

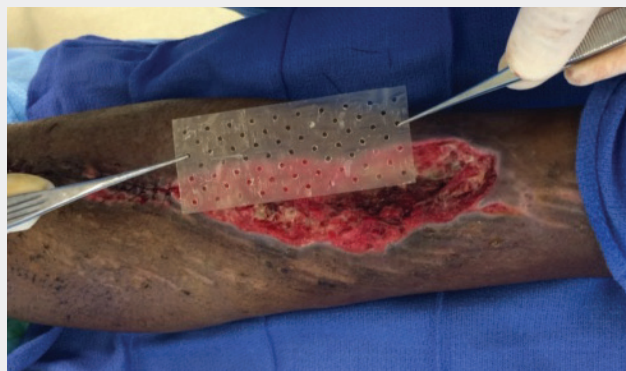
ADVANCED PLACENTAL-BASED ALLOGRAFTS  
BURN CASEBOOK  
AND PEER-REVIEWED  
PUBLICATION ABSTRACT



DEEP PARTIAL-THICKNESS BURN TO PALM TREATED WITH DHACM



PARTIAL-THICKNESS SCALD  
BURN TO FACE AND HEAD  
TREATED WITH DHACM



FULL-THICKNESS LIMB DEFECT TREATED  
WITH FENESTRATED DHACM + NPWT

## Peer-Reviewed Publication

# Dehydrated Human Amnion Chorion Membrane as Treatment for Pediatric Burns<sup>†</sup>

Ahuja N, Jin R, Powers C, Billi A, Bass K. Dehydrated Human Amnion Chorion Membrane as Treatment for Pediatric Burns. *Adv Wound Care (New Rochelle)*. 2020;9(11):602-611.

### Abstract

#### Objective:

Pediatric burns are a major source of injury and in the absence of adequate care can lead to lifelong functional loss and disfigurement. While split thickness skin autografts [STSGs] are the current standard of care for deep partial and full-thickness burns, this approach is associated with considerable morbidity. For this reason, alternative skin substitutes such as allografts have gained interest.

#### Approach:

In the present study, we present a case series of 30 children with various types of burns treated with dehydrated human amnion chorion membrane (dHACM<sup>†</sup>, MIMEDX Group, Inc.).

#### Results:

We show that treatment with dHACM is associated with improved closure to STSGs with lower observable rate of hypertrophic scar and contracture.

#### Conclusion:

While dHACM is associated with an increased upfront cost, treating patients with small to moderate-sized burns with dHACM in their regional centers works to decrease downstream costs such as management of prolonged pain from donor-site morbidity, revisional surgeries from scar and contractures of split thickness grafts, and avoiding the cost of transfer to higher level centers of care. Our findings challenge the current standard of care, suggesting that dHACM provides an alternative to the current use of split thickness skin grafting and is a safe, feasible, and potentially superior substitute for the management of small to moderate total body surface area partial and full-thickness pediatric burns.

### Highlighted Results:

#### Observed Time to Closure and Rate of Hypertrophic Scars (HTS) & Contractures:\* dHACM vs. STSG

	dHACM <sup>1</sup>	STSG <sup>2</sup>
<b>Time to Closure</b> (average; days)	19.4	46.1
<b>Rate of HTS &amp; Contractures*</b>	20%	50%

\*Superficial partial, deep partial, and full thickness burns

<sup>†</sup>The cases within this publication were done with AMNIOBURN dHACM. Several of the case examples on the following pages are from this publication and show the use of AMNIOBURN dHACM.

# Hands

## Full-Thickness Hand Burns to Fingers Bilaterally Treated With dHACM<sup>1</sup>

Natasha Ahuja, Richard Jin, Colin Powers, Alexandria Billi, and Kathryn Bass | Pediatric Surgeons | Buffalo, NY



Initial debridement



Postop Day 38: Complete closure



Postop Day 115: Observed no contractures and minimal scarring



## Deep Partial-Thickness Burn to Palm Treated With dHACM<sup>‡</sup>

Paul Glat, MD, FACS | Plastic Surgeon | Philadelphia, PA



Presentation: 4-year-old who touched a hot fire pit resulting in a deep partial-thickness burn to palm



Debridement in OR post burn Day 3, dHACM applied and dressed with Mepilex<sup>®</sup> Ag



Fully closed at Day 14 with no observed scarring

<sup>1</sup>This case used EPIBURN dHACM which was discontinued on 8/27/21.

# Head/Face

## Superficial Partial-Thickness Facial Burn Treated With dHACM<sup>1</sup>

Natasha Ahuja, Richard Jin, Colin Powers, Alexandria Billi, and Kathryn Bass | Pediatric Surgeons | Buffalo, NY



Initial debridement  
(left lateral)



Initial debridement  
(anterior)



Postop Day 7 status-post  
dHACM application



Complete closure

## Partial-Thickness Scald Burn to Face and Head Treated With dHACM<sup>#</sup>

Paul Glat, MD, FACS | Plastic Surgeon | Philadelphia, PA



Toddler presented with a partial-  
thickness, scald burn on the face  
and head



Week 1: Post dHACM application



Week 4: Observed regaining of  
pigmentation and no scarring

<sup>1</sup>This case used EPIBURN dHACM which was discontinued on 8/27/21.

