

Treatment of a seriously ill patient with a rapidly deteriorating leg wound

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This case report will discuss a patient who developed sepsis during a hospital stay and developed complex, rapidly deteriorating leg wounds after this acute episode. It shows that having a focused plan of care with a sound evidence base is the key to effective wound management.

The patient

The patient was a 60-year-old woman who was admitted to an acute medical ward with pyelonephritis which a urinary tract infection that has reached the pyleum of the kidney. She had a two-month history of oedematous and weeping legs which were being dressed twice-weekly by district nurses. She was obese with a BMI of 48 and she had osteoarthritis and had undergone a bilateral hip replacement nine months before this admission. She walked with the aid of a stick and was not taking any regular medications before admission. During her admission, she developed sepsis secondary to the pyelonephritis and was admitted to the intensive therapy unit with multi-organ failure. Wounds began to appear on admission to ITU and deteriorated within a week. She developed extensive wounds in her right leg due to oedema and multi-organ failure (Figures 1 and 2) that were not causing pain but were rapidly deteriorating and were sloughy and malodorous and had:

- ▶▶ Copious exudate
- ▶▶ A tracking sinus with pus evident
- ▶▶ Gross oedema
- ▶▶ A high-risk of infection
- ▶▶ A risk of limb amputation
- ▶▶ All peripheral arterial pulses present
- ▶▶ No signs of ischaemia.

Wound assessment

The vascular and leg ulcer nurse specialists completed a full wound assessment. On examination, the wound beds were covered in thick slough and were malodorous with copious exudate. The wounds were

not painful although they were red and inflamed despite the use of systemic antibiotics. Debridement of all wounds was a priority to remove slough and assess the wound beds, as necrotic tissue provides a favourable environment for the growth of bacteria (Bowler et al, 2001). Rapid and safe debridement was required as:

- ▶▶ The wounds had extended rapidly
- ▶▶ Aetiology of the wounds was unknown
- ▶▶ The wound beds were not visible
- ▶▶ There was a high risk of infection.

Larval therapy was the treatment chosen to remove non-viable tissue from a wound. Sterile maggots were applied to the wound and then covered by a dressing. The efficacy of larval therapy has been confirmed by numerous case studies in a range of wounds (Waller and Walker, 1999; Thornton et al, 2002; Dunn et al, 2002; Evans, 2002) which suggest that larval therapy is more effective compared with conventional methods of wound debridement. Larval therapy was fully explained and the patient consented, although she requested the larvae were in a biobag.

Larval therapy was discontinued after three applications (Figures 3 and 4) when healthy granulation tissue was seen in the wound beds. The wounds were then redressed with an antimicrobial dressing. However, when the wounds were reviewed by the specialist nurse, they had deteriorated again. A skin biopsy was performed to ensure no underlying inflammatory dermatosis was causing the deterioration of the wounds and the result was non-specific.

Due to concerns regarding the patient's condition, consultants from multiple specialities — plastics, dermatology, vascular and medical — became involved in her care. Unfortunately, there was no consensus of a treatment plan between the specialities, causing anxiety and uncertainty for the patient. The specialist nurses requested an urgent multidisciplinary meeting to ensure correct and appropriate treatment for the patient. However, bringing together all the consultants involved at the same



Figure 1. Primary assessment right medial crest



Figure 2. Primary assessment right posterior calf



Figure 3. The wound after larvae treatment

time proved to be difficult at short notice; therefore, there was no lead in the patient's care. All consultants had different views, ranging from cleansing and dressing changes three times daily to amputation of the limb. As advocates for an extremely anxious patient and with specialist wound care knowledge the specialist nurses did not feel these were viable treatment options. The decision was made to re-evaluate the patient, completing a full holistic assessment including ankle brachial pressure index measurements and leg ulcer assessment. Shipperly (1997) suggest if treatment is to be appropriate and effective, it is vital that accurate assessment is carried out before treatment is commenced.

Treatment plan

The specialist nurses were leading the care

due to the lack of consensus of a treatment plan and therefore were working within their extended role, maintaining awareness of their responsibility to the patient and their responsibility to deliver safe and effective care based on current evidence and best practice (NMC, 2006). Following full assessment and with support from the vascular consultant the decision was made that compression therapy was the most appropriate treatment.

At this stage, the patient had gross oedematous legs with deep, extensive granulating wounds with a slightly sloughy edge, and the wounds were malodorous (Figures 3 and 4). It was hoped that compression therapy would reduce oedema, improve venous circulation and encourage healing of the wounds. Compression therapy is the most effective form of treatment for venous leg ulcers (Blair et al, 1988).

The primary dressing used was Silvercel® (Johnson & Johnson Wound Management, Ascot) which is indicated for use in the management of all moderate to heavily exuding partial and full-thickness chronic wounds. It conforms well to the wound bed and quickly forms a resistant barrier against infection (Di Lonardo et al, 2006). Silver products have two key advantages: they are broad-spectrum antibiotics and are not yet associated with drug resistance (Lansdown, 2002).

After six weeks of compression therapy (Figures 5 and 6), the wounds had reduced in size and depth dramatically, along with a reduction in exudate and odour. The wounds were free from infection and continued to heal without further complication.

Discussion

The patient had complex wounds, and a treatment plan could not be agreed on due to multi-speciality involvement. Acting as the patient's advocate, using specialist knowledge a treatment plan was devised. Newton (1999) suggests the work of nurse specialists includes responsibility for the quality and improvement of patient care. In this case the

specialist nurses' responsibility lay in driving the treatment plan forward, by thorough wound assessment, dressing choice and continuing wound evaluation.

The initial multidisciplinary assessment of the wound led to suggested amputation, however, having a focused plan of care, with a sound knowledge and evidence base, effective wound management was achieved and amputation was avoided. **WUK**

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Figure 4. Intermediate photo after three weeks of compression and Silvercel treatment



Figure 5. After six weeks of compression, removal of Silvercel and application of Prisma



Figure 6. After six weeks of compression, removal of Silvercel and application of Prisma



Figure 7. Home visit 3 months after treatment commenced.



Figure 8. Home visit 3 months after treatment