

# Pyoderma Gangrenosum: Dehydrated Human Amnion/Chorion Membrane, A Promising Approach To An Orphan Disease

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## INTRODUCTION

Pyoderma Gangrenosum (PG) is an often misdiagnosed painful inflammatory, ulcerative skin disorder.<sup>1</sup> It is an orphan disease where standard wound treatments such as sharp surgical debridement are contraindicated.<sup>2</sup> This retrospective case series sought to evaluate the application of Dehydrated Human Amnion/Chorion Membrane (DHACM) as a skin substitute in cases that were refractory to a range of standard of care techniques including anti-inflammatory and immunosuppressive therapies.

## METHODS

The setting of this retrospective case series was a hospital-based outpatient dermatology clinic. The clinician was presented with three subjects with five refractory PG wounds referred by local wound care physicians. Subjects were provided standard treatments for PG, escalating from first line to third line anti-inflammatory and immunosuppressive topical and systemic agents (Table 1).<sup>3</sup> Informed consent was obtained from all participants. Subjects were transitioned to DHACM and wound sizes monitored till closure.

## RESULTS

The Patients were all female, ages 45 to 76 years old, and each had previous diagnoses of at least one autoimmune disorder. Wounds were each located between the ankle to the knee and sized from 12 sq cm- 81 sq cm at their largest. Wounds (n=5) for all three subjects had stalled during 2.5 months or more of standard therapies while waiting for insurance authorization for DHACM treatments. Subjects responded quickly to adjunctive DHACM applications with reductions in wound size and the cessation of pain medications. Wound closures were observed for each patient.

**Table 1. Standard accepted therapies for pyoderma gangrenosum<sup>3</sup>**

Therapeutic strategies	Therapeutic options
Local wound care	Local wound care (e.g., 5–10 minute antiseptic soak, gentle selective debridement of any non-adherent/necrotic tissue). Topical corticosteroids (0.05% clobetasol), calcineurin inhibitors (0.1% tacrolimus ointment)
First-line therapies	Systemic glucocorticoids (0.5–1.5mg/kg/day prednisone, tapering by 10 weeks), cyclosporine* (4–5mg/kg tapering as tolerated) *Use with close monitoring for renal function and infection. Cyclosporine is contraindicated with haematological disease, inflammatory bowel disease and rheumatoid arthritis
Second-line and adjunctive therapies	Antibiotics: dapsone (50–200mg/day), minocycline (100mg twice daily). Immunosuppressant: methotrexate (10–30mg/week) Immunomodulatory: Infliximab (5mg/kg at weeks 0, 2 and 6, and every 6–8 weeks thereafter), ustekinumab. <sup>4</sup>

## References

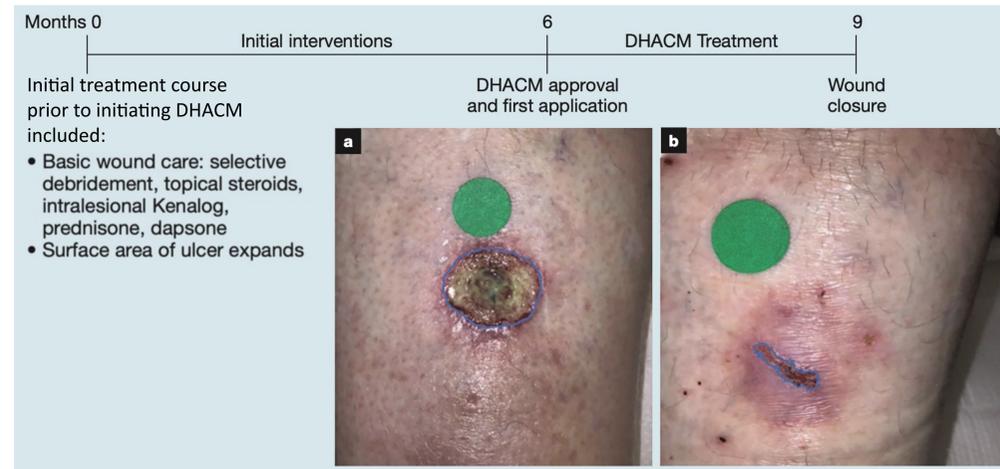
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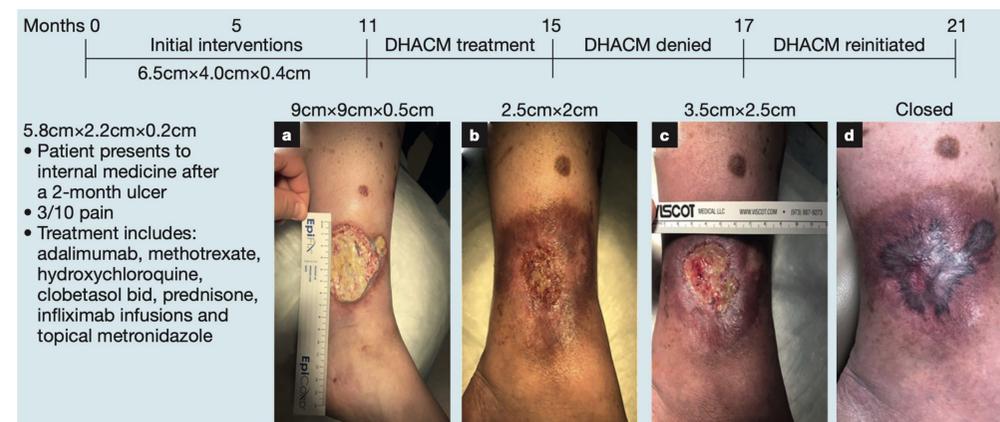
## Case 1

