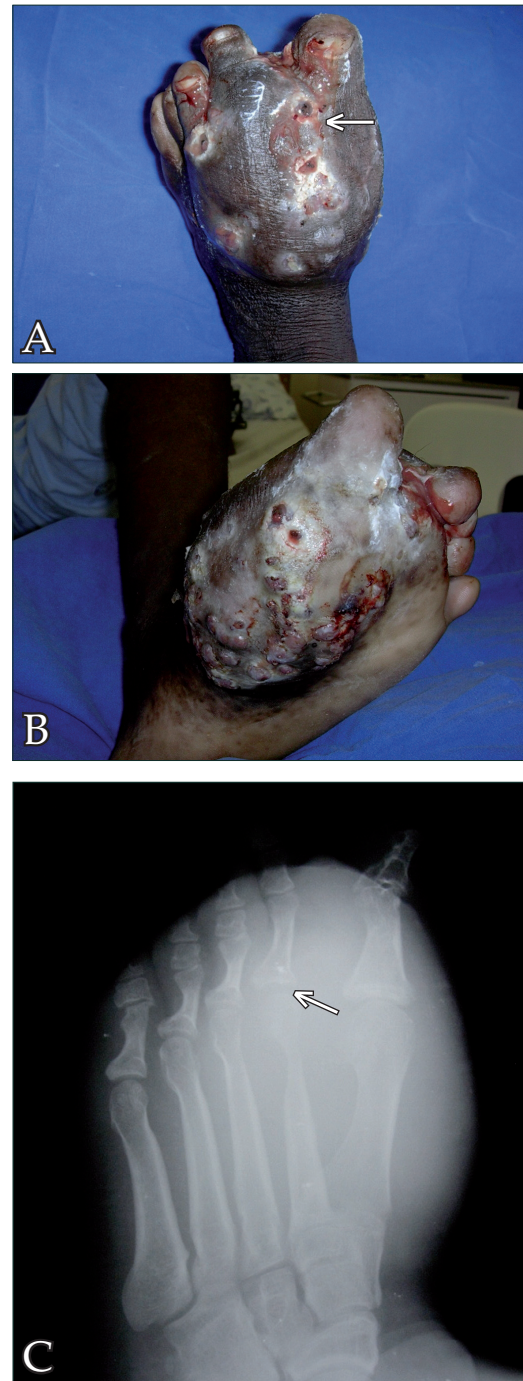


Fig. 1. A: Multiple discharging sinuses (arrow indicates black-brown (copper-coloured) granules in one of these). B: The foot from another angle. C: Soft-tissue swelling with bone involvement (arrow).

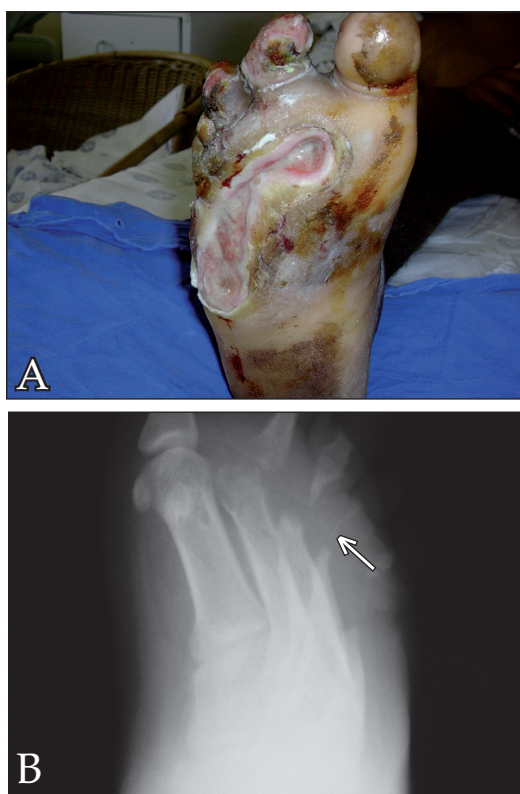


Fig. 2. A: Deep ulcers of the right foot. B: Radiograph showing extensive destruction of the metatarsophalangeal joints (arrow).

Discussion

Madura foot is endemic in the tropics and subtropics and is named after the region of India, Madura, where Colbourne first described the condition in 1946. Luke's interpretation of the 'diseased feet' of Asa, the King of Judah (Kings 1: 23-24) in the 2 years before his death suggests Madura foot as the cause.

Mycetoma typically presents in agricultural workers or in individuals who walk barefoot in dry and dusty conditions, with minor trauma allowing pathogens from the soil to enter the skin. The condition typically follows a chronic course, with a triad of swelling, subcutaneous nodules and draining sinuses. Exudates are typically granular (Fig. 1).

Differential diagnosis includes chronic bacterial osteomyelitis, tuberculosis, Buruli ulcer, other deep fungal infections such as blastomycosis or coccidiomycosis and leishmaniasis, yaws and syphilis, and soft-tissue sarcoma.^{1,2} Typical bacterial osteomyelitis may coexist with or mimic mycetoma.

Investigations include pus swabs, skin/deep-tissue biopsy, and plain radiographs to determine bone involvement.¹

Management

The disease is often at an advanced stage when diagnosed. Good clinical response with pharmacological therapy alone has been reported.³ Conservative surgical debridement is carried out using prolonged antifungal agents until clinical response is



Fig. 3. A: Deep sinuses on left foot, loss of nail and ulcer on big toe, right foot. B and C: Bone destruction in proximal interphalangeal joint of left foot (arrow), clear evidence of bone involvement in right foot.

achieved.¹ If function of the limb cannot be preserved, amputation is done, followed by prolonged antifungal therapy and definitive reconstruction.⁴ Surgical excision is necessary once bone is infected as detected radiographically.⁵

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