

Deep bone infections following surgery

The increasing number of orthopaedic operations being performed means that the absolute number of osteomyelitis infections remains significant (Sheehy et al, 2010). Diagnosis may be challenging and delaying appropriate treatment can lead to reduced joint function and the need for more complex, perhaps multiple, procedures. (Moran et al, 2010) Early diagnosis, selection of an appropriate surgical strategy, accurate identification of the responsible microorganisms and construction of an appropriate antibiotic and wound care regimen are essential elements of any management strategy. The Royal Orthopaedic Hospital has a specialist bone infection unit that provides a multidisciplinary model of care between orthopaedic surgeons, with specific expertise in infection and limb reconstruction, and microbiologists, along with specialist nurses including tissue viability and dietetics. This article presents two case studies that presented with a history of deep bone infections that had failed to respond to treatment.

Case study 1

A 66-year-old man had a complex history of haemophilia and osteoarthritis, and was immunocompromised. He had presented to the orthopaedic team 20 years before following bleeds resulting in the need for a total knee replacement. In 2004 he fractured his femur and required an endoprosthesis replacement of his hip. In April 2013 he had loosening and instability of his knee joint and received multiple surgical interventions and revisions as this he had a longstanding



Figure 1. Extensive tissue loss following hip disarticulation (30 May 2014)



Figure 2. Wound completely healed (8 August 2014). Patient was able to be fitted for a prosthetic limb

multi-resistant *pseudomonas* osteomyelitis. He was under the care of the bone infection unit from December 2013 but, despite extensive intravenous antibiotics, failed to improve. In April 2014 he underwent a disarticulation of his hip; this wound then dehisced and was problematic. On 30 May the wound measured 13 cm in length, had a lateral depth of 7.5 cm and a medial depth of 3.5 cm (as shown in Figure 1). Topical negative pressure was not suitable for the patient owing to his haemophilia. He began using Kytocel[®] ribbon as a primary dressing that was packed into the wound. This was supported by a secondary product SorbXtra[®], a superabsorbent dressing. He was reviewed on a twice weekly basis over a period of 15 days. The patient and tissue viability team were surprised by the rapid improvement in the wound during this time. By 8 August the wound had healed and the patient could be prepared for a prosthetic limb (Figure 2).

Case study 2

A 49-year-old female had a fractured left femur following a road traffic accident in 2013. She had a past medical history of osteoarthritis and depression. She was referred to the orthopaedic hospital for revision of hemipelvis replacement and proximal femoral replacement of the left hip in 2014. This wound failed to heal, despite open surgical reduction, washout with antibiotics and debridement of devitalised tissue. Following surgery on 22 April, full thickness skin necrosis was noted. She had a further wound debridement and closure with abdominal skin advancement on 19 May. This wound failed to progress with topical negative pressure and she developed a multi-resistant osteomyelitis with purulent exudate and erythema (see Figure 3). The primary dressing was changed to Kytocel and secondary dressings SorbXtra was applied. Initially these were changed daily and within a week the exudate levels decreased and her dressings were changed every third day. She was discharged on 3 July with support from the outreach team. The wound had virtually healed by 9 July (Figure 4).

Discussion

In both cases the wound progress was vastly superior with the new dressings to previous methods. The early findings of these two complex cases are encouraging. The reduction in purulent pus and rapid reduction in wound size and depth was a clear indicator, in the absence of any other changes in their treatment, that these wounds may go on to heal. It was beyond the remit of the authors to observe complete healing in the timeframe observed.



Figure 3. Multi-resistant osteomyelitis confirmed (3 June 2014)

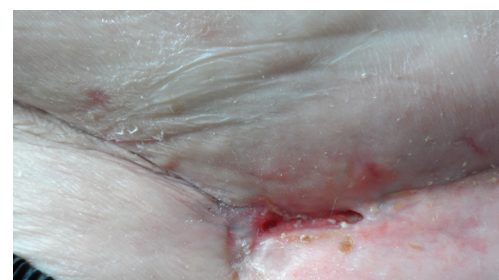


Figure 4. Wound virtually healed 5 days after discharge (9 July 2014)

Conclusion

In these cases the results are encouraging. The authors reported that the new gelling fibre dressing was easy to apply and remove, provided fluid retention and wet-strength, and supported one-piece-removal, particularly in the deep cavity described in the first case study. They explore the clinical benefits of a natural gelling fibre dressing for the management of chronic wounds that demonstrates high absorption, odour control and management of patients with signs of critical colonisation and deep bone infection as an adjunct to systemic antibiotic treatment. The Royal Orthopaedic Hospital has agreed to undertake a more robust study in the use of Kytocel as it is believed it may offer an alternative solution for patients with deep bone infection. **BJN**

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