Case Study

From Here to There and Back Again: A Child with a Burn

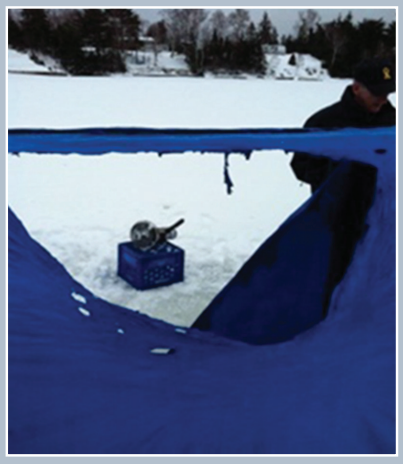
By Kimberley Lamarche, RN NP, DNP, and Rosemary Kohr, RN, PhD

Burn wounds present distinctive challenges to health-care professionals, both in terms of medical management and patient care sensitivity. The gold standard for the clinical management of burns includes appropriate dressing choices based on research to mitigate the risk of infection, reduce pain during dressing changes and promote optimal wound healing. In rural settings without a dedicated burn unit, the challenges are compounded, especially in the pediatric setting.

The aim of this case study presentation is to provide a detailed account using photographs and literature relating to the effective use of a silver wound dressing in the management of a partial-thickness burn wound in a pediatric patient.

Background

As a result of a traumatic explosion in a fishing hut, an 11-year-old girl sustained partial-thickness burns to her fingers, hand, forearm, elbow and biceps area. The accident took place in rural Nova Scotia in an area that is not served by a dedicated burn centre. Initial pre-hospital treatment included a 15-minute cold-water shower while awaiting transport.



The burned hut

"Nurses and physicians caring for individuals with wounds need to avail themselves of education regarding current best practices in wound healing."

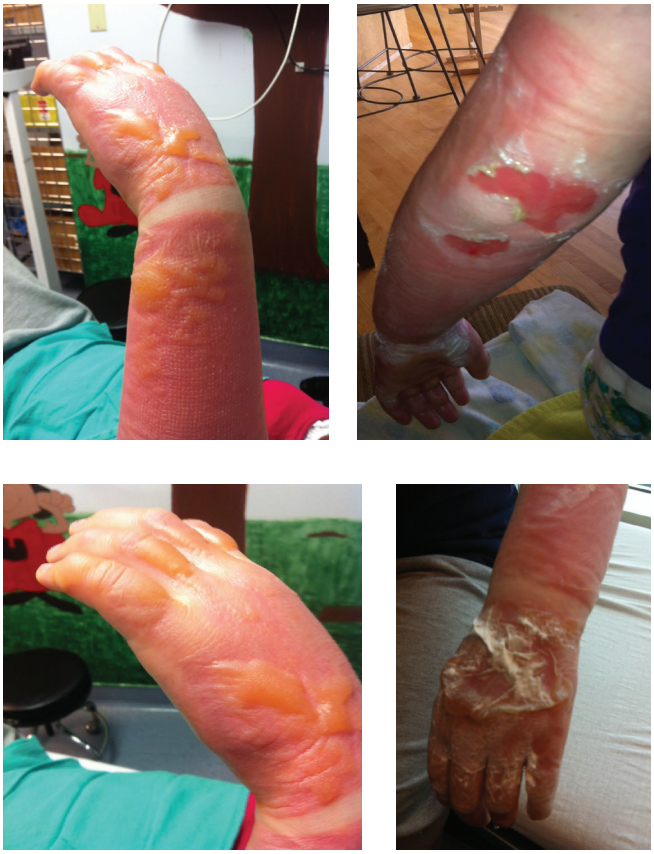
Treatment

After assessment in the local emergency room (ER), the child was assessed by a pediatrician and admitted for four days to the pediatric unit of the local hospital. After initial debridement in the ER and on the unit later that night, daily dressings were applied by non-wound-care experts using varying methods involving coating the affected area with an antibacterial cream and applying gauze.

Dressing treatment, Day 2

From the patient perspective, the daily removal of the old dressings produced anxiety and pain. Pain control was attempted with initial morphine PCA and later oral codeine.

There was little initial progress noted, with the wound remaining wet and producing purulent drainage. *Staphylococcus aureus* was found, and the patient started cephalexin on day five.

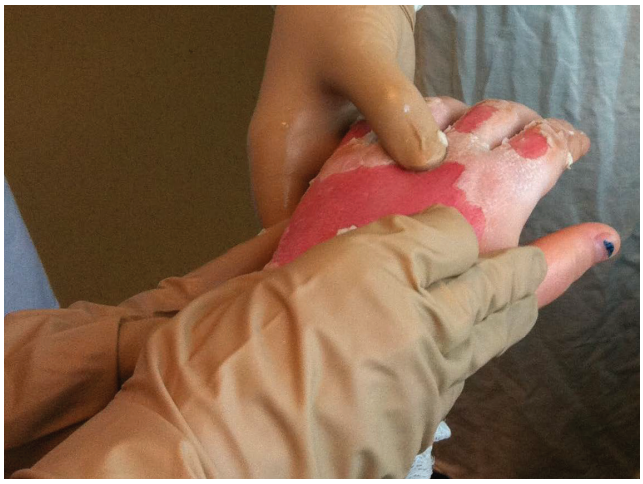


Wound progression on hand and elbow

Specialty Care

Once assessed by a burn team at the tertiary care centre, the child had access to occupational therapy, burn nursing services and pediatric plastic surgeons.

The entire hand and arm were extensively debrided, and a soft, absorbent, non-woven wound dressing with fluid-absorbing technology was applied.



