

Simplifying the Complex:

Best Practices for Managing Complex Wounds



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AUGUST 2019

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Simplifying the Complex: Best Practices for Managing Complex Wounds

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Complex wounds pose a significant challenge for many health care providers. These wounds are often multifaceted, making treatment tremendously difficult. They represent a substantial burden on the health care industry, with costs in North America alone estimated at \$10 billion annually.¹ Complex wounds often also result in patient discomfort and pain, caregiver frustration, individual economic losses, and diminished quality of life.

Is there such thing as a simple wound? Aren't all wounds complex? Complex wounds may be chronic, with one or more of the following factors¹:

- The inability to heal within three months
- The presence of infection
- Compromised viability of superficial tissues, necrosis, or impaired circulation
- Association with systemic disorders

Although complex wounds present with unique management challenges, there are certain types of wounds that clinicians are used to facing: pressure wounds, arterial wounds, venous wounds, diabetic wounds, moisture-related wounds, end-of-life wounds, dehisced or complicated surgical wounds, and wounds of mixed etiology. However, uncommon complex wounds are often misdiagnosed or misidentified because of a lack of understanding or even ability to have them diagnosed properly. Often rare or unusual skin lesions or ulcers require advanced diagnostic capabilities, such as the ability to perform a biopsy, tissue culture, radiological study, or other examination.

So how do you manage complex wounds without oversimplifying or overcomplicating the process? Let's look at two case studies from beginning to diagnosis, then through to completion of treatment.

Case Study #1

An older woman presents with a diffuse rash with small blister formation and ulceration with intense itching lasting for more than five years. The diffuse rash with small blister formation covers from her upper posterior thighs to past the middle of her back. These lesions have been diagnosed before this visit as moisture-associated skin damage (MASD) and the open full-thickness areas were diagnosed as pressure ulcers. Over the last several years, multiple treatments, creams, mattresses, soaps, etc. have been tried or tested with no real impact.

Lesson 1: If you believe the issue is from moisture and you are treating it as if it was from moisture, but it is not responding like a moisture lesion, it is most likely not moisture.



Photo on first encounter with this patient. (Arrows in the photos denote blister formation)

Image provided courtesy of Wound Care Plus, LLC

A biopsy is performed, which simply shows inflammation of the cells and tissue. Additionally, the notes from all the previous consultations are reviewed, including dermatologist, allergist, internal medicine specialist, Pharm. D, wound centers, etc. to see what has been performed to get a diagnosis and therefore a treatment plan. The patient had an extensive workup in the past, and many conditions were excluded because of that workup. So now what?



Photo on second encounter (week 2)
Image provided courtesy of Wound Care Plus, LLC

Lesson 2: An essential resource for health care professionals is the multidisciplinary approach. Professionals who are licensed and credentialed to give opinions or input in specific arenas should be utilized in their areas of expertise. For this patient, a consultation with a Pharm. D is scheduled to evaluate possible medication side effects. The primary care physician is called to order an oral medication that would help with itching but is safe for use in older adults. Diphenhydramine, although effective, is listed on *The AGS 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults* under the “Avoid” category for first-generation antihistamines for use in older adults; therefore, a different approach should be considered for the severe itching.²



Photo on third encounter (week 3)
Image provided courtesy of Wound Care Plus, LLC

After that, a conference call is scheduled with wound specialists ready to review the photos, study the history, and put ideas out to each other.

Lesson 3: Many heads are better than one. Different providers observe different things from time-to-time. Sometimes we see the same things which can confirm or reaffirm what we already suspect. On the call, it is realized through the power of observation that most of the damage is around the rectal area, which could suggest an allergy or sensitivity to something being ingested. However, food allergies had already been ruled out. One of the wound specialists suggests that it could be a sensitivity to something the patient was ingesting but perhaps would not show as an allergy.



