The Healing Power of Nature

INTRODUCTION

The extracellular matrix is not just an inert scaffold but acts as a biologic modulator. It plays an essential role in healing chronic wounds by modulating numerous cellular processes including, cell proliferation, differentiation, and migration. It promotes cell regrowth, epithelization, and angiogenesis. It has anti-inflammatory and anti-infective effects. These processes essential to healing are regulated through the paracrine effect by which multiple matrix proteins in the ECM communicate with the patients' cells to promote tissue repair. It achieves this in part through its micro and macrostructure that allow for the in growth, organization, and adhesion of cells. By anchoring key cells (via cell adhesion) and its structural matrix allows for the ingrowth, communication and organization of these essential cells on a lattice that provides the basis of tissue repair.

METHODS

A piscine acellular matrix xenograft (PDAM)* has been shown to promote healing in DFU, VLU and surgical wounds. A representative case series is presented.

This retrospective case series looked back at 19 patients with 21 wounds. These patients presented with wounds of various etiologies, traumatic, surgical, DFU, and VLUs. Treatment was initiated adhering to the Healogics** algorithm of care and the 9 essential steps of healing were addressed.

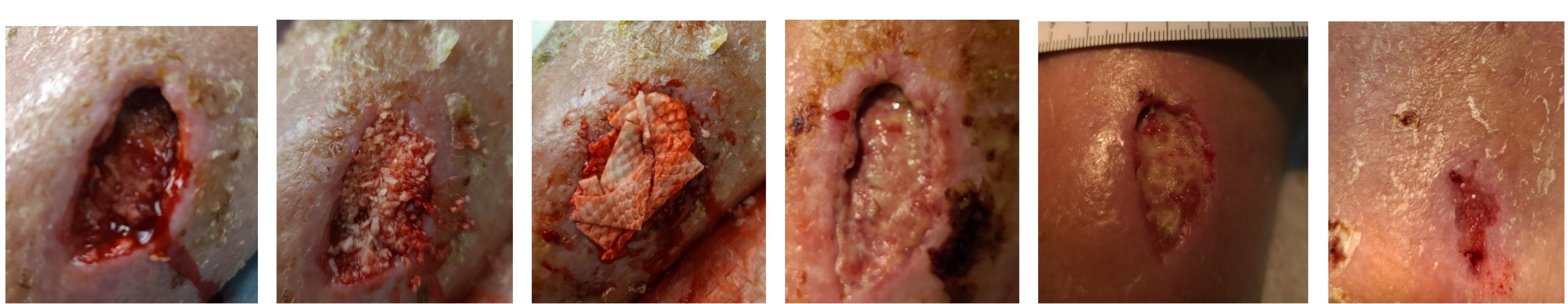
RESULTS

The review looked at the time of the first application of piscine acelluar dermal xenograft * to last application. Patients were evaluated weekly. If there was no complicating issues that needed to be addressed re application was done every other week. A total of 80 grafts were applied with an average of 3.8 grafts per wound. The average time to epithelization per wound was 43 days. These patients progressed to healing with less complications, a shortened time to healing, and with better tissue.

The Essential Role that the Extracellular Matrix (ECM) plays in Healing Chronic Wounds A Piscine Acellular Matrix Xenograft (PDAM)* A Case Series

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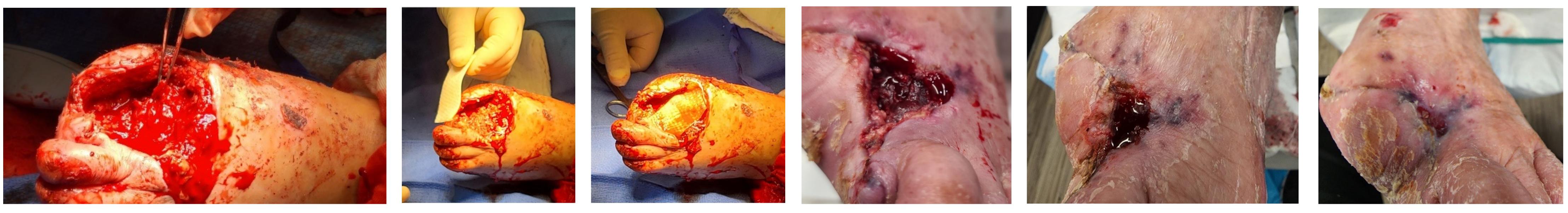
CASE 1



CASE 2



CASE 3



CASE 4







DISCUSSION

Tissue engineered products are classified as either biologic dressing or biologic modulators (that influence the biologic process). This poster board presents a case series in which a cellular tissue product (CTP) namely a piscine acellular matrix xenograft (PDAM)* that due to its Macro and microstructure along with the macro molecules (key cells) present have shown to be effective in healing DFU, VLU and surgical wounds. The biologic and mechanical properties of this fish skin graft act as an effective and efficient ECM are reviewed and supported with a representative case series.

Regenerative medicine aims to focus on growing and replacing tissue. The goal is to promote growth and proliferation of host cells leading to faster more efficient and better healing. PDAM's have been shown to heal wounds. They are cost effective, readily available, and sustainable. They are homologous to human skin and possess total immunogenicity. The preservation of structure and biology (essential macromolecules and key cells) make them homologous to human skin. Through the preservation of these cells, the PDAM is highly bio active enabling recruitment of host cells and facilitation of regeneration of human skin. The piscine xenograft has a unique lipid profile (omega 3 fatty acids) that provides for anti-inflammatory and antimicrobial influence. It posesses both an advantageous microstructure and macrostructure. The preservation of natural molecular matrix content (essential macromolecules and key cells) provide respectively for ingrowth of host cells, a lattice for tissue formation and interaction with host cells that promote epithelization.

ECM has been shown to be a biologic modulator that through its paracrine effect, promotes healing on the cellular level. It is essential to healing. Through its anti-infective, anti-inflammatory modulation it expedites healing by reducing the inflammatory stage of healing that is known to be prolonged in a chronic wound. It replaces the structural matrix that is degraded by MMPs present by a prolonged inflammatory phase of chronic wounds. The PDAM reviewed here provided for expedited and more efficient healing, and a better quality of tissue.

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