Non-traumatic Wound Debridement

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Wound debridement is a vital function in wound healing. Chronic wounds may have decreased cellular activity, increased amounts of protease activity, and may stall in various stages of wound healing. As a result, debridement is necessary to convert a chronic into an acute wound by removing metalloproteases (MMPs) and stimulating cell activity.

Because they are relatively pain-free, non-traumatic debridement approaches can result in improved patient cooperation with their wound care regimen. Several selective debridement methods can effectively eliminate wound trauma. Autolytic debridement allows the body's own wound fluid to selectively remove necrotic tissue. The wound fluid contains collagenase, macrophages, and neutrophils that are beneficial in the removal of nonviable tissue. To facilitate autolytic debridement, a moist wound environment is created by using an occlusive dressing such as a hydrocolloid, transparent dressing, foam, polymeric membrane dressing, or calcium alginate over the wound bed. The moisture from the wound exudate will dissolve and liquify the nonviable tissue, creating a healthier wound bed.

Enzymatic debridement uses proteolytic enzymes to digest necrotic tissue. The method can be enhanced in a low-exudating wound by applying a moistened dressing directly over the enzyme to facilitate the moist wound environment required to remove necrotic tissue.

Biosurgery (maggot therapy) although controversial, is becoming more popular. The larvae liquefy only necrotic tissue while their antimicrobial secretions destroy bacteria (*Staphylococcus*, *Streptococcus*, *Pseudomonas*, and methicillin-resistant *Staphylococcus aureus* [MRSA]). One or more applications may be required for successful debridement.

All non-traumatic debridements require dressings appropriate to the wound characteristics. Size, exudate amount, depth, available moisture to the wound bed, bacterial bioburden, and dressing change frequency all should be considered before choosing a debridement method. Heavily draining wounds or the presence of significant bioburden may indicate a need for an antimicrobial dressing.

Regardless of the method used for debridement, the goal of therapy should consider debridement urgency, provider skill level, patient or caregiver's ability to follow the plan of care, and care setting. Non-traumatic wound debridement can help decrease pain, foster better cooperation with the care plan, and be easily performed in most settings. ■

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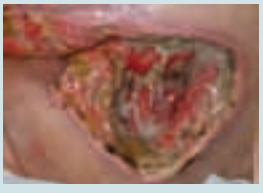
Commentary from Ferris Mfg. Corp.

When autolytically debriding a wound, clinicians select the dressing based on the wound characteristics. For example, hydrocolloids usually are not considered appropriate when a wound is infected or heavily exudating while alginates are not used if the wound is dry.

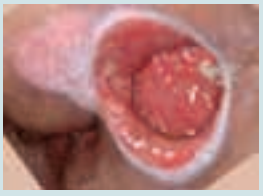
The PolyMem® family of QuadraFoam® dressings is effective when autolytically debriding dry wounds, heavily exudating wounds, and everything in-between. These multifunctional dressings, available with and without antimicrobial silver, are recognized to absorb exudate yet moisten dry wounds while continuously cleansing and helping relieve wound pain.

In a representative case study,[1] an 85-year-old woman with diabetes presented with a severely painful, hard, necrotic pressure ulcer extending deep into her gluteus maximus muscle. Cultures taken during conservative surgical excision indicated 4+ *Pseudomonas* infection. The physician left substantial slough lining the wound because he discovered that conservative sharp debridement followed by autolytic debridement with PolyMem provides better long-term clinical results. Use of silver-containing versions of the dressing formulation were initiated. The wound was pain-free after only 2 weeks and the wound was negative for *Pseudomonas* in 1 month, even though no wound bed cleansing or debridement was performed beyond that provided by the dressings. The patient did not receive antibiotic therapy. The PolyMem family of silver-containing dressings was used continuously from initiation of care through closure, 4 months later. ■



September 13: After surgical debridement. *Pseudomonas* 4+, pain 7–8 (0–10 scale). PolyMem Wic® Silver cavity filler covered by PolyMem® Silver® begun and changed twice daily.

September 30: Pain 0. No cleansing, rinsing, or debriding performed beyond that provided by dressing. Dressing changes now once a day.



October 14: *Pseudomonas* negative. Substantially smaller wound with granulation tissue replacing slough. Wound closed January 15.

Reference

1. Aganthangelou C. Huge sacral pressure ulcer closed in four months using silver polymeric membrane cavity filler and dressings. Poster presentation.