# Genitals

## Deep Partial-Thickness Burn to Inner Thighs and Genitals Treated With dHACM<sup>1</sup>

Natasha Ahuja, Richard Jin, Colin Powers, Alexandria Billi, and Kathryn Bass | Pediatric Surgeons | Buffalo, NY



Initial debridement after dHACM application



Postop Day 7



Week 3: Complete closure with normal skin quality and no observed scarring

## Deep Partial-Thickness Burn to Genitals Treated With dHACM<sup>‡</sup>

Paul Glat, MD, FACS | Plastic Surgeon | Philadelphia, PA



Presentation: Deep partial-thickness scald burn due to spilling hot noodles onto lap



Post-burn Day 2: dHACM applied in OR. Dermabond<sup>®</sup> used. Daily dressing change with Xeroform<sup>®</sup> and dry dressings



Day 4



Day 10: Complete closure and no scarring observed

<sup>1</sup>This case used EPIBURN dHACM which was discontinued on 8/27/21.

# Limbs

## Full-Thickness Limb Defect Treated With Fenestrated dHACM\* + NPWT

W. Dotie Jackson, MD | Plastic and Reconstructive Surgery | Jackson, MS

### Challenge

A left lower extremity injury with abrasions, extensive soft tissue loss, avulsion of tissue from the periosteum, lacerations, and exposed vital structures is a serious injury. Multiple comorbid conditions that can disrupt the healing cascade add an additional level of complexity to the treatment approach. Studies in certain patient populations have shown a direct correlation between the number of comorbidities and clinical outcomes. A significant rise in complications, length of stay, and mortality rates is associated with the rise in number of patient comorbidities.<sup>2-4</sup>

### Clinical History

A 61-year-old female presented to the emergency department one day after a 4th of July grilling accident in which the grate from the grill fell on her left lower extremity (LLE) (Figure 1). She had extreme pain and difficulty ambulating. It was noted she had full-thickness soft tissue loss associated with multiple soft tissue abrasions, avulsions, and a complex 10 cm x 15 cm laceration. There was exposed tendon, periosteum, and vascular structures. The leg was edematous. She had +1 DP and PT pulses. She also had multiple comorbidities including smoking, hypertension, coronary artery disease, uncontrolled diabetes mellitus, COPD, asthma, peripheral arterial disease, and arthritis.

### Surgical Intervention

The patient was taken to the operating room where she underwent debridement of the devitalized soft tissue, tendon and periosteum, closure of the 10 cm x 15 cm laceration, and pulse lavage irrigation. This was followed by application of two 4 cm x 10 cm dHACM\* (dehydrated Human Amnion/Chorion Membrane) allografts that were placed onto the remaining defect. Negative pressure wound therapy dressings were then applied to secure the dHACM in place (Figures 2-4).

dHACM provides a semi-permeable barrier that supports the healing cascade and protects the wound bed to aid in the development of granulation tissue in acute and chronic closures. The product is a biocompatible human extracellular matrix and retains 300+ regulatory proteins.<sup>5-7</sup>

The patient was discharged home with follow-up in seven days. All dressings were to remain intact. Physical therapy provided the patient with crutches, and she was instructed non-weight bearing to the LLE. She continued oral antibiotics and pain medication.



**Figure 1:**  
10 cm x 15 cm laceration on LLE

*\*This case used EPIXL dHACM which was discontinued on 8/27/21.*



**Figures 2 - 4:** dHACM and negative pressure wound therapy dressing application after debridement

## Follow-Up

On postop day 7, all dressings were removed. The patient did not report any pain at the site of trauma. The wound was redressed with a non-adherent gauze. On postop day 14, the wound had healthy granulation tissue visible and significant contracture. The patient was again examined on postop day 20, and was noted to be fully closed. The overlying skin and soft tissue were stable. The new skin growth was pliable enough to be pinched. The patient was pain free and ambulating without assistance. Subsequently, there was no need for a skin graft (Figures 5-9).



**Figure 5:**  
Postop Day 7



**Figure 6:**  
Postop Day 14



**Figure 7:**  
Postop Day 20



**Figure 8:**  
5 months postop



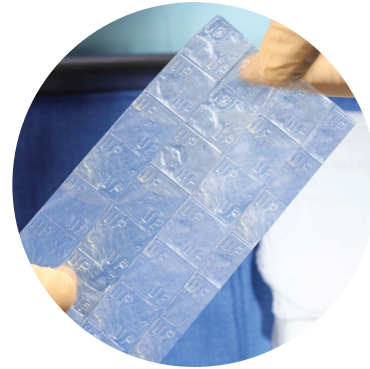
**Figure 9:**  
5 months postop

## Conclusion

Lower extremity wounds can be challenging, complex, and debilitating to the patient. These effects are compounded when the patient has multiple comorbidities. Thus, alternatives to local tissue rearrangement and free tissue transfer need to be explored on the reconstructive ladder, especially when vital structures are exposed and need coverage. dHACM can be helpful with reconstructive options such as bridging to a STSG, or as in this case, avoiding a STSG. The patient was treated on an outpatient basis with simple wound care, thus minimizing hospital stay, costs, and the need for ancillary services such as nursing, social work, home health, and physical therapy. She returned to normal activity in a relatively short time period.

# ADVANCED PLACENTAL-BASED ALLOGRAFTS

## AMNIOBURN®



- Dehydrated human amnion/chorion membrane allograft
- A semi-permeable protective barrier that supports the healing cascade in acute and chronic closures (e.g. partial-thickness and full-thickness burns)
- Protects the wound bed to aid in the development of granulation tissue
- Provides a human biocompatible extracellular matrix (ECM) and retains 300+ regulatory proteins<sup>5-7</sup>

## To find out more about MIMEDX products:

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### REFERENCES

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