

MANAGING EXPOSED BONE IN THREE WOUNDS WITH DIFFERING AETIOLOGIES

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Introduction

This case series describes the management of three patients with wounds of different aetiologies in which the periosteum was removed exposing bone with no, or very slow granulation tissue formation and which were therefore almost recalcitrant to healing by secondary intention. Flaminal was utilised to debride and control bioburden whilst maintaining moisture to promote the growth of granulation tissue over the bone. The treatment of wounds with exposed bone is very challenging particularly in elderly patients or those with multiple comorbidities with the ever present risk of infection leading to osteomyelitis at the forefront.

The three patients were:

Patient 1: Mr D a 100 year old male with a Category IV pressure ulcer to his left clavicle due to head and neck contractures. Mr D lived at home where he was bed bound and consequently had lower limb contractures due to frailty, despite no chronic medical health problems.

Patient 2: Mr W a 92 year old male with an excised squamous cell carcinoma resulting in exposure of the frontal scalp bone. Mr W who lives at home, has a history of Ischaemic heart disease, chronic obstructive pulmonary disease plus hypertension.

Patient 3: Mr P a 65 year old male presented to the clinic with a one year history of extremely painful, bilateral, necrotic ulcers in the gaiter area. He has a history of Diabetes with retinopathy and neuropathy and hypertension. He was diagnosed with Livedoid Vasculopathy (Atrophie Blanche) a rare chronic cutaneous disease.



Clavicle Wound



Method

Mr D had a painful pressure ulcer measuring 5 x 2 cms on his left clavicle which was 100% necrotic and had been present for four months and caused Mr D heightened levels of pain and anxiety, which became more acute at dressing changes.

Mr W had a 4 x 2 cms wound to his scalp following excision of squamous cell carcinoma as well as the periosteum, thereby exposing bone. The wound had been present for six months.

Mr P had an extremely painful 5 x 3 cms sloughy wound to his left leg which was debrided until the fibular bone was exposed.

In all three cases the aims of treatment were to autolytically debride the necrotic and sloughy tissue thus reducing the bioburden in the wounds whilst protecting the bone and delicate granulation tissue as well as the peri-wound skin. Dressings were changed every two days with Flaminal Hydro covered with a secondary dressing as appropriate depending on the levels of exudate. It was also important to select a product which would not cause any further trauma or risk to the individuals.

Results

In all three cases pain was reduced and there were encouraging signs of granulation within three weeks. As the bioburden in the wounds reduced and the slough and necrotic tissue were debrided there was a concomitant reduction in exudate levels.

After seven weeks Mr D's wound was 85% healed but sadly he died of unrelated complications. Mr W's wound was completely healed after nine weeks of treatment without the need for flap surgery. Treatment for Mr P is almost complete with over 90% healing achieved and his pain is under control for the first time in over twelve months.



Leg Wound



Discussion

Flaminal (Flen Health UK) is an enzyme alginogel available in two formulations with differing alginate content, and is indicated for the reduction of bacterial growth in wounds. Flaminal comprises hydrated alginate polymers in a polyethylene-glycol (PEG) matrix embedded with the enzymes glucose oxidase and lactoperoxidase to control bioburden.^{1,2} Flaminal has the capability to absorb excess exudate whilst remaining in a gelled state, promote debridement and control bioburden. Flaminal provided antimicrobial activity to control infection as well as autolytically debriding the wounds. A heavy bacterial burden in a wound will encourage tissue degradation and slough formation. In this case series Flaminal also provided hydration over the exposed bones to promote the growth of healthy granulation tissue thereby reducing the risk of complications associated with exposed bone.

Conclusion

The exposure of bone complicates the wound healing process and often necessitates plastic surgery intervention with flaps or grafts. This option was excluded as the patients were either elderly and/or had multiple co-morbidities and therefore the wounds were exposed to prolonged healing with concomitant risks of infection, bone desiccation, and osteomyelitis. Flaminal proved to be a product that could be utilised throughout the healing trajectory: it not only facilitated debridement, but also the development of granulation tissue in these complex and challenging case studies whilst reducing pain and trauma for the patients.



Scalp Wound



References

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- 2) White R (2006) Flaminal: a novel approach to wound bioburden control. *Wounds UK* 2 (3): 64-9