Case Study

Management of a Venous Leg Ulcer Using Acticoat® Antimicrobial Barrier Dressing

BACKGROUND

A large part of community nursing is wound care, more specifically leg ulcers which historically have taken months, if not years, to heal. The diagnosis of a venous ulcer is made through a thorough history, examination of the patient, doppler and vascular studies.

Most venous leg ulcers are located in the gaiter area on the medial or lateral malleolus. They can be quite large but are usually shallow and flat with irregular borders and exudate. The affected limb can be oedematosus and reddish brown discoloration may be present. The tissue surrounding the wound is thickened and it is common for dermatitis to be present and the pain is dependent. Pulses can be palpable or absent. The Ankle Brachial Index (ABI) is >0.8. These ulcers are caused by venous insufficiency. Prolonged venous hypertension causes the valves of the perforator veins to become incompetent therefore allowing blood to back flow and pool. The congested capillaries seep protein, fibrin and red blood cells through the capillary walls into the intercellular spaces. This in turn causes stasis and oedema that decrease tissue perfusion and leads to ulceration and cellulitis. Predisposing factors to the development of venous leg ulcers are varicosities, previous deep vein thrombosis, obesity, previous ulcerations, pelvic occlusion and prolonged limb dependency.

Management of Leg Ulcers

There has not been a standard of care for leg ulcers at Saint Elizabeth Health Care. Whatever a physician orders for treatment is followed. Now with a wound ostomy resource nurse, staff are encouraged to ask for assistance if a wound has not improved over a two week period with a constant treatment plan. The resource nurse will assess the entire situation. Afterwards she may offer some treatment changes after consulting with the physician when necessary. Typical treatments include managing exudate and protecting the peri-skin; treating oedema with medication and/or compression therapy; removing non-viable tissue; and educating the client on appropriate care and prevention of leg ulcers.

Case Study

A 44 year-old gentleman, who noted a small opening on the lateral malleolus of his right foot in early April, visited his family physician who promptly swabbed the wound and started the client on two antibiotics. Rather than healing, the wound continued to grow in size. A visiting nurse first saw the client on April 16 and started applying wet to dry saline soaked gauze as ordered by the physician. The wound continued to grow. The visiting nurse consulted an enterostomal therapy nurse who assessed the wound and suggested a foam dressing and compression therapy. The client felt that compression dressings did not help as they kept the leg too warm and the wound too moist, consequently the ulcer was not healing. Therefore, he refused to wear the compression wrap. The visiting nurse became increasingly concerned as
the wound continued to grow in size and drain copious amounts of fluid. The client said that, “It felt like it was on fire!”

The wound was cleaned with normal saline and covered by several foam dressings, which were held in place by kling. This treatment regime was followed on a daily basis by the nurse and by the wife. When the drainage seeped through the dressings were changed more frequently. A wound ostomy resource nurse was asked to visit the patient on June 29, 2000 by the attending nurse who believed that the wound was probably infected and thus not progressing.

This client was an obese gentleman who smoked at least one package of cigarettes per day and spent 10-12 hours on his feet daily. Two years previously, he had an ulcer in the same location but was unable to describe the treatment used or the time to healing. The client’s leg was oedematous and hard to palpate. There was copious serous sanguinous drainage on the old dressing. No foul odour was noted. The wound bed was deep red. The original ulcer could still be seen; it measured 1.5cm x 1 cm. x 0.5cm. The entire wound measured 14.5 cm. x 15 cm. The peri-wound edges were necrotic and sloughing away. The client felt the pain was usually at an 8 (on a scale of 1-10 with 10 being the worst). He was unable to sleep at night because of the burning pain. Two Percocet every 4—6 hours only took the edge off the pain. He was not taking any other medication. He used Vaseline on the wound to alleviate some of the discomfort.

The client and spouse were very frustrated with the situation and were willing to try anything if it would help heal the wound. There were no obvious signs of systemic infection, but it was felt that the wound was carrying a high bacterial burden due to its age and the high level of exudate. The copious amounts of drainage and poor removal of it from the wound site were thought to be causing further breakdown of the peri-wound tissue. The family physician was consulted and agreed that the use of the Acticoat* dressing was an appropriate course of action.

**Treatment Method**

The Acticoat* dressing was soaked in sterile water and the excess fluid allowed to drain onto a sterile gauze. The wound was also irrigated with sterile water and the dressing was applied to the wound. A secondary foam dressing was then placed over the Acticoat* dressing and secured in place with kling. A compression wrap was then applied. The client and spouse were educated about ulcer care and prevention. The client was encouraged to lose weight, stop smoking, and elevate his leg when possible. This education encouraged the client to “buy into” his care plan. He was encouraged to adhere to the plan in order help heal the ulcer and prevent it from worsening. The results provided the positive reinforcement to encourage the client to stay on track.

The dressing was changed, on average, approximately every 3 days, depending on the amount of exudate. During the first week the dressing had to be changed daily due to the copious amount of drainage from the wound.

**Results**

The overall treatment process as it relates to wound size is summarized in Figure 1. Within one week the drainage had decreased significantly, the wound appeared less raw and red and the peri-wound edges were dry and no longer necrotic or sloughing away. Pain remained severe but the client and his spouse were pleased with the results and felt progress was being made.

The following week produced more results! The wound measured 1 cm x 0.5 cm x 0.3 cm. Pain was at a tolerable level (4-5 on pain scale) with only occasional analgesia. The dressings were being changed every three days by the client’s wife.

By the end of week three the wound was 1.5 cm x 0.5 cm without depth with erythema present (6.5 cm x 5 cm) around the wound. The wound bed was no longer red and beefy and the client’s leg was no longer oedematous or hard to palpate. The client was down to smoking 1-2 cigarettes per day. He was elevating his affected leg at every opportunity. His dermatologist prescribed Diprosone ointment to peri—wound tissue with every dressing change. The patient was discharged by the visiting nurse the following week. The spouse was continuing to apply a small piece of Acticoat* dressing (less than one inch square) on a daily basis and wrapping the leg with a compression dressing. The erythema had finally disappeared and the pain was minimal.
The Acticoat* dressings were used for approximately 6 weeks to completely heal the wounds. Initially the dressings were changed on a daily basis because of the copious amounts of drainage. As the amount of exudate decreased so did the frequency of dressing changes. The spouse checked the moisture level of the Acticoat* dressing daily and once there was very little if any exudate, she lightly spritzed the Acticoat* dressing with water. The dressings were changed on average every 3 days. The wound base went from a deep red, surrounded by sloughing necrotic tissue, to a healthy pink granulating wound base. The client complained of increased pain when the dressing was removed and the wound came into contact with the air. Once the treatment was completed and the wound was again covered the pain decreased significantly. His pain appeared to decrease in general as the wound began to heal.

**Conclusion**

Based on the results of this case study, it was concluded that for a non-healing chronic wound Acticoat* Antimicrobial Barrier Dressing was a good dressing choice. This venous leg ulcer was continuing to regress until the Acticoat* dressing treatment was initiated. The dressing may have created an environment that may have helped decrease the bacterial burden of the wound, which can often be the cause of a wound not healing. It also resulted in less frequent dressing changes, which decreased the cost to our health care system. The dressing is a simple treatment modality that was taught to the spouse. Having the dressing changed was not an uncontrollably painful experience. In this situation the client, spouse, physician and nurses were very satisfied with the results.