Successful management of a non-healing traumatic foot wound in an elderly patient using a bacteria and fungi binding dressing.

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Background

An 89 year old male patient living in South East Asia with few medical co-morbidities, required amputation of his left great toe following a traumatic crush fracture. The injury was sustained after being run over by a vehicle on the 2nd August 2013, with surgical amputation of the toe conducted shortly thereafter. In the weeks following the procedure, the wound failed to heal while necrosis and infection of the underlying wound tissue set in (Figure 1)

Figure 1. Wound presentation – day 7.

Management of wounds

Wound management encountered significant difficulties from the outset. In addition to the humidity, access to medical treatment and high quality wound care products posed a serious risk to the outcome. With medical access realised, management of the wound was limited to antibiotics, silver based ointments and protective dressings. This regimen of care continued for 2 weeks with little to no improvement.

Figure 2. Wound review - after 21 days

Figure 2 demonstrates failure to heal with localised skin necrosis and a superficial infection extending laterally. At this point the patient was required to undertake a 7 day course of antibiotics with forefoot amputation identified as a last line management option. The patient subsequently travelled to Australia and required surgical intervention for a fractured hip post a mechanical fall. Surgical forefoot amputation was again offered to manage this non-healing wound. Family declined and requested to pursue an option involving aggressive debridement and care.

Wound management

Wound management consisted of sharp debridement followed by dressing of the wound using a bacteria and fungi binding wound dressing (Sorbact, ABIGO Medical), for both management and prevention of wound infection.

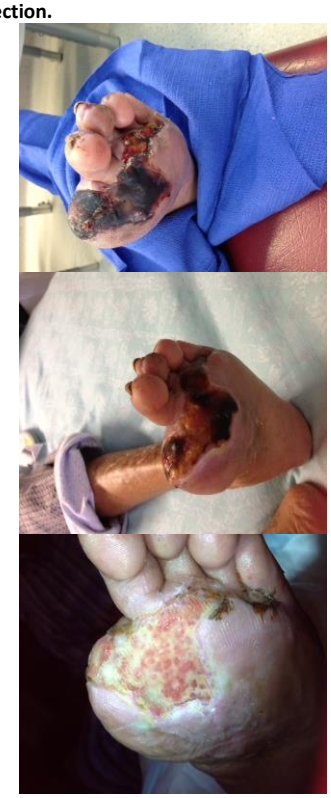

Figure 3. Wound review – over a 6 weeks period

The above pictures as part of Figure 3. demonstrate the progression of healing over a 6 week period. Concurrently, pain and localised inflammation had significantly decreased (as reported by the patient) following the commencement of debridement plus Sorbact. No further incidence of infection or need to commence antibiotics were reported.

Figure 4. Final wound review – after 14 weeks.

Discussion

The requirement in this case to try something and anything was emphasised with the threat of further amputation. In the absence of any underlying osteomyelitis and the relative confinement of infection and necrotic tissue superficially resulted in significant improvement from debridement alone. This result had been achieved on multiple occasions throughout the course of previous management and on each occasion the wound regressed to its earlier necrotic / infective state. The addition of Sorbact to the management of this wound, in my opinion was the difference in allowing the patient's normal wound healing capability to be realised. The presence of Sorbact contributed no exogenous chemicals to the wound and provided an anti-microbial effect without exposing the normal cell lines responsible for healing to bactericidal chemicals. In addition to infection control and prevention, Sorbact has demonstrated an ability (*in vitro)* to effect the proliferation of fibroblasts.[1] Clinically this is supported by good tissue granulation in this case.

Management of wounds using a hydrophobic dressing

This case has demonstrated a couple of reasons why the management of wounds with a bacteria and fungi binding dressing such as Sorbact[2] should be considered. The absence of contraindications can allow Sorbact to be used by experienced health care practitioners to the patient themselves without fear of endangering healing. Sorbact also offers an economic advantage in the management of troublesome wounds given the antimicrobial effect is obtained physically without the need of expensive chemical based bactericidal dressings.

Conclusion

Sorbact in this case demonstrated quite effectively it's ability to assist the healing of an acute non-healing traumatic wound. The anti-microbial function of Sorbact allowed the normal healing function to be maintained without an exogenous impairment observed. Sorbact was clean, simple to use and economically superior to an advanced anti-microbial dressing or course of antibiotics.

References

1. Falk, P. and Ivarsson, M.L. *Effect of a DACC dressing on the growth properties and proliferation rate of cultured fibroblasts.* J Wound Care. 2012 Jul;21(7):327-8, 330-2.
2. Ljungh, N. Yanagisawa, T. Wadström. *Using the principle of hydrophobic interaction to bind and remove wound bacteria.* Journal of Wound Care, Vol. 15, Iss. 4, 01 Apr 2006, pp 175- 180