Synthetic Polylactic Acid Matrix as Monotherapy for Pyoderma Gangrenosum: A Case Series

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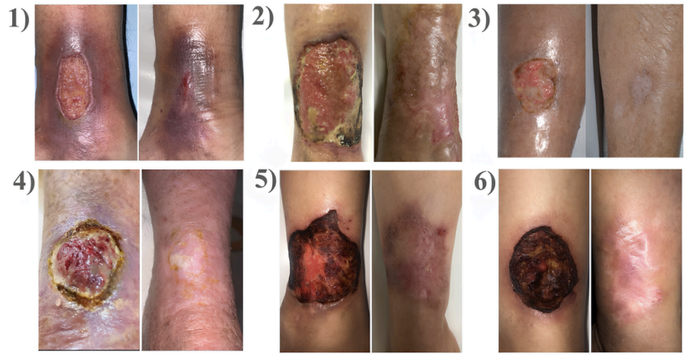
INTRODUCTION

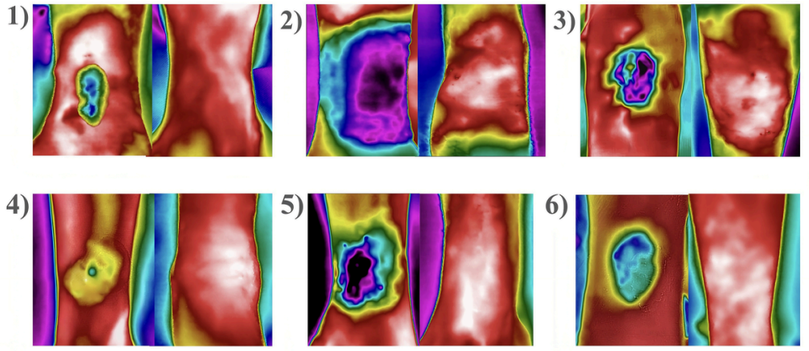
Pyoderma gangrenosum (PG) is a rare chronic neutrophilic dermatosis associated with immune dysregulation and characterized by painful, treatment-resistant ulcers. No standardized therapeutic protocol currently exists; however, topical and systemic immune-modulating therapies have shown benefit. Given the favorable outcomes of polylactic acid (PLA) membranes in complex and non-healing wounds, this case series evaluates their use as a treatment option for PG.

METHODS

This case series describes six patients treated with a PLA dermal matrix as monotherapy at a single outpatient wound care center in San Luis Potosí, Mexico. All patients presented with chronic ulcers (6 months–3 years of evolution) clinically consistent with PG, exhibiting undermined borders with a violaceous halo and severe pain disproportionate to wound appearance. The diagnosis was supported using the PARACELSUS score.

Patients had previously received standard care for their underlying etiology for at least 4 weeks without improvement; therefore, PLA membranes were proposed as the primary wound treatment. Weekly clinical and thermographic assessments, determined the need for reapplication based on membrane degradation and wound progression, with an average of six applications per patient.





RESULTS

All six patients demonstrated stable, progressive improvement, achieving complete wound closure in an average of 14.6 weeks. Pain subsided within 24–72 hours after the first application and did not recur. Tissue quality transitioned from slough and devitalized tissue to >80% granulation tissue within 2–3 weeks. Periwound violaceous halos resolved within 3–5 weeks, though residual pigmentary changes persisted in some patients, likely representing post-inflammatory hyperpigmentation in darker skin tones. At 12-month follow-up, scar quality and appearance remained favorable, with a median Vancouver Scar Scale score of 4.

CONCLUSIONS

PLA membranes demonstrated promising outcomes as monotherapy for PG ulcers. The matrix provided rapid pain relief, supported granulation and epithelialization, and resulted in sustained healing at 1 year. Mechanistically, PLA may act through induction of pseudohypoxia, VEGF expression, neovascularization, fibroblast proliferation, extracellular matrix deposition, and modulation of nociceptive signaling. Collectively, these effects contributed to the global clinical and symptomatic improvements observed in this series.