

# Recurrent cellulitis caused by an occult foreign body in a diabetic foot

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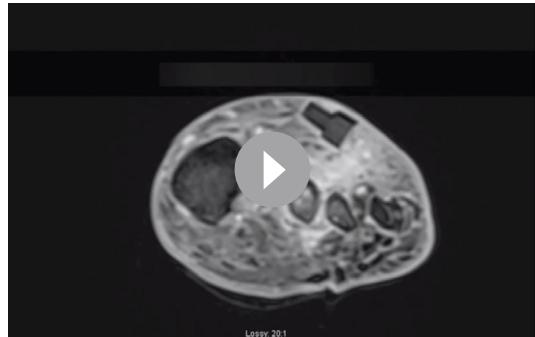
## DESCRIPTION

A 74-year-old farmer presented to the emergency department (ED) with a 5-day history of left leg pain, swelling and redness. He denied trauma or injury. Background medical history included type 2 diabetes mellitus, diabetic neuropathy, right lower limb lymphoedema, recurrent left leg and foot cellulitis and bilateral total knee replacements. He was a non-smoker and occasional drinker.

On examination, the patient was afebrile. Inspection revealed confluent erythema and oedema from the left knee to distal phalanges. A 'rocker-bottom' deformity of the foot was evident. Distal loss of pin, temperature and vibratory perception were evident bilaterally. Pressure sensation was absent when assessed with a 10 g monofilament. Laboratory investigations showed a white cell count of  $14.6 \times 10^9/\text{L}$  (reference range:  $4.0 \times 10^9/\text{L}-11.0 \times 10^9/\text{L}$ ) and a Glycated Haemoglobin (Haemaglobin A1c) of 50 mmol/mol (reference range: 20–42 mmol/mol).

Left lower limb cellulitis was diagnosed. Empiric intravenous flucloxacillin was commenced. This yielded little improvement after 1 week. An MRI study of the left foot on day 8 of admission showed extensive Charcot arthropathy with osteomyelitis of the third and fourth metatarsals. A foreign body was seen embedded within the subcutaneous tissue of the dorsum of the midfoot, with a reported abscess measuring  $17 \times 12 \times 8 \text{ mm}$  extending to the proximal intermetatarsal space (figure 1/video 1). This was not reported on or appreciable in prior plain-film radiographs (X-rays) of the foot.

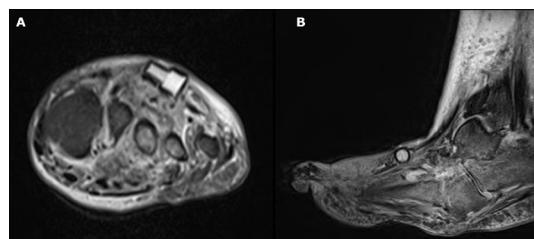
The object was excised under general anaesthetic on admission day 15. A 3-cm longitudinal incision was made over the object (figure 2). A plastic lid measuring  $1.5 \times 1.5 \times 1 \text{ cm}$  was identified and dissected free (figure 2). There was no evidence of any surrounding infection or collection at time of surgery. The wound was washed with betadine and closed with interrupted 3–0 nylon sutures.



**Video 1** T2-weighted magnetic resonance sequence of left foot in coronal plane, demonstrating embedded foreign object overlying the dorsal aspect of the third and fourth metatarsals.

The patient was discharged on postoperative day 14 and received outpatient intravenous antibiotics for further 4 weeks. He has since made a complete recovery.

Foreign bodies may be retained in the foot for a significant time before diagnosis, particularly in those with peripheral neuropathy. Foreign bodies may be a source of acute or chronic infection; numerous authors report osteomyelitis of the foot in the setting of occult foreign bodies.<sup>1,2</sup> We suspect that the plastic cap in our case was a remnant from an intravenous or negative pressure wound therapy set, embedded following debridement and washout



**Figure 1** T1-weighted magnetic resonance sequence of left foot in (A) coronal and (B) sagittal planes, demonstrating embedded foreign object overlying the dorsal aspect of the third and fourth metatarsals.

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## Patient's perspective

I've had an awful lot of infections in the left foot. It started off in 2010. I was in hospital twice for 5 days. It was the same in 2011 and 2012. I then had infections up to 2014, always on the same side. I was in hospital for 4 days or 5 days two times a year.

The real bad infection was the one where the big abscess came in 2011. That's when it had to be lanced and that's when that (the foreign body) happened. The nurse came out to the house when I came home and she was dressing it every second day. She put a sort of gauze into the opening and then they put the dressing on top of the gauze. It took ages to heal.

After it all healed up I did notice when you put your finger on top of the foot it used to feel sore ... if you pressed down ... I didn't know what it was. But it didn't bother me. It didn't affect my walking.

This time (the infection) started in the foot and went up me leg. My mobility went altogether. I could hardly walk. I didn't feel well at home for two weeks, I should have been in hospital sooner. I went to bed one night not anything on me and I woke up at 3 o'clock in the morning shivering and sweating and my leg—you could fry eggs on it! I'd a carer coming in and she could see me mobility was getting worse and she said that's enough of this and she rang the doctor and got an ambulance then. They told me I'd an infection in the good leg. They scanned the foot because they thought it might have started there.

It's a mystery (the foreign object). When the doctor came up to me one morning and said to me, 'There's a foreign body in your foot', I thought she was joking! I went to laugh and she says I'm telling the truth, I thought she was joking. I don't know what it is. They showed me a photograph of it, but I don't know what it is. I didn't know it was in there. I suppose I'll be lonely now without my friend!

## Learning points

- The absence of pain secondary to peripheral neuropathy may mask symptoms from a foreign body or other pathology.
- MRI should be considered in patients with recurrent ipsilateral cellulitis.
- Treatment should include surgical removal of the foreign body, antibiotics and glycaemic control.

of an abscess 10 years prior in another institution. While impacted insulin needles have been described in diabetic feet,<sup>3</sup> to the best of our knowledge, this is the first case of a retained fragment from such a set. A 'surgical count' should be standard practice when changing dressings on chronic wounds.<sup>4</sup>

Foot infections can be underestimated in patients with diabetes and may occasionally be due to foreign bodies. In particular, the inflammatory response may be underwhelming in subfascial sepsis, and crepitus missed in those with arthropathy. The absence of pain secondary to peripheral neuropathy may mask a foreign body.<sup>5</sup>

Ultrasound, CT or MRI can be used to evaluate foreign bodies. MRI is particularly useful in diabetic feet for evaluating soft tissue abnormalities such as cellulitis, abscesses, gangrene or foreign body granulomas.<sup>6</sup>

An accessible foreign body should be removed. All patients with diabetes should undergo comprehensive foot evaluation annually.<sup>7</sup> Bare foot walking should be avoided, and all patients should be educated regarding appropriate footwear and foot hygiene.<sup>7</sup>

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