Photo on fifth encounter (week 5)
Image provided courtesy of Wound Care Plus, LLC

A sensitivity to a food item is suspected, so a registered dietitian is consulted. The registered dietitian theorizes that if it is a sensitivity severe enough to create damage to the skin with blister formation and intense itching, then it would most likely be due to gluten or dairy. The definitive test (considering biopsy was negative) is to remove one dietary item from the patient's diet and wait three to six months, because that is about how long it takes gluten to clear from the system completely. The family and the community where the patient lives are consulted, and all agree to try this approach. Gluten is removed from the patient's diet.

Around week seven, the patient's condition is nearly resolved. Her intense itching has significantly reduced to the point where it is manageable with oral medications. No new blisters are forming. The skin damage has been reduced to small localized patches, and almost all the inflammation is gone. The patient's injury and itching for the past five years were due to a gluten allergy. The name of this skin disorder caused by gluten sensitivity is Dühring's disease, also known as dermatitis herpetiformis (DH).³

Lesson 4: Nothing makes a patient or family happier than removing the source of their discomfort after suffering for many years.



Photo on seventh encounter (week 7)

Image provided courtesy of Wound Care Plus, LLC

Lesson 5: When you find an unusual or rare case, share it with the wound care community. Learning from others' cases is a great way to increase your wound care treatment and diagnosis knowledge.

Case Study #2

A patient sets an appointment for a potential incision and drainage of an abscess. That is all the information that is given before the patient comes in. The nursing staff obtains a report from the previous caregivers. Their verbal report describes a large draining abscess on the left lateral neck area. Staff reports no fever, and the patient reports that it is not painful, but drainage is minimal and purulent. Nurses and the primary care physician both believe it to be a tumor or malignant lesion of some kind.

Lesson 6: Past medical history is so important, especially from recent hospitalizations.



Photo from first encounter with this patient (week 1)

Image provided courtesy of Wound Care Plus, LLC

On review of the hospital records sent with the patient before admission, the most recent hospitalization stay was for treatment of active tuberculosis and *Clostridium difficile* infection. On assessment of the lesion, there are semi-hard nodules present in the lymphatic space of the left lateral cervical area. Because of the recent past medical history of active tuberculosis, the lesions are highly suggestive of lymph node tuberculosis (LNT). The most common form of LNT is mycobacterial cervical lymphadenitis (MCL), or scrofula as it is more commonly known. Typically, this condition can occur in immunocompromised patients who have active tuberculosis, and this patient has myelodysplastic syndrome as well.⁴ But how do you know this is what you are treating?



Photo from second encounter (week 2)

Image provided courtesy of Wound Care Plus, LLC

Considering the patient's history, the diagnosis is partially revealed. The final piece of evidence would be a fine-needle aspiration biopsy of the abnormal lymph node. If the aspirate cytology shows a well-formed epithelioid granuloma and presence of caseous necrosis, it is almost inarguable that the lymph node is positive for MCL and needs to be treated as MCL.



Photo from third encounter (week 3)

Image provided courtesy of Wound Care Plus, LLC

What do you do while waiting on the test results? Manage drainage, manage pain, educate and monitor for signs of infection or worsening condition.

Lesson 7: While you are waiting for diagnostic testing, use good principles of wound healing to manage the wound or skin issue and prevent it from getting worse when possible. The TIME framework for wound bed preparation can help guide you in appropriate management of the wound environment.⁵ This approach allows you to go through the assessment process to keep the wound healing or take a chronic or delayed wound and get it moving forward again. The “T” stands for tissue or removal of devitalized tissue or foreign material and debris from the wound bed. This can be accomplished by either appropriate cleansing or some type of debridement. “I” stands for infection and inflammation management. “M” stands for moisture and keeping the wound bed optimally moist, avoiding desiccation or too much moisture. Finally, “E” stands for edge and refers to keeping the edges moving across the wound bed toward achieving closure.

