

# A case of necrotizing fasciitis managed with modified collagen plus glycerine gel in combination with sodium polyacrylate



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A 46-year-old Chinese gentleman presented to the Kuala Lumpur Hospital for surgical management of necrotizing fasciitis, having been transferred from another hospital. Surgical debridement was performed to remove all of the devitalized tissue. The patient was then referred to the wound care team for further wound management. Sodium polyacrylate powder and modified collagen with glycerine gel were combined and used to prepare the wound bed. By combining sodium polyacrylate powder and modified collagen with glycerine, the authors were able to control the bioburden of the wound and stimulate rapid wound healing in this acute condition. Two weeks later, the patient underwent hydrostatic debridement. In the operation theatre, modified collagen and glycerine gel were again applied together with sodium polyacrylate. Within 6 weeks from the date of onset, secondary suturing with skin grafting was performed. The wound progressed well and the patient was discharged. The secondary suturing and skin grafting had been a complete success and accomplished earlier than had been expected.

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**A** 46-year-old Chinese gentleman developed necrotizing fasciitis and was seen in a district hospital. He was referred to Kuala Lumpur Hospital for management of the necrotizing fasciitis, as surgical debridement is the mainstay of treatment. The patient was admitted to the Urology Department and debridement was performed to remove all of the devitalized tissue, [Figure 1]. The patient was subsequently referred to the Wound Care Team and Plastic Surgeon for further management of the wound. Adequate wound bed preparation is crucial to prepare for secondary wound closure with a split skin graft. The wound team decided to use sodium polyacrylate and collagen and glycerine gel in combination to manage the exudate and kick start granulation, so that the wound would be ready for closure.

### Care of the wound

The wound was debrided with hydrostatic debridement and the combination of sodium

polyacrylate and collagen and glycerine gel dressing was used in the operating theatre after the debridement. Three sachets of sodium polyacrylate powder (3 g each) and collagen with glycerine gel was applied to the wound bed with gauze, and Gamgee as a secondary dressing.

The wound was assessed and the dressing changed every day for the first 3 days, subsequently every other day for the 1st week, and then every 3 days, until the wound bed was ready for skin grafting.

The patient was quite depressed and had to be counselled with regards to his wound pain, impact on daily activities, nutrition intake, as well as control of sugar levels. The dressing changes needed to be performed in the operation theatre by the wound and plastic teams as the wound was so painful that the patient required anaesthesia. Analgesic was given for 2 days only as the patient experienced a reduction in pain — visual analogue scale from 8 to 3 — after the 2nd dressing change.

**Figure 2** illustrates the wound 7 days post-surgical debridement. There were clear signs of good wound healing, a clean wound bed and healthy granulating tissue.

At Day 16 (post debridement) healthy granulation was starting to form and recover the exposed structures **[Figure 3]**.

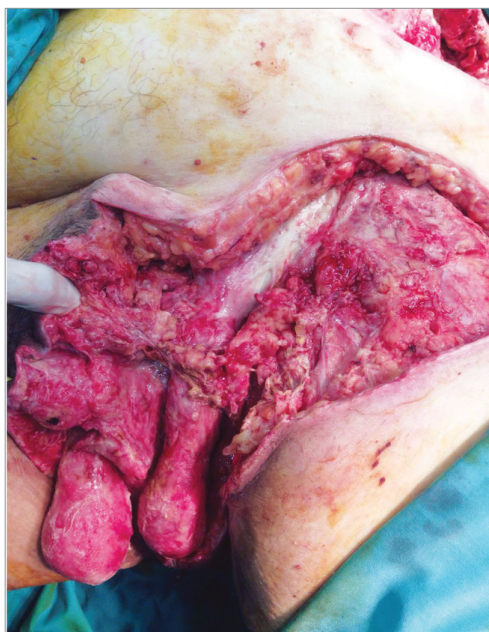
By Day 35, the wound bed showed healthy granulation and the base was starting to fill, reducing the volume of the wound **[Figure 4]**. Slight necrotic tissues was seen, which was debrided in the operating theatre.

At Day 42, the wound was clean, healthy and suitable for a split skin graft (SSG) **[Figure**

**5a]**. The graft was performed and the wound was sutured after just 6 weeks **[Figure 5b]**. The sodium polyacrylate/collagen and glycerine gel combination worked synergistically in this case.

## Discussion

Up to 75% of cases of necrotizing fasciitis are of mono or polymicrobial nature. Others are caused by fungal and/or marine bacteria. Mainstream treatment includes aggressive drainage and meticulous debridement, removing all microbial burden and controlling infection (Misiakos et al, 2014; Shaikh et al, 2012).



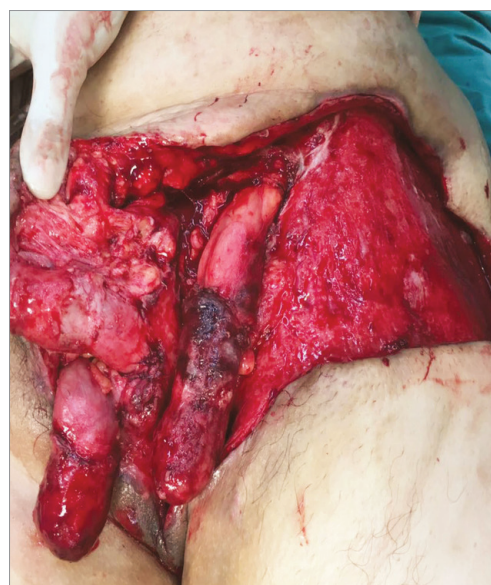
**Figure 1.** The wound post surgical debridement



**Figure 2.** Week 1 post surgical debridement



**Figure 3.** 16 days post surgical debridement



**Figure 4.** 35 days post surgical debridement



**Figure 5a.** 42 days post surgical debridement (before SSG)



**Figure 5b.** 42 days post surgical debridement (after SSG)

In cases of aggressive exudate control, Negative Pressure Wound Therapy (NPWT) is considered but the asymmetrical wound bed, with its difficult wound locations, deter NPWT from being used. Moreover, the use of sodium polyacrylate and modified collagen with glycerine gel is a more economical treatment choice.

Sodium polyacrylate, a super absorbent, has the capacity to turn into a gel-like substance, making it an ideal wound interface for complicated wounds. In its powder form, it could conform to the uneven wound bed and capture all the excess exudate in every nook and cranny of the wound. The bacterial burden is absorbed into the polymer matrix which is then removed by flushing with any solution of choice. Modified collagen with glycerine gel helps stimulate new tissue growth. It is known that collagen introduce extracellular matrix deposition, cellular migration, growth factors in cell-signalling and wound contraction.

### Conclusion

In conclusion, this combination of sodium polyacrylate and modified collagen worked well to manage the exudate and the bacterial bioburden in terms of wound bed preparation.

The combination dressing worked synergistically to manage this difficult necrotizing fasciitis case with good healing rates and no complications. The combined multidisciplinary approach was also effective in the management of this complex wound.



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