

Surgical and topical management of a third-degree burn. A case report

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Case Report

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Background: To describe a case report of third degree burn and treatment with surgical grooming, escharotomy, antimicrobial silver dressing and skin graft.

Introduction: Full thickness burns extend through and destroy all layers of the dermis and often injure the underlying subcutaneous tissue. Burn eschar, the dead and denatured dermis, is usually intact. The eschar can compromise the viability of a limb or torso if circumferential.

Case description: 65 year old female with third degree burns affecting 3% of burned body surface on lower extremities, required escharotomy, antimicrobial silver with dressing and graft placement.

Conclusion: The management of full-thickness third-degree burns should be treated promptly to prevent complications. Surgical management with escharotomy is indicated for burns where the full thickness of the skin is affected due to the risk of infection from tissue devitalization. The use of skin grafting improves outcomes and quality of life for burn patients.

Keywords: Third degree burn, escharotomy, antimicrobial, dressing, silver, graft.

Third degree full-thickness burns extend through and destroy all layers of the dermis and often injure the underlying subcutaneous tissue. Burn eschar, the dead and denatured dermis, is usually intact. The eschar can compromise the viability of a limb or torso if circumferential. Full-thickness burns are usually anesthetic or hypo-aesthetic. Skin appearance can vary from waxy white to leathery gray to charred and black. The skin is dry and inelastic and does not blanch with pressure. Hairs can easily be pulled from hair follicles. Vesicles and blisters do not develop.

Pale, full-thickness burns may simulate normal skin except that the skin does not blanch with pressure. Features that differentiate partial-thickness from full-thickness burns may take some time to develop.

The eschar eventually separates from the underlying tissue and reveals an unhealed bed of granulation tissue. Without surgery, these wounds heal by wound contracture with epithelialization around the wound edges. Scarring is severe with contractures; complete spontaneous healing is not possible. (1)

Full-thickness burns damage the entire thickness of the dermis and its neurovascular supply. These appear as leathery brown injuries with or without thrombosed vessels and are insensate and without self-healing capacity. They always require debridement and soft tissue coverage in the acute period and always leave

scarring that may need reconstructive surgery at a later stage. (2)

Case report

A 65-year-old female began her current condition 2 weeks later prior to admission to the emergency room. The patient reported a scald burn in lower extremities while cooking and boiling hot water in the kitchen when she accidentally spilled hot water on both of her legs and toes, causing third degree full thickness burn affecting approximately 3% of the burned surface (Figure 1 to Figure 1.3), and deep partial thickness burn affecting 2% on lower extremities (Figure 2). It is evaluated by the plastic and reconstructive surgery service, the patient refers mild pain in the affected area, for which analgesic and anti-inflammatory medication are administered, also the patient was programmed for escharotomy (Figure 3), surgical cleansing (Figure 3.1) and placement dressing with silver and fixation with nylon suture (Figure 4). After 1 week, the patient was programmed for a surgical procedure of mesh graft placement. The patient progressed favorably with an adequate healing process.

Discussion

Mesh skin grafts also allow fluid to drain freely from the interstices of the mesh graft, which

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Figure 1. Lateral view of left foot affected area.



Figure 1.2. View of affected toes 1 to 4 of the left foot

improves graft take. Larger mesh proportions are reserved for patients with limited donor sites, such as patients with severe burns. However, mesh grafts heal



Figure 1.3. Medial view of the right foot affected area.



Figure 2. Anterior view of affected burn area.

with more scarring due to secondary healing of the interstices. (3)

Conclusion

Third degree full-thickness burn is an affection that requires a proper treatment in order to prevent and reduce the risk of infection, escharotomy is required to remove devitalized tissue due to the risk of infection that it entails, the antimicrobial with silver is useful to improve the healing of the skin tissue and to prevent potential infections. In conclusion the importance of early management is needed, in this case the use of escharotomy and antimicrobial with



Figure 3. Left foot after escharotomy



Figure 3.1. Right foot after escharotomy

silver prevented potential infection, and the placement of mesh graft improved the outcome and quality life of the patient.

Conflicts of interests

It is declared that there are no conflicts of interest related to the publication of this work.

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Figure 4. Right foot with antimicrobial dress with silver fixated with nylon suture.

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