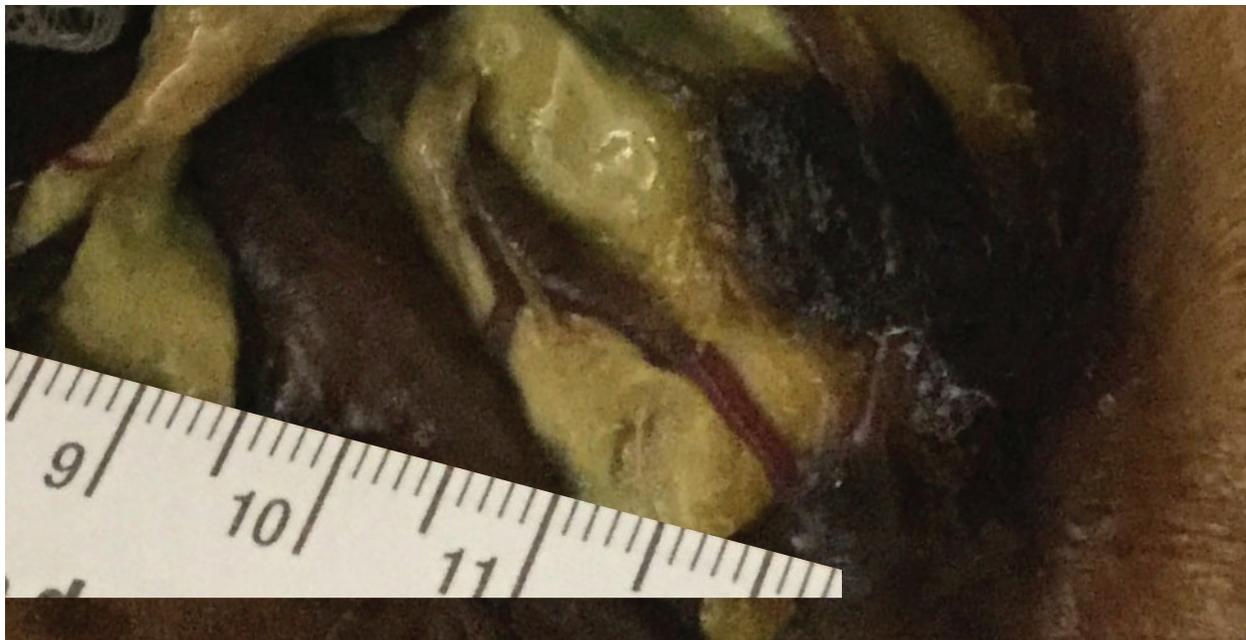


Photo from fourth encounter (week 7)

Image provided courtesy of Wound Care Plus, LLC

The study confirms that the lymph nodes are positive for MCL. Now the treatment moves to excision of the lymph nodes if possible, just like you might for lymphadenitis. If total excision of the lymph node is not possible, then excision of as much of the lymph node as possible and perhaps excision of the affected lymph nodes in stages should be considered. If this is not possible and the nodes continue to worsen or the condition spreads, consider palliation or hospice care if the patient qualifies.

