

# Self-Care of Full-Thickness Cape Buffalo Gore Wounds in Remote Village Without Complications or Grafting

Tamara Short, RN – Volunteer Community Nurse, Tanzania Christian Services

## BACKGROUND

People in rural communities worldwide face threats from wild animals. Horn wounds are often fatal due to contamination or infection. This is particularly true in developing countries, where poor follow-up and unsanitary conditions are common.



## PROBLEM

A mildly malnourished 19-year-old man in rural Tanzania was gored by a Cape buffalo while herding goats in the savanna bush, resulting in two painful, full-thickness wounds with muscle exposed. His right medial thigh wound was larger (~10x10cm with areas of undermining extending up to 7cm in various directions. The left medial thigh wound was smaller (~4x6cm with undermining areas of 2x3cm and 2x2cm); it extended up into his groin. As a friend of the family, the author (an American volunteer nurse) transported the young man to a large hospital in the city two hours away. The patient was hospitalized for 6 days with surgical cleaning and debridement on the 1<sup>st</sup> and 5<sup>th</sup> day. He received twice daily wet-to-dry dressing changes. Diclofenac for pain 8/10 provided partial relief of 4/10. The patient also received a tetanus vaccine and courses of metronidazole and amoxicillin/clavulanic acid while in the hospital. On day 6, he was discharged to the care of the author and a Tanzanian volunteer for continued wound management. The hospital provided no follow-up care. Because his home was difficult to reach, the patient was hosted by the local preacher in the small hometown of the author. The patient was prayed over daily.

## METHODS

Polymeric membrane dressings\* (PMDs) balance moisture, relieve pain, limit inflammation, provide nutrients to the wound area, and are effective at continuously debriding. The author had very little wound care experience at that time, but had PMD supplies donated by the manufacturer for a previous community patient. With advice from a wound specialist via WhatsApp and email, the nurse, with the untrained assistant, applied standard-thickness and extra-thick silver PMDs on the bilateral medial thigh wounds upon discharge (day 6), securing them with elastic bandages. The silver PMDs were chosen due to the high risk of infection. Each wound had areas of undermining (see photos) which were filled with PMDs of various configurations, as available. Previously donated supplies included many PMD finger/toe dressings. These were turned absorbent-side out to fill the undermined areas. The dressings were changed when saturated. No wound cleaning or rinsing was performed or required, because PMDs themselves are effective at continuously debriding. After the initial 5 day antibiotic course in the hospital, no systemic or topical medications were used. Pain medication was no longer needed after day 6 (the hospital dismissal date). The patient rested a lot the first month, but walked without assistance after the first week.



## RESULTS

After the start of PMD use, the man reported little-to-no pain, except for some tenderness while undermined areas were being filled. PMDs cleansed, debrided, absorbed the drainage and supported healing until wound closure. Dressing change frequency decreased as healing progressed. Dressings were changed due to saturation up to 4 times a day the first month, decreasing to once per day after three months, and then every 1-2 days until wound closure. The left wound closed ~day 60. Undermining on the right wound resolved ~day 100, leaving a clean, ~7x5 cm uncomplicated wound. He no longer required daily care by the author and her assistant, and was able to return to his family's home in a remote area, where he performed wound self-care. His diet consisted mostly of corn, with typically one daily serving of protein (beans, goat milk, or goat meat). Self-management of the right thigh continued from ~day 100 to wound closure at ~day 400. The man was supplied with cut pieces of regular PMDs stored in a polypropylene bag. Each 1-2 days he would simply remove the saturated PMD and apply a new one to the wound, securing it with a long piece of cloth. No other supplies were needed. The nurse or assistant replenished his PMD supplies at monthly followup visits.

## DISCUSSION

Using solely PMDs, slow but steady healing of two potentially fatal, full-thickness wounds occurred, without grafting. Even though closure slowed under self-care, probably due to environmental, nutritional, and adherence-to-treatment-plan factors, there was no wound enlargement, maceration, infection, or pain. For almost a year, this uneducated young man cared for an open wound with no complications such as is commonly seen under unsanitary conditions. Most wound care methods depend upon trained professionals, regular wound cleansing, clean conditions, nutritious diets, and/or skin grafts. PMDs were used successfully on large full-thickness wounds despite significant challenges.



Day 6 (start of PMD use), initial open wound ~4x6cm, with 2x3cm of undermining into groin at 12 o'clock, and 2x2cm at 5 o'clock.



Day 35, ~3x3cm. Undermining resolved. Marks on back of dressing used as approximate measurement guide.



Scar at one year post injury. Closure occurred ~day 60.

## LEFT MEDIAL THIGH WOUND

**NOTE:** The patient was offered skin grafting several times during the healing process. He consistently refused, not wanting to create yet another wound at the harvest site. He preferred the slower, atraumatic, "natural" healing which PMDs support.

**PHOTO (R):** The patient used a machete to cut PMDs slightly larger than the wound size. Elipendo Massay, seated, assisted the author and the patient for this case with countless hours of wound care, without previous medical training. The success of this case is due largely to her efforts.



## REFERENCES

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Right medial thigh upon discharge on day 6 post-injury. 10X10cm plus up to 7cm undermining.



Day 8 post injury. Undermined areas outlined on photo. Blackened area is necrotic skin. Undermining filled with silver dressings intended for fingers, absorbent side out.



Day 11. The necrotic skin was sharply debrided by a volunteer surgeon to accelerate healing, enlarging open area to ~13x11cm. Granulation tissue already forming. PMDs kept wound bed clean.



Day 18. PMDs conform to and interact with the wound bed. This PMD is saturated and ready to be changed.



Day 50, ~13x11cm. Undermining still present but resolving. Granulation tissue fills to skin level.



Day 110, ~7x5cm. All undermining resolved. Patient managing wound himself at home, with monthly follow-up visits.



Day 200., ~3x4cm. No infection or maceration despite challenging environment.



Day 380, ~1x2cm. PMDs applied larger than open wound size to decrease inflammation, to improve scar remodeling.



Day 400: Complete closure. Scar is fairly flat with no pain.



Three years post injury. No keloid formation. Scar is strong, does not impede function.

## RIGHT MEDIAL THIGH WOUND

\*PolyMem®, PolyMem Silver, and PolyMem Finger/Toe Dressings, Ferris Mfg. Corp., Fort Worth, Texas

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