



BMH Med. J. 2026;13(2):56-59. **Case Report**

Cadaveric Skin As A Biological Bridge In Major Burns: A Case Report

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Abstract

Background: Major burn injuries involving large total body surface area (TBSA) are associated with significant morbidity and mortality. In extensive burns, limited donor site availability necessitates temporary biological coverage.

Case Presentation: A middle aged male sustained approximately 50% TBSA mixed-depth burns following a cracker blast injury. After initial resuscitation using the Parkland formula, early surgical debridement and collagen membrane application were performed. Cadaveric skin allografting was undertaken on post-burn day 6. The graft showed satisfactory initial adherence followed by predictable immunological rejection with dermal preservation. The patient improved with multidisciplinary care and was discharged in stable condition.

Conclusion: Cadaveric skin allografts serve as an effective temporary biological dressing in extensive burns, preserving dermal integrity and optimizing the wound bed for definitive autografting.

Keywords: Major burns; Cadaveric skin; Allograft; Collagen membrane; Burn resuscitation; Temporary biological dressing

Introduction

Burn injuries represent a significant global health burden, accounting for approximately 180,000 deaths annually, with the majority occurring in low- and middle-income countries World Health Organization Burns: Fact sheet 2023 [1]. Major burns involving more than 40% TBSA precipitate a systemic inflammatory response syndrome characterized by capillary leak, hypovolemia, immunosuppression, and risk of multi-organ dysfunction [2].

Accurate TBSA estimation is fundamental in guiding fluid resuscitation and prognosis. The Rule of Nines, Lund and Browder chart, and palmar method are commonly used, with the Lund and Browder chart considered most accurate, particularly in children [3]. Fluid resuscitation is guided by formulas such as the Parkland formula (4 mL/kg/%TBSA lactated Ringer's solution), which remains widely adopted in adult burns. However, modern burn care emphasizes goal-directed resuscitation with urine output (0.5-1 mL/kg/hr in adults) as a primary endpoint rather than strict adherence to

formula-derived volumes [4].

Early excision and grafting within 3-7 days reduces bacterial colonization, sepsis, hospital stay, and mortality. In patients with extensive burns and limited donor sites, temporary biological dressings such as xenografts or cadaveric allografts provide essential wound coverage [5]. Cadaveric skin allograft offers structural dermal matrix support, reduces evaporative loss, diminishes pain, and improves wound bed vascularity before definitive autografting [6]. Rejection typically occurs within 10-14 days due to host immune response.

We present a case illustrating staged burn management utilizing collagen membrane followed by cadaveric skin allograft.

Case Presentation

A middle aged male with no known comorbidities sustained a cracker blast injury. There was no history suggestive of inhalational injury.

On presentation: Conscious and oriented, approximately 50% TBSA mixed-depth burns. Involvement: face, scalp, left upper limb, bilateral lower limbs, and anterior trunk, Singeing of facial and nasal hair present (**Figure 1**).



Figure 1

Management followed Advanced Burn Life Support principles. Airway secured with elective intubation. Fluid resuscitation using Parkland formula (4 mL/kg/%TBSA). Close urine output and hemodynamic monitoring. On PBD 1 - thorough surgical debridement performed, burn depth reassessment confirmed.

Collagen membrane applied as temporary biological dressing (**Figure 2**). Collagen membranes reduced fluid loss, provided pain relief, and facilitated wound demarcation.



Figure 2

Due to extensive burns and limited donor sites, cadaveric skin was procured from an external institute. Procedure involved tangential excision until punctate bleeding. Cadaveric skin applied over excised areas and fixed with skin staplers (**Figure 3**). The graft served as temporary coverage to

reduce bacterial load, preserve dermal matrix, prepare wound bed for future autografting.

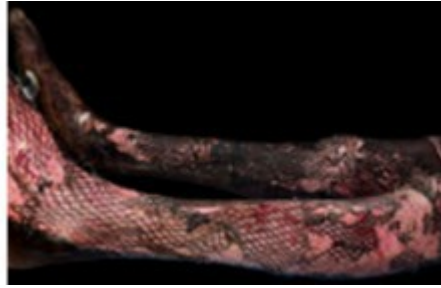


Figure 3

Postoperatively - First dressing change delayed and done under strict aseptic precautions. Regular assessment of graft adherence and signs of infection. Initial graft take was satisfactory. Predictable immunological rejection occurred subsequently, but dermal preservation was achieved. The patient was gradually weaned off from ventilator and showed gradual improvement. He was treated with culture specific antibiotics, analgesia, blood transfusions, nutritional therapy and early physiotherapy. He was discharged on day 20 and was on regular outpatient follow-up for wound care and physiotherapy (**Figure 4**).



Figure 4

Discussion

Early excision and grafting is a cornerstone in modern burn care and significantly reduces mortality compared to delayed intervention [5]. However, when donor sites are limited, temporary biological coverage is essential. Cadaveric skin allograft offers several advantages like immediate physiological wound closure, reduced evaporative and protein losses, protection against bacterial invasion, pain reduction, and preservation of dermal architecture. Although rejection is inevitable without immunosuppression, allografts function effectively as a biological bridge [6]. This case demonstrates successful staged burn management combining collagen membrane and cadaveric allograft, resulting in infection control, wound healing and early mobilization of patient.

Conclusion

Major burns require a structured and staged management approach. In extensive burns with limited donor availability, cadaveric skin allograft plays a critical role as temporary biological coverage. It preserves dermal integrity, reduces systemic complications, and facilitates definitive reconstruction. This case reinforces the continued relevance of cadaveric allografting in contemporary burns management, particularly in resource-limited settings.

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