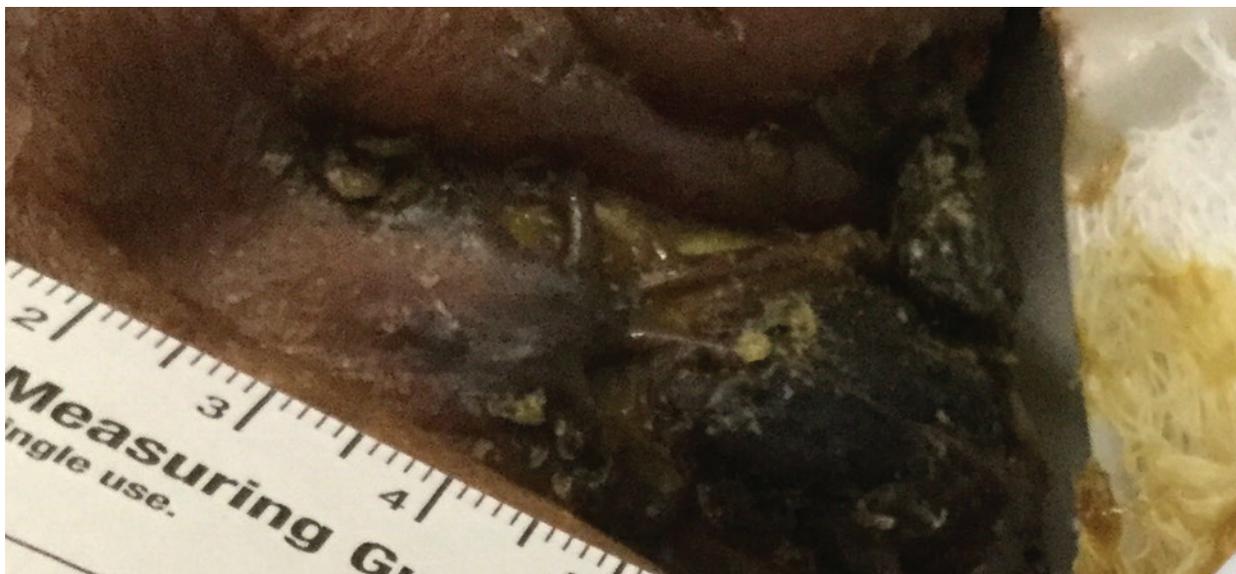


Photo from fifth encounter (week 8)

Image provided courtesy of Wound Care Plus, LLC

After removal of the lymph node, it is common for MCL areas to scar. The scarring is permanent. Surgical excision of the areas of lymphadenitis is preferred when possible. Incisional biopsy can sometimes lead to fistula formation or sinus tract formation. In this patient's case, she is not a candidate for surgical excision, but she responds well to nonsurgical treatments.

Conclusion

To simplify complex wound management, here are some general principles:

1. If it's wet, dry it (so it's moist).
2. If it's dry, wet it (so it's moist).
3. If it's moist, cover and protect it.
4. If it's infected, treat the underlying infection.
5. If it's pressure, offload.
6. If it's arterial, restore blood flow (when possible).
7. If it's venous, compress (after checking arterial blood flow).
8. If it's diabetic, manage diabetes and offload.

Remember to involve your multidisciplinary team; they may identify something you didn't—as explored in case study #1—or they may be able to fill in the treatment gaps by providing corrected nutrition, physical therapy, lab testing, or support at home. To develop an effective and successful wound care team, there are many core key elements.

Involve front-line workers such as nursing assistants and caregivers who are providing one-on-one care. They are with the patient on a daily basis and can answer many questions, such as what prevention measurements are in place, current appetite, pain complaints, offloading techniques, compliance, suggestions in care, and redistribution equipment, etc. This information can help assist in the appropriate treatment that is best for the patient.

Administrative staff members assist with appointments, transportation, coding or billing, and payer verifications. The dietitian evaluates patients' nutritional status, determines any supplement needs, and orders blood work needed to monitor protein levels. Physical therapists, occupational therapists, and speech therapists provide therapy toward benefits that rehabilitation interventions can provide to help heal wounds. Providers of different specialties should discuss comorbidities, wound classification, treatments, follow-up appointments, and goals to work toward the best collaborative approach to wound management. Patients and family caregivers should always be provided with handouts, written orders, and education regarding wound etiology and wound management to minimize misunderstandings while providing patient satisfaction.^{6,7,8}

