



Debriding, dressings and drugs: The three D's of wound and diabetic ulcer treatment

CHRONIC WOUND HEALING BEGINS HERE.

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Dr. Nathaniel Dew, General Surgeon

As you well know, there are many types of wounds which patients may present to your office for treatment. Wounds can range from relatively minor to extremely serious. For the purpose of this discussion, we will focus primarily on cellulitis and diabetic foot ulcers. Although these situations vary symptomatically and in severity, there is a degree of commonality in treatment considerations. I typically refer to these considerations as “the 3Ds” – specifically debridement, dressings and drugs.

Cellulitis

In most cases, cellulitis is mild. However, since it can appear suddenly and spread quickly, prompt treatment is important so it doesn't evolve to a more serious situation. Cellulitis can occur anywhere on the body. For example, perhaps you have a patient with perianal cellulitis. This specific patient presents with a small abscess on the buttocks with surrounding cellulitis.



The standard treatment considerations would include drainage, obtaining a culture and packing the infected area. Before taking these steps, however, it is advisable to assess the patient's overall condition. Is the abscess local or is it more systemic? Does the patient have a high fever or vomiting? Is there a history of recurring cellulitis? And are the symptoms increasing in severity?

After the exam, draining the abscess is usually the first step

Perhaps there is already a small opening in the wound from which pus is secreting. If not, the standard is to drain an abscess with a scalpel after injecting with a local anesthetic. The incision should be sufficient to drain the abscess, usually at least 1-2 cm. If unable to find the abscess, a needle may be used to probe for the abscess. I prefer a mid-sized needle such as an 18 or 19 gauge. If the gauge is too small, it may not be sufficiently capable of draining the infection. Conversely, there is no need for an overly large needle.

At this point, consideration may be given to obtaining a culture for further analysis. While this is not necessary for most cellulitis patients, a culture can be a valuable tool to determine the presence and nature of the organisms present in the wound of patients with compromised immune systems.

After the wound is drained, it is important to keep the skin open so that any remaining fluid can drain. This needs to be considered when packing the wound to prevent infection and reduce bleeding. Some doctors prefer iodoform gauze, but plain gauze is equally acceptable depending on the situation.

If the patient does not respond to antibiotics

For sustained treatment, there are many possible choices for antibiotics which will be addressed later in this article. If the patient does not respond to the prescribed antibiotics, obtaining a culture becomes all the more critical. Also, if the patient is experiencing more pain than might otherwise be expected, CT can be used to identify skin thickening, septation of the subcutaneous fat and thickening of the underlying superficial fascia. If the infection spreads to deeper tissues, soft-tissue abscess, infectious myositis, necrotizing fasciitis and osteomyelitis can all be detected with CT.



Now, let's consider another case study: diabetic foot ulcer. Your patient comes to the office with a two-centimeter, full thickness ulcer on the sole of the foot. Foot ulcers of this kind develop in approximately 15 percent of patients with diabetes.

Here, again, a thorough physical exam is warranted, including checking pedal pulses. If the patient has a lot of swelling, it may be difficult to feel the pulse. In that case, a handheld Doppler can be helpful. It is also advisable to check for capillary refill. This, too, can be difficult to distinguish at times. If the pulse can't be felt or there is uncertainty about the reading, it is wise to get an arterial ABI or duplex study to look at the perfusion of the foot. People with diabetes, of course, have a high risk of vascular disease. If the patient has an ABI greater than 0.5, one can be reasonably confident there is enough perfusion to heal.

This is where the 3 D's – debridement, dressings and drugs – come into play.



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What healthcare providers need to know

Debridement

Debridement is essentially a matter of getting down to the patient's good tissue. This can be accomplished either surgically or chemically. The most common types of chemical debridement are Santyl gel, Medihoney and collagen-based treatments. Since Santyl gel can be quite costly, more and more Medihoney is becoming the preferred choice. Honey possesses antibacterial benefits. It lowers pH and has an osmotic effect that draws fluid from the tissue. Collagen-based wound dressings have also been shown to be effective in the healing of diabetic foot wounds.

Dressings

Occasionally the question comes up as to the most effective dressing treatment for healing foot ulcers. While there is merit in advancing wounds from wet to dry, physicians need to consider the options on a case-by-case basis. For example, some dry wounds require hydration. In that case, hydrogels may be the best choice. Conversely, a very wet wound can be treated with an absorbent dressing (such as an alginate dressing) to draw excess moisture away from the wound to avoid skin maceration.

Because of its antimicrobial and healing benefits, silver has a long history of use in medical applications. SilvaSorb and Silver Sulfadiazine are two of the more common silver-based treatments. A zinc oxide-based variation comes in the form of the Unna boot, a compression dressing made by wrapping layers of gauze around the leg and foot. The compression of the dressing helps improve blood flow in the lower leg. Compression also helps decrease swelling and pain.

And drugs

Returning to the aforementioned subject of drugs, antibiotics are the most common treatment for healing wounds. Again, there are many excellent antibiotics on the market, each offering different benefits. Per the adjacent chart, the most popular options all provide protection from Streptococcus and Staphylococcus infection. Others are useful for MRSA situations.

Antibiotics	Strep/Staph	MRSA	Animal Bites	Clostridial Infection
Amoxicillin/Augmentin	😊		😊	
Cephalexin/Keflex	😊			
Clindamycin	😊	😊	😊	😊
Doxycycline /Minocin	😊	😊	😊	
Fluroquinolones	😊		😊	
Trimethoprim/Sulfamethoxazole	😊	😊		

When to refer

All of this discussion leads to the inevitable question as to when it is appropriate to make a referral to a wound center. To that end, there are four major considerations. Vascular insufficiency is an important one. Although not an absolute criterion, one needs to consider a referral when the patient's wound is not adequately healing after four to six weeks of treatment.

Extremely complicated cases such as osteomyelitis and frequent or large debridement situations likewise warrant a consult with a wound specialist. The same is true when advanced services are required, such as patient in need of hyperbaric O2 therapy. Fortunately, there are excellent wound specialists in the area with the expertise and experience to address these situations.

Dr. Nathaniel Dew is a general surgeon affiliated with the Goshen Wound Center and Gerig Surgical Associates. He has specialized training and experience in many facets of general and vascular care including treatment of chronic and slow-healing wounds and planning therapies and interventions to save limbs.



TO REFER A PATIENT

Call for an appointment at (574) 364-4560.

If you would like more information or to meet any of our doctors, please contact **Jenny Rupp, Physician Liaison**, at jrupp2@goshenhealth.com or (574) 364-2978.

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