

# Wound Sleuth

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## History

The patient is a 36-year-old male with type I diabetes. He is a non-smoker, is single, lives alone and is employed at a butcher shop.



Figure 1



Figure 2



Figure 3

**Q** What is the cause of this wound?

**A** This patient experienced frostbite secondary to per-

ipheral neuropathy while working in a meat freezer. Peripheral neuropathy (PN) is damage to nerves that most often is caused by chronic elevated glucose levels. Although elevated glucose is the leading risk factor for PN, other risk factors such as renal failure, exposure to toxins, vitamin B deficiencies and chronic alcohol abuse can also lead to PN. Patients with PN can experience pain, numbness and loss of sensation. Foot ulceration and possible amputation can result from PN. According to P.J. Dyck, K.M. Kratz and J.L. Karnes (cited by Brill et al.), “detectable sensorimotor polyneuropathy will develop within 10 years of the onset of diabetes in 40% to 50% of people with type 1 or type 2 diabetes.”<sup>1</sup>

**Q** How would you treat this wound?

**A** The toe wound would be treated with standard best practice dressings. The key to management is to address the causes of PN. Sensorimotor testing should be conducted to determine the degree of PN. This can be done using a 10 g monofilament or a 128-Hz tuning fork. For further detail, refer to the

appendix in Brill et al.<sup>1</sup> (<http://guidelines.diabetes.ca/Browse/Appendices/Appendix8>.)

Annual screening should be performed on patients with PN and glucose levels should be monitored to ensure glucose control. Patients should be educated on diabetes management and referrals to the appropriate health-care professionals for footwear and foot care management should also be completed. Patients who experience pain or numbness may get relief with anticonvulsants, antidepressants or opioid analgesics. All risk factors need to be addressed. For a more comprehensive overview of treatment and management for PN refer to the Diabetes: Healthy Feet and You program at <http://cawc.net/en/index.php/public/feet/>.

**Rob Miller** is a dermatologist and **Cathy Burrows** is an independent wound care consultant, both in Halifax.

## References

1. Brill V, Perkins B, Toth C. Neuropathy. 2013;37(suppl 1):S1–S212. Available online at <http://guidelines.diabetes.ca/fullguidelines/Chapter31#sec1>.