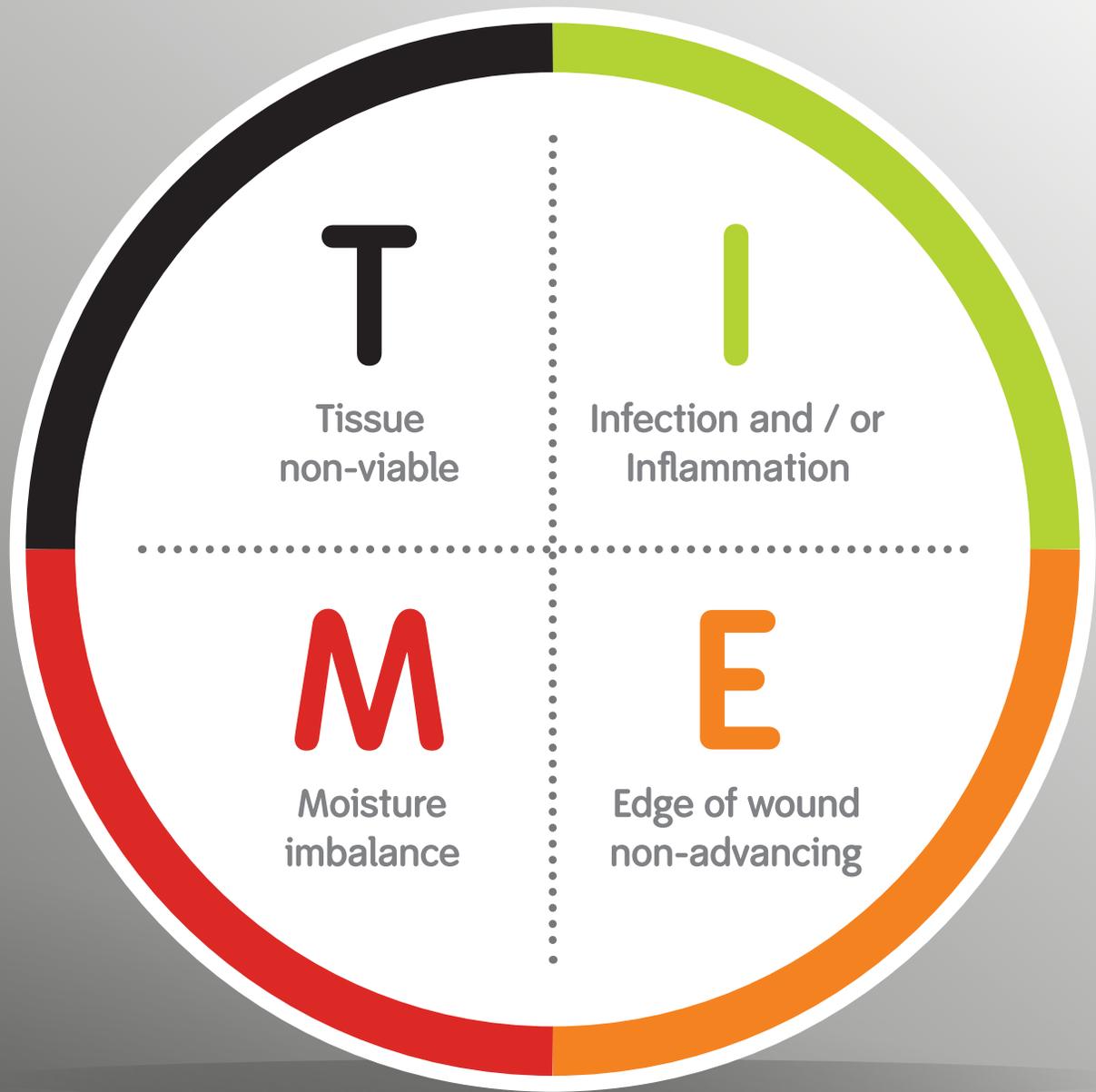
It is also vital to ensure you are using a multifaceted approach with complex wounds. While following wound care best practices is always important, neglecting to treat comorbid conditions can be detrimental to wound healing. A vast percentage of wounds become chronically stalled because of mixed etiology and other underlying comorbid medical conditions. This means the wound is multifactorial; therefore, using a singular approach won't be enough. Lower extremity wounds, for example, can have diabetes, venous and arterial issues, and pressure all as factors playing into the same wound. Chances are, all factors need to be addressed to obtain complete wound closure.⁹

And finally, always use good wound care practices. Good wound bed preparation is always one of the first building blocks in wound healing. Using a model like the wound bed preparation framework TIME to guide treatment decisions as they relate to the wound itself can help encourage wound healing. Always address infections and biofilms as soon as possible and in a manner that is in line with treatment goals (palliative, maintenance, closure, etc.). If biofilm colonies contaminate the wound bed, the transition to wound closure becomes complex.^{10,11}

Remember to let differential diagnostics confirm you are treating the underlying causes so proper treatment results in expected outcomes. That is how you simplify the complex wound.

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