

Local Control of Pyoderma Gangrenosum

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Introduction

- Pyoderma gangrenosum (PG) is a rare, chronic, ulcerative disease characterized by nonhealing wounds that worsen with debridement (pathergy).
- There is no consensus regarding pathogenesis, diagnosis, or treatment of PG.

- We previously demonstrated application of dehydrated amnion/chorion membrane (dHACM) following debridement allows for normal wound healing and skin grafting.



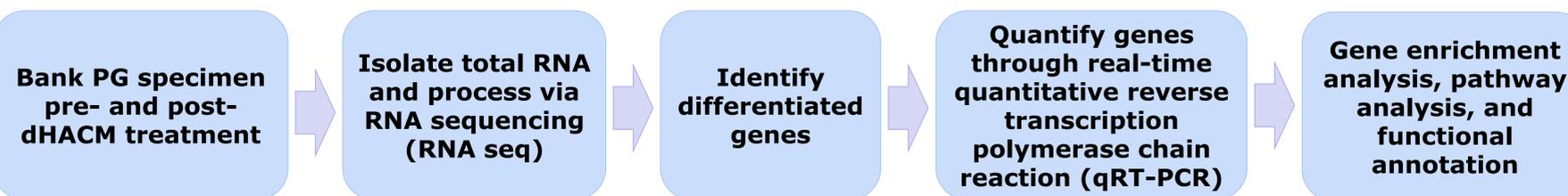
Figure 1. Dehydrated human amnion/chorion membrane (dHACM).

Objective: Identify biomarkers to predict which PG wounds will respond to dHACM and identify targets for novel, rationally designed PG treatments.

Genes of Interest

- Inflammatory response
 - IL6, CXCL13, CXCL6, IL24
- Positive regulation of cell proliferation
 - IL11, CSF3, CTGF/FGF7, NAMPT
- Extracellular matrix disassembly
 - MMP

Methodology



Case Results

Pre-treatment

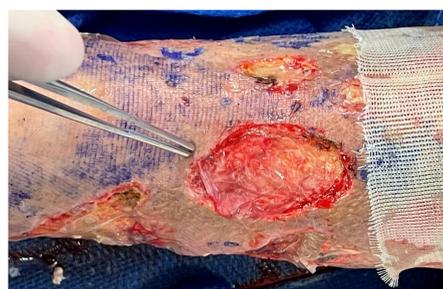


Figure 2. Intra-operative photo (pre-treatment) treating chronic PG with wound debridement and dHACM application.

Post-treatment



Figure 3. Intra-operative photo (13 days post-treatment) of healthy wound bed to receive a split-thickness skin graft to cover the wound deficit.

Grafted Wound



Figure 4. PG wound 8 days s/p split-thickness skin graft from patient treated with dHACM.

Summary

- This patient received surgical treatment using dHACM to heal the PG wound.

Future Directions

- Further patient enrollment is needed to complete gene analysis (final goal: 20+).
- Future directions involve making conclusions on PG etiology, pathogenesis, and novel treatment options through a randomized control trial.

References

- Maverakis E, Marzano A V, Le ST, et al. Pyoderma gangrenosum. *Nat Rev Dis Prim.* 2020;6(1):1-19.
- Koob TJ, Lim JJ, Masee M, Zabek N, Denozière G. Properties of dehydrated human amnion/chorion composite grafts: Implications for wound repair and soft tissue regeneration. *J Biomed Mater Res - Part B Appl Biomater.* 2014;102(6):1353-1362.

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