

Healing the Heel: Successful Reconstruction of a Traumatic Ulcer with Piscine Graft and Split Thickness Skin Grafting

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Introduction

Traumatic heel ulcers with exposed tendons present a significant clinical challenge due to the avascular nature of tendons, which impairs granulation tissue formation and increases the risk of infection. Effective management strategies for such wounds are crucial to achieve durable healing and prevent complications. Methods for the reconstruction of soft tissues have been presented in the literature, but the results have been variable and there is insufficient data in general to support any of the techniques. Effective management of these ulcerations is crucial for optimal recovery and function. Piscine xenografts, derived from fish skin, offer promising potential due to their biocompatibility and regenerative properties that facilitate rapid cell ingrowth and create a natural bacterial barrier enriched with Omega-3 fatty acids. This case report explores the use of a piscine skin graft substitute to promote granulation tissue formation over an exposed Achilles tendon, followed by a split-thickness skin graft (STSG) to achieve complete wound closure.

Presentation

An 80-year-old non-diabetic male presented with a traumatic heel ulceration. Initial wound management involved thorough debridement. Following debridement, the Achilles tendon attachment at the calcaneus was fully exposed. A piscine skin graft substitute particulate followed by a sheet version was the graft were utilized to cover the exposed Achilles tendon. A second application of the graft was performed 2 weeks following the 1st application. Negative pressure therapy was utilized as well. Once sufficient granulation tissue was present at POD 35, a STSG was applied to achieve definitive wound closure. The patient was monitored closely throughout the healing process.



Results

The application of fish skin graft successfully induced robust granulation tissue formation, completely covering the exposed Achilles tendon within four weeks. The STSG applied thereafter adhered well to the wound bed, resulting in complete closure by 2 weeks post-STSG. At the six-month follow-up, the patient demonstrated full wound healing, normal ambulation, and no signs of recurrence or complications.

Discussion

This case highlights the efficacy of piscine skin graft substitutes in managing complex wounds with tendon exposure. The graft facilitated granulation tissue formation, overcoming the inherent challenges posed by the avascular Achilles tendon. The sequential approach of using the fish xenograft followed by a STSG proved to be an effective strategy for achieving durable wound closure. These findings support the use of piscine skin graft substitutes as a valuable tool in the armamentarium for managing traumatic ulcers with exposed tendons.

References

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Acknowledgements

Dr. Ian Barron is a consultant for Kerecis