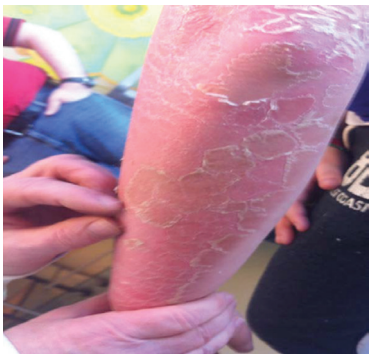
The debridement process

As the dressing incorporates antimicrobial silver, it also had efficacy against pathogens such as methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *S. enterococcus*, *S. aureus*, *Pseudomonas aeruginosa*, *Candida krusei* and *Bacteroides fragilis*. The dressing was kept in place for five days, and the patient returned to her home community.

The child had decreased pain for five days (due to the avoidance of daily dressing changes) and although she was still experiencing pain, her more prominent symptom was severe pruritus (which was effectively treated with cetirizine).

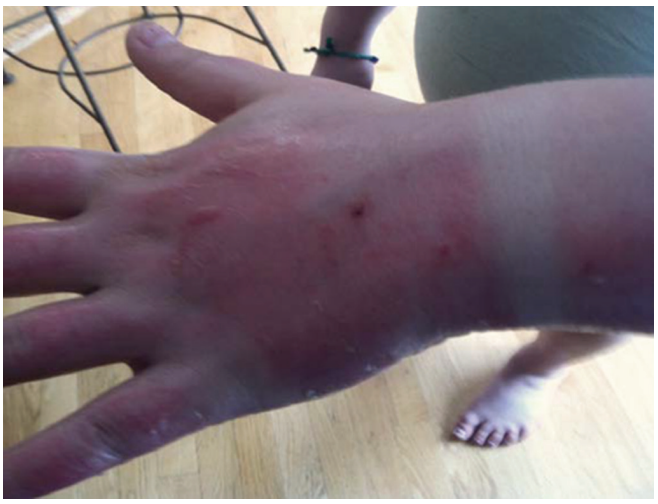
"Burn wounds present distinctive challenges to health-care professionals."

When the patient returned to the plastic surgery specialty clinic, the silver-impregnated dressing had gelled and was easily removed without pain or emotional trauma. The dressing did not adhere to the underlying tissue and slid off the fragile re-epithelializing tissue wound without any residue. Follow-up was arranged in the child's home community with the pediatric surgeon at a visiting clinic and resulted in the confirmation of healing with a minimum of scarring and no residual functional changes.



Post dressing appearance of hand and elbow

Following the removal of the dressing, the only requirement was continual application of a moisturizing barrier cream to protect the skin.



Post moisture application

Long-term management included sun protection with an SPF protective sleeve and post-traumatic stress counselling sessions with a psychologist. Yearly attendance at the Nova Scotia Fire Fighters Burn Treatment Society camp provided an opportunity to connect with volunteer professionals as well as other children who had been burned.

Learning

This case was particularly interesting, as it demonstrates the continuum of care of a pediatric patient from a rural setting to a local community hospital through to a specialized tertiary care children's hospital and then back to the rural setting for follow-up. In addition to the case study of a silver wound dressing with fluid-absorbing

"Referral to specialized care enabled the child's needs to be met."

capabilities, the importance of timely medical referral of a rural patient is stressed. In this situation, referral to specialized care enabled the child's needs of pain control and wound healing to be met. Appropriate knowledge regarding wound management with dressings that optimize healing and minimize infection potential is crucial. Nurses and physicians caring for individuals with wounds need to avail themselves of education regarding current best practices in wound healing.

Note: Permission to use photos with identifying features was granted for use in this article.

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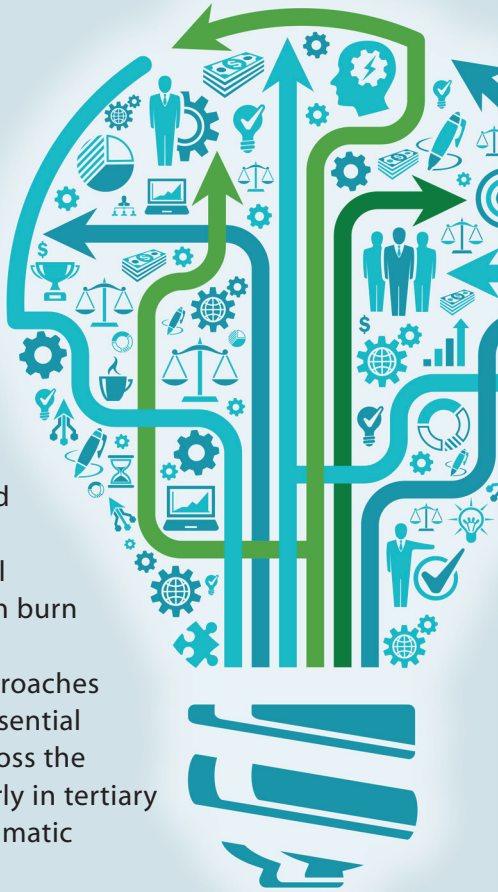
Food for Thought



- Access to clinical wound care/burn expertise should be utilized using available technology (e.g., video conferencing), particularly when geography or timing is an important consideration.
- Appropriate dressings should address pain management needs as well as antibacterial considerations, particularly in burn patients.
- Education re: up-to-date approaches to frontline wound care is essential for health-care providers across the continuum of care, particularly in tertiary pediatric settings where traumatic wounds are not often seen.
- Communication between care providers, families and patients re: wound management, especially relating to traumatic wounds, should address not only the physiological care needs but also the psychological needs of the patient and family.

Bibliography

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The patient with a sun protection sleeve