

Pedorthic Management Plays Vital Role in Treating Diabetic Foot Wounds

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Introduction

Foot problems are a leading cause of hospitalization among Canadians living with diabetes. A total of 2.3 million Canadians are currently living with diabetes, of whom approximately 345,000 will develop a foot ulcer in their lifetime.¹ In 2006, more than 4,000 Canadians with diabetes had a limb amputated.¹ Of all amputations in Canada, 85% are the result of a nonhealing foot ulcer. More than half of these amputations may be prevented by appropriate footwear and more effective nail and foot care.¹

Limb amputation is associated with a significant risk of mortality: 30% of Canadians with limb amputation will die within 1 year of amputation and 69% will not survive beyond 5 years.¹

A number of foot problems are preventable through education and regular foot care. As orthotic and footwear experts, certified pedorthists work alongside physicians, wound care specialists and other healthcare providers as part of a patient's overall healthcare team to help prevent foot problems associated with diabetes.

This article outlines the case of a patient whose diabetes-related wounds put him at risk of amputation. It describes how pedorthic management helped the patient resume his daily activities.

Patient history and presentation

On presentation, Richard* was a 58-year-old male labourer with a 15-year history of type 2 diabetes. He was 5' 6" tall and weighed 115 kg. Richard had lacked sensation in his feet and lower legs for at least the past 5 years. He had fractured the bones of both feet and ankles over the past 3 years, resulting in significant changes to the shape of both feet. His job involved standing on concrete floors for much of the day, wearing steel-toe work boots. Richard was at high risk of foot ulcerations and ultimately of amputation.

Although Richard was knowledgeable and fully

adherent to his diabetes management regime, including excellent control of blood glucose levels, regular foot care and the use of appropriately fitted footwear, he had progressively lost sensation in his feet (known as peripheral neuropathy).² More recently, Richard had experienced progressive left foot pain and difficulty walking. An X-ray of the left foot revealed bone fractures and midfoot collapse. Richard was referred to Dr. David Evans*, a specialist in the management of foot complications from diabetes and wounds.

Diagnosis

In 2008, Dr. Evans made the diagnosis of bilateral peripheral neuropathy and a left Charcot foot, a morphologic change of the foot resulting from bone and joint destruction and deformities.³ This resulted from Richard's lack of trauma perception, which led to multiple fractures resulting in a change of shape of the foot. This morphologic change resulted in a plantar ulceration.

Richard underwent 4 months of total-contact casting to stabilize the bones of the left foot, allowing them to heal such that the shape of the foot was preserved, particularly the arch. Total-contact casting protects the foot, allowing the bones to heal, and offloads pressure from affected areas to allow ulcers to heal. In addition, regular debridement of the wound and surrounding callus was undertaken.

After the fractures had healed and the ulceration closed, Richard was referred to a Canadian Certified Pedorthist – C Ped (C) – for ongoing pedorthic management of the foot. The aim was to provide ongoing pressure relief from bony prominences in order to protect the feet, particularly the left foot, and prevent new fractures and ulcers. Richard met with Hugh Williams,* C Ped (C), to be assessed for insoles and appropriate footwear that would protect the foot and allow Richard to resume his routine activities.

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*Names have been changed.

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Interventions

At their first meeting, Williams set 3 main goals: (1) protect the foot; (2) build the integrity of the feet to help prevent new fractures or ulcers; and (3) get Richard back to his routine activities.

To prevent ulcer recurrence, Williams offloaded new pressure points on Richard's feet that had developed as a result of the fracture. Richard's regular footwear, including his steel-toe boots for work, was also modified to meet his lifestyle needs. In addition to these interventions, Williams met regularly with Richard to make ongoing adjustments to his footwear and custom-made total-contact orthotics to optimally protect the foot.

Williams also instructed Richard on how to inspect his feet for evidence of callus, ulcerations and infection. He has frequently liaised with Richard's healthcare team about foot-related concerns.

Key outcomes

Over the past 3 years, Richard's pedorthic management has included ongoing assessment, education, shoe fitting, shoe modifications and orthotic fabrication and adjustments. This has occurred in collaboration with his physicians, wound care specialists and other specialized healthcare providers.

Today, although Richard is still at risk of foot-related complications related to diabetic neuropathy and

requires ongoing treatment, his feet, in particular the left foot, remain relatively stable. His wounds have healed and the morphologic abnormalities of his feet have not progressed. Richard is back to his regular activities, including his job as a shipper-receiver.

Conclusions

Dr. Evans regularly prescribes pedorthic management for patients as part of their overall diabetes healthcare regime. Pedorthists are trained to troubleshoot shoe-fit issues for people with diabetes and can reduce the risk of amputation by assessing the structural features of the foot. Additionally, pedorthists are able to alleviate the effects of lower-limb and foot abnormalities through orthotics and shoe modifications. This can help prevent foot problems before they even begin.

Williams recommends that all people with diabetes should either regularly inspect their feet themselves or have their feet examined by a family member or caregiver. In addition, regular foot care and appropriately fitted footwear are vital to preventing foot complications. ☺

References

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3. Embil JM, Trepman E. A case of diabetic Charcot arthropathy of the foot and ankle. *Nat Rev Endocrinol*. 2009;5:577-581.

Making a Difference

Recognizing Canada's Wound Care Heroes

The Canadian Association of Wound Care is inviting healthcare professionals to nominate someone who has made a difference in the lives of people suffering from acute or chronic wounds.

The ideal candidate is a healthcare professional working in their community who has gone above and beyond the call of duty to help a patient deal with a wound; implement a wound care prevention program; or help patients and their families navigate the healthcare system. In short, a wound care hero who is improving the lives of their patients on a daily basis.

If you know someone who you think qualifies – or if you have a story that you'd like to share – please let us know. Selected Wound Care Hero nominees will be recognized at the CAWC's 17th Annual Wound Care Conference, to be held in Ottawa from November 3-6, 2011. The deadline for submissions is August 31, 2011.

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