

Use of Ultra-Thick Amniotic Membrane Allograft† in the Wound Management of an Open Humerus Fracture

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Introduction

The management of distal humerus fractures is challenging and technically demanding due to the anatomical complexity and the multi-fragmentary pattern of injury. Despite the evolution of surgical techniques, up to 44% of patients have post-operative complications including infection and delayed wound healing.¹⁻⁷ Cryopreserved Amniotic Membrane (AM) derived from the umbilical cord has been increasingly used in both surgical and wound management to reduce complications and improve healing due to its inherent anti-inflammatory and anti-scarring properties.⁸⁻¹⁰

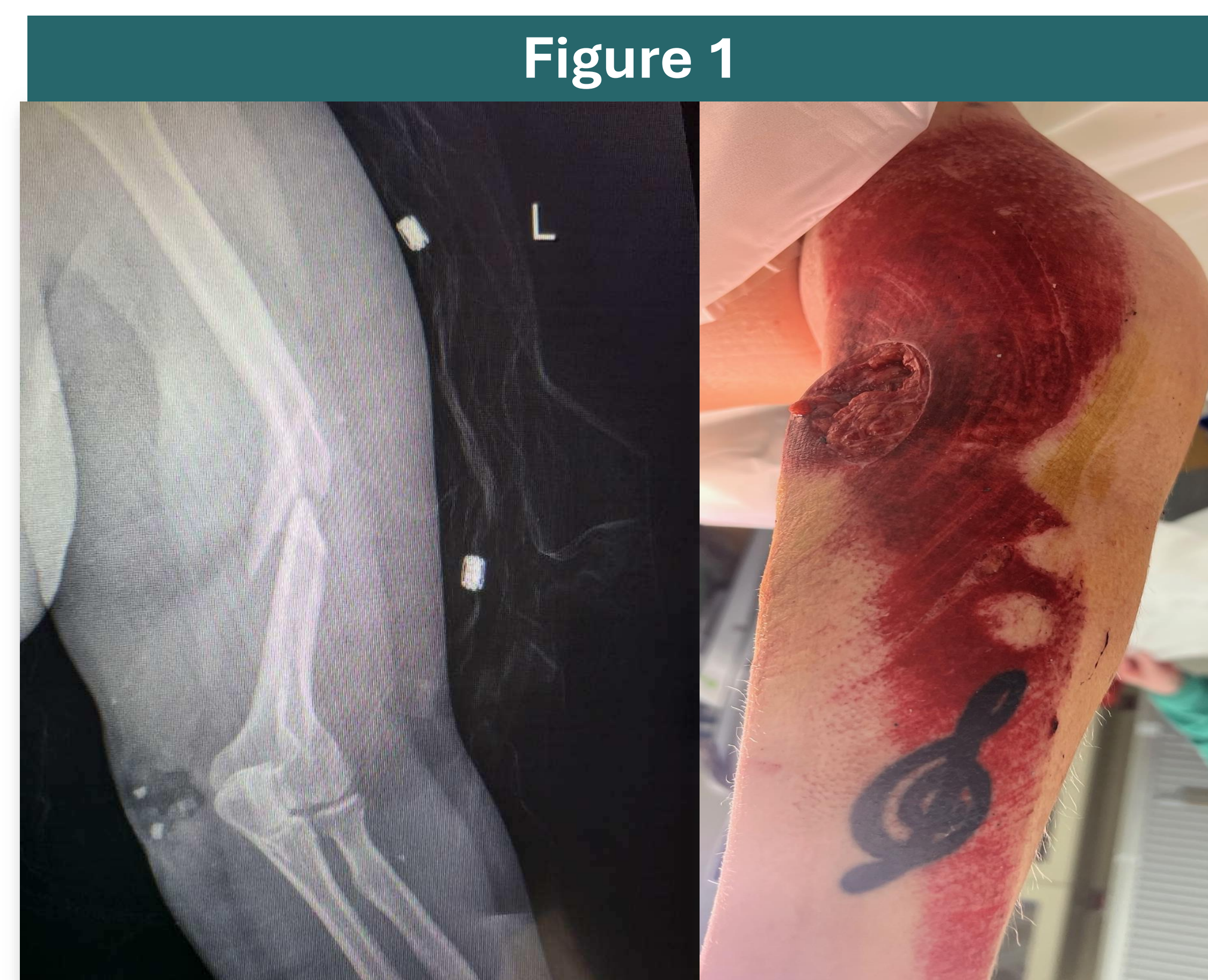
Methods

A case report of a patient who was treated with cryopreserved, ultra-thick AM allograft† for an open humerus fracture. In brief, the patient underwent Open Reduction Internal Fixation (ORIF) followed by wound debridement and application of an AM allograft† (8x3 cm) with staples over the open wound. Negative Pressure Wound Therapy (NPWT) was used for 3 days, and dressings were changed every 3-4 days.

† Neox® 1K, BioTissue, Miami, FL

Results

A 34-year-old female (non-smoker) involved in a motor-vehicle accident presented with a Grade IIIB open humerus fracture on the dominant arm (Figure 1). Following ORIF, the patient received wound management for a large, complex open wound (6x4 cm, 24cm²).



Following debridement, the wound increased in size to 36cm² (9x4 cm), and an AM allograft† was stapled over the wound followed by NPWT for three days (Figure 2A). Robust granulation tissue & epithelialization around the wound's edge were noted 18 days later, with a residual amount of AM tissue noted in the central wound base (Figure 2B). By 5.5 weeks, the wound significantly reduced in area by 99.3% (0.5x0.5 cm), and the base of the wound was flush with the edges (Figure 2C). Complete epithelialization was noted at 8 weeks with minimal scarring (Figure 2D). Furthermore, the patient demonstrated full range-of-motion in the arm without



Conclusion

Ultra-thick AM allograft† was shown to support wound closure for a traumatic, complex open wound and aid in functional recovery as demonstrated by complete return of ROM.

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