

## “It doesn't hurt, but it does smell!”

By Sam G. Campbell, MB BCh, CCFP(EM)

**A** 78-year-old woman presents with a “smelly sore” on her foot. She has been on insulin for diabetes mellitus for the past 35 years, has had bilateral cataract operations, and has undergone laser treatment for diabetic retinopathy, but is otherwise remarkably well.

On examination, you notice an offensive smelling ulcer over the medial side of her big toe and over the distal interphalangeal joint of her second toe on the left foot (Figure 1). Two weeks ago, she noticed the spontaneous onset of blisters in the area that had since opened and become “smelly.” She denies any trauma and has not noticed any numbness.

You order X-rays to investigate for osteomyelitis (Figure 2).

### Questions:

1. What's going on?
2. Why has this happened?
3. What do we do now?
4. Was this preventable?

### Answers:

#### 1. What's going on?

Her X-rays demonstrate fracture of the proximal phalanx of the left first toe. Further findings include gas in the soft tissue of the big toe and marked erosive changes with cortical destruction in the distal aspect of the second proximal phalanx, probably resulting from osteomyelitis. The most plausible explanation is that she stubbed and fractured her toes a week or two earlier. Fracture blisters formed and became infected, leading to the current condition.



Figure 1. Ulcer over medial side of big toe and over the distal interphalangeal joint of the second toe of the left foot.



Figure 2. X-ray.

#### 2. Why has this happened?

Peripheral vascular disease and symmetrical peripheral polyneuropathy are common problems for people with diabetes, leading to propensity for, and poor response to, injury. The neuropathy is probably the more significant of the two, as diabetic ulcers resem-

Table 1

**Possible treatments for diabetic foot**

Levels of the condition	Treatment
Simple cellulitis (in patients not recently treated with antibiotics)	Cloxacillin, cephalixin
Infected ulcers	Clindamycin, ± ciprofloxacin
Extensive ulcers or bone involvement	Early referral for debridement or amputation

ble those of other neuropathies (like leprosy), which generally don't have vascular problems.

Apart from losing the ability to recognize significant trauma, as in this case, the patient loses the warning to unconsciously change position as a result of minimal trauma or prolonged pressure on a particular spot. Neuropathic arthropathy (Charcot's joints) may occur, as well as painless fractures, as demonstrated in this case.

Coexisting autonomic neuropathy may decrease sweating, thus increasing the cracking of dry skin, chronic inflammation, and dermatitis.

The vascular problems faced by diabetes patients may involve any sized vessels, from large ones to capillaries.

**3. What do we do now?**

Diabetic foot should always be taken very seriously. X-rays are indicated to look for foreign bodies, fractures, or osteitis, which the patient might be unaware of. In people with diabetes who have not recently been treated with antibiotics, simple cellulitis is usually caused by the same organisms as in non-diabetics, therefore, the same antibiotics (cloxacillin or cephalixin) are appropriate. In infected ulcers, or in cases that have recently been treated with the above agents, anaerobic and/or gram-negative infections should be suspected and coverage provided accordingly. Swabs taken from infected ulcers are notoriously unreliable in identifying pathogens and should

not be used routinely. A lower threshold for intravenous antibiotics should be employed in this population, especially in patients with a previous history of cellulitis requiring prolonged intravenous therapy. Table 1 summarizes treatment options.

In this case, the offensive smell was believed to be a result of an anaerobic infection. After starting empiric antibiotics, the patient was admitted for amputation of the infected digits. Conservative amputation is notoriously unsuccessful; within three months this patient had an amputation at the level of her distal tibia.

**4. Was this preventable?**

People with diabetes must be counselled to be obsessive about foot care. They should:

- Inspect their feet daily for evidence of calluses, broken skin, or infections.
- Avoid athlete's foot and treat early if it occurs.
- Soak their feet in warm water every day for about 20 minutes, followed by a gentle rub with baby oil.
- Wear well-fitted shoes; running shoes are preferred, alternating between two different pairs to avoid constant pressure on one spot.
- Avoid going barefoot, even at home.
- Treat calluses or ulcers early with rest, pressure redistribution, and debridement, preferably by someone skilled in the care of the diabetic foot.

Effective treatment of diabetic neuropathy and vasculopathy has not been shown to be successful, although progression of diabetic complications can be slowed by tight diabetic control, as well as control of lipid abnormalities, smoking, and hypertension. [Dx](#)

*This department covers selected points to avoid pitfalls and improve patient care by family physicians in the ED. Submissions and feedback can be sent to [diagnosis@sta.ca](mailto:diagnosis@sta.ca).*

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