

Diabetic foot ulcers following rat bites

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Introduction

Diabetic foot ulcers are associated with significant morbidity and mortality in individuals with diabetes mellitus.^{1,2} Diabetic foot ulcer is the leading cause of nontraumatic lower extremity amputations worldwide.^{3,4} Preceding events of diabetic foot ulcers include trauma, wearing of ill-fitting shoes, and burns.^{2,5} Reports of diabetic foot ulcers following rat bites are rare. We report here a case of diabetic foot ulcer following rat bites in a female Nigerian.

Case report

The patient was a 55-year-old management consultant with known diabetes diagnosed 21 years ago. She presented with a 2-week history of bleeding from both big toes. She had noticed blood stains on her bed sheet when she awoke from sleep one morning. On close inspection of her feet, she noticed bite marks on both big toes (there were rats in her house). Two weeks later her feet had become swollen and ulcers developed at the sites of the bites, following which she presented to hospital. Physical examination showed tender bilateral ankle oedema, with ulcers (2 cm x 3 cm) on the pulps of both big toes. Peripheral pulses were palpable and neurological examination revealed that light touch and joint position sense were intact. The clinical impression was that of bilateral diabetic foot ulcers secondary to rat bites (see Figure 1).

A wound swab culture yielded no growth. Random blood glucose at presentation was 10.2 mmol/L. She was treated with insulin and intravenous ciprofloxacin and metronidazole. She was also given intramuscular tetanus toxoid and the wound was dressed daily with Eusol. The patient made a remarkable recovery and was discharged 42 days after admission with the ulcers healed.

Figure 1 Diabetic foot ulcers secondary to rat bites



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Discussion

Rat bites primarily affect children aged 5 years and below who lack the ability to respond to the pain sensation caused by the bite.⁶ Adults, however, are not immune to rat bites. Diabetic patients with peripheral neuropathy are at increased risk, especially in poor hygienic environments with large rat populations. There is a report of two cases of rat bites in diabetic patients with neuropathy (one case in a rural area and one urban area in Nebraska, USA).⁷ Rat bites in diabetic patients should be treated promptly to avoid significant morbidity. One of the four cases of rat bites causing diabetic foot ulcers reported from the West Indies resulted in lower extremity amputation.⁸ The largest series of rodent bites on the feet of diabetes patients reported to date was that by Abbas et al.⁹ There were 34 patients with rodent bites in Tanzania, with four deaths from complications of the diabetic foot ulcers. All the bites occurred during sleep.

In Nigeria, cases of rat bite and diabetic foot ulceration are rarely reported. This may be due to the fact that most cases of rat bite occur during sleep, and patients may not realise that they have been bitten. In our patient, the bite marks were quite distinct. Occurrences such as rat bites are sometimes erroneously ascribed to 'spiritual forces' such as witches in our locality. This has the tendency to delay presentation to hospital as time is wasted seeking 'spiritual cures' to no avail. Though the treatment outcome in our patient was good, there was delayed presentation to hospital and she required prolonged hospitalisation.

Diabetic patients need to keep their houses and environments free of rodents, and they should cover their feet while sleeping, for example by wearing loose-fitting socks. Rat bite preventive strategies should be included in diabetic foot care education in areas such as ours.

References

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