Osteomyelitis is inflammation of the bone which if left untreated, can become a chronic condition resulting in bone destruction, abscess formation and the development of sequestra. The aetiology of osteomyelitis can be broadly classified as haematogenous or exogenous, for example secondary to an open fracture, infected prosthetic material or contiguous to a soft tissue infection. Risk factors for development of osteomyelitis include diabetes, peripheral vascular disease, malnutrition, intravenous drug use and immunocompromise. The most common causative organisms are bacterial, with Staphylococcus aureus being the most common aetiological agent. Fungal osteomyelitis is rare. The most common causes are Candida and Aspergillus species. It is typically seen in patients who are immunocompromised or have multiple other risk factors for osteomyelitis.

## History
A 95-year-old retired army mechanical engineer with a past medical history of well-controlled type 2 diabetes (HbA1c <7%), asthma, heart failure and atrial fibrillation presented with a few day history of ‘unbearable’ right heel pain. This was on a background of a two year history of heel pain which had been worsening over the last 12 months. He had recently injured his Achilles tendon with near-complete rupture following three falls, however there was no history of other trauma or puncture wounds. He was otherwise independent, mobилиsing with a scooter inside and a stick whilst inside the house. He lived with his wife, for whom he was the main carer. He was referred to the foot and ankle team for further investigation.

## Examination
On examination, he had calcaneal tenderness along with swelling over the distal Achilles tendon, including at the point of insertion. There was no sinus nor any erythema. It was however, slightly warm to touch with pitting oedema to just below the knee.

There was no plantar foot pain, no visible ulcers and neurovascular status was completely intact. Range of movement of the ankle was neutral to 50 degrees of plantarflexion. There was pain on active movement at the heel and front of ankle, with some anterior ankle joint line tenderness and pain on extremes of plantarflexion and dorsiflexion.

## Radiology
Plain radiographs showed a large lucent lesion measuring 4x3 cm in the posterior of the calcaneum (figure 1). MRI demonstrated an intraosseous cystic lesion with florid bone marrow oedema extending to and involving the subtalar joint (figure 2). These findings were initially thought to represent insufficiency fractures as although the differential included abscess with osteomyelitis, the appearances were not typical as the cyst was unusually small.

## Further Questioning
On further questioning, he had joined the army in 1943 and had received basic military training in Wales. During this time, his feet were almost continuously wet and he had several bouts of athlete’s foot, with one episode resulting in inflammation up to his thigh. This was managed with pouticles at the time and he was able to return to training a month later. He was then stationed in India where, following a jungle trek, he developed bilateral leg ulcers which were treated with silver nitrate.

## Diagnosis
Therapeutic drug level monitoring was carried out, guiding a dose increase to 300mg BD because of low serum trough levels (<1.0 mcg/mL). Treatment course was complicated by a low-level hepatotoxicity as well as diarrhoea, both of which resolved on treatment cessation. At 6 months, the heel remained asymptomatic and surrounding skin quality was good.

## Discussion & Learning Points
Dermophytes such as Trichophyton are typically associated with nail, hair follicle and superficial skin infections, including athlete’s foot. In rare cases, Trichophyton has been associated with soft tissue abscesses and disseminated infections, typically in patients who were immunocompromised. There is one previous case report of osteomyelitis being caused by Trichophyton, in this case Trichophyton rubrum. The patient had recently had an ankle fracture requiring external fixation and was receiving concurrent treatment for a metastatic parotid adenocarcinoma. Good clinical response was seen to 12 weeks of intravenous itraconazole, with no recurrence of symptoms at 14 months.

Our case is unusual in that apart from diabetes, there were no major risk factors for fungal osteomyelitis and no history of penetrating injury or surgery.

This case demonstrates the benefits of sending intra-operative samples for histology. It also highlights importance of judicious use of PCR in patients with culture-negative osteomyelitis. It reinforces the importance of detailed history taking and a multidisciplinary approach, with unusual radiological and histopathological findings in this instance prompting further microbiological investigation.