Treatment timeline and clinical photographs of PG inferior to the right knee from patient 1, a 76-year-old female diagnosed with a history of Sjögren's syndrome, congestive heart failure, and hypothyroidism. PG wound size after six months of standard therapies (a), and at wound closure following three months of DHACM treatments (b).



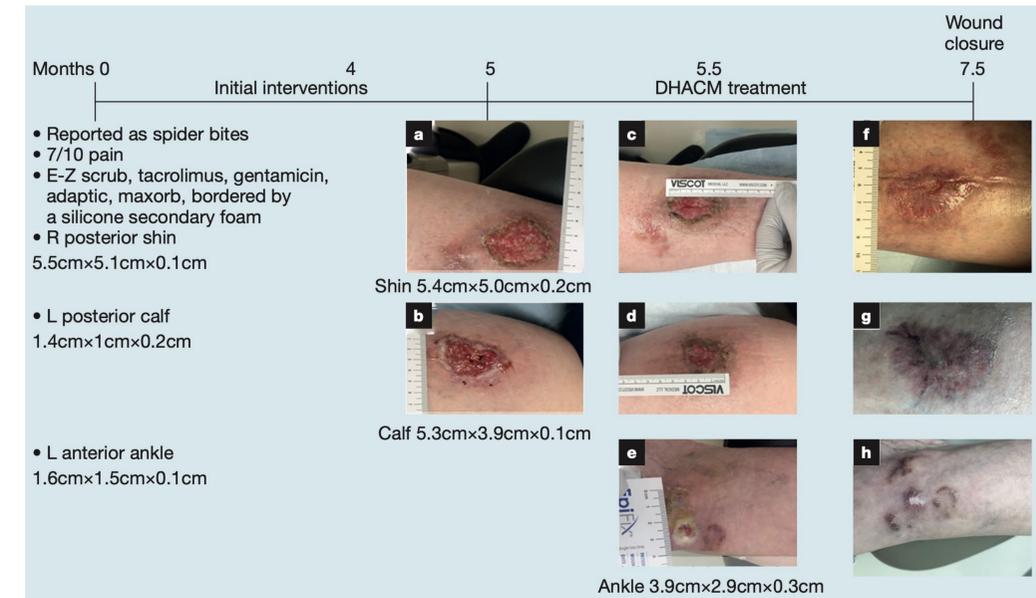
## Case 2

Treatment timeline and clinical photographs of PG on the left medial calf from patient 2, a 45-year-old white female patient diagnosed with rheumatoid arthritis. Wound sizes (cm) are shown at key treatment milestones. PG wound image at start of DHACM treatments while continuing initial therapy (a). Image upon the termination of DHACM approval after five applications of DHACM (b). Increase in the wound surface area observed after two months of no DHACM treatment (c). Wound site upon closure after DHACM reinitiated (d).



## Case 3

Treatment timeline and clinical photographs of PG from multiple locations of patient 3, a 55-year-old white female diagnosed with autoimmune diseases. Wound sizes (cm) are shown at key treatment milestones. PG wound on shin (a) and calf (b) after five months of failed first–third line therapies and before DHACM treatments. Shin (c), calf (d) and ankle (e) after two weeks of receiving DHACM treatments. Shin (f), calf (g) and ankle (h) achieved wound closure following five DHACM treatments.



## DISCUSSION

DHACM treatments were observed to reinitiate the trajectory towards closure for each stalled PG ulcer that failed traditional therapies. Common PG patient issues include a protracted period prior to proper diagnosis, failed standard therapies, and challenges securing insurance approval for DHACM treatments. The results suggest a treatment algorithm starting with early recognition, wound closure via treatment escalation, and lastly a gradual reduction in treatment for durable closure. DHACM treatment should be formally evaluated as an adjunct treatment for refractory PG ulcers.

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