

Diabetic foot ulcers: “One swallow does not make a summer”

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Key words: Diabetes, foot ulcers, osteomyelitis, gout

A 77-year-old woman with insulin-treated type 2 diabetes was admitted to hospital with hyperglycaemia and pain in the right third toe, left third toe and the left heel (Figures 1–3). Osteomyelitis of the right third toe and left heel was suspected. A swab of the left heel grew *Staphylococcus aureus* and *Enterococcus* species. She was initially treated with oral flucloxacillin, ciprofloxacin and metronidazole, which were changed to the intravenous route after 3 days, and after 2 days she was switched to intravenous tazocin and vancomycin as the heel ulcer remained sloughy and her C-reactive protein was rising. She was switched to oral doxycycline after 5 days.

An X-ray of the right foot showed marked erosive and destructive changes (Figure 4), which were reported could be secondary to osteomyelitis but a co-existing inflammatory arthropathy had to be considered. X-ray of the left calcaneum was suboptimal. An MRI scan of the left foot was requested.

It was noted that the patient was known to have gout and was on 100 mg of allopurinol. Her serum uric acid was noted to be 557 $\mu\text{mol/L}$ (normal range 140–360) on admission. There was tophus clearly visible on the right second toe. The exudate from the right third toe was sent for microscopy and showed monosodium urate crystals. The patient was started on colchicine.

The MRI scan showed numerous juxta-articular overhanging soft tissue lesions involving all the metatarsophalangeal joints, tarso-metatarsal, intertarsal joints and the ankle joint with eccentric erosions of adjoining associated bones. The features were reported to be in keeping with polyarticular gouty arthritis. There was no underlying bone marrow oedema to suggest osteomyelitis (Figure 5).

The swelling of the left third toe and the right third toe settled and the left heel ulcer and the inflammatory markers improved with colchicine and antibiotics (Figures 6–8). Doxycycline was stopped after 4 days.

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Figure 1. Swollen left third toe



Figure 2. Swollen and red right third toe (note tophus clearly visible on right second toe)



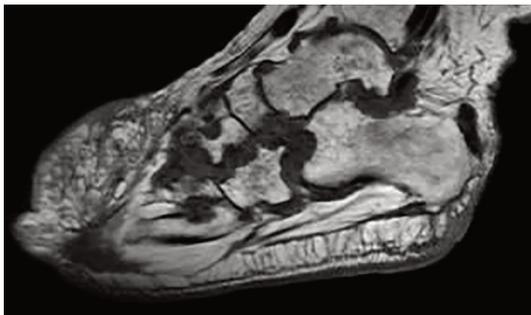
Figure 3. Sloughy left heel ulcer with localised cellulitis



Figure 4. X-ray of the right foot showing marked erosive and destructive changes in the interphalangeal joints and the tarsal metatarsal region



Figure 5. MRI of left foot showing numerous juxta-articular overhanging soft tissue lesions involving all the metatarsophalangeal joints with eccentric erosions of the adjoining associated bones



Key messages

- Gout is frequently missed as a diagnosis in a patient with diabetes and often misdiagnosed as diabetic foot ulcers. The two conditions may co-exist
- Gout is frequently inadequately treated with sub-optimal doses of allopurinol. The allopurinol dose should be titrated aiming for uric acid levels in the lower end of the normal range

Discussion

Gout is frequently inadequately treated with suboptimal doses of allopurinol or the allopurinol is discontinued after the acute flare settles and, as a result, patients are at risk of getting frequent flare-ups of gout, even if on treatment. The allopurinol dose should be titrated up aiming for uric acid levels in the lower end of the normal range

Cellulitis, infected diabetic foot ulcers and osteomyelitis are common differential diagnoses in patients with diabetes who present with problems with their feet. Gouty arthritis should also

Figure 6. Swelling and redness of the left third toe settled after antibiotics and colchicine



Figure 7. Swelling and redness of the right third toe settled after antibiotics and colchicine



Figure 8. Improvement of left heel ulcer after antibiotics and colchicine



be considered in all patients with multiple affected joints regardless of whether they have diabetes or not.¹

Conflict of interest None

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Patient's consent Informed consent was obtained

References

1. Crasto W, Jogia R, Jackson S, *et al.* Ulcerated gout masquerading as a non-healing diabetic foot ulcer: a case series. *Br J Diabetes Vasc Dis* 2014; **14**:21–5. <http://dx.doi.org/10.15277/bjdv.2014.004>