XENOGRAFT USED TO PROMOTE GRANULATION TISSUE WITH CONTRAINDICATED NEGATIVE PRESSURE THERAPY IN CASE WITH EXPOSED BONE: A Case Report

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INTRODUCTION

Negative pressure therapy is the standard to obtain granulation tissue over wounds with exposed bone. This however is not always possible in cases of unstable or low hemoglobin levels. This case is intended to show fish skin grafting is a viable alternative to negative pressure therapy to heal wounds with exposed bone.

METHODS / CASE PRESENTATION

Any infection is always cultured and treated to make sure there is no bacterial burden within the wound. Where possible infected bone is resected as much as possible. Any osteomyelitis is treated with the appropriate course of IV antibiotics with guidance of bone cultures to improve chances of success. Antibiotic beads can also be used to improve the infection reduction locally within the bone. Fish skin grafting was then initiated after infection was controlled at a frequency of every 1-2 weeks applied directly over the bone after a proper wound debridement to healthy bleeding bone. In this case a combination of micronized and sheet fish skin graft was used to heal the wound as the wound healed with a tunneling aspect.

CLINICAL EVALUATION

Figure 1. Initial debridement with exposed calcaneus

Figure 2 Xray post resection of calcaneal osteomyelitis

TREATMENT AND FOLLOW UP WITH RESULTS

Figure 1 OR debridement with placement of antibiotic beads left for 6 weeks

Figure 2 Example of application of fish skin sheet graft

Figure 3a Wound at 6 weeks with removal of antibiotic beads

Figure 3b Application of micronized graft due to now tunneling wound

Figure 4 Wound slightly indurated but completely healed wound at ~12 weeks

Wound was treated with 6 weeks of IV antibiotics guided by deep soft tissue cultures and bone biopsy. Antibiotic beads were placed around and into the calcaneus and left for the same time period. Negative pressure wound therapy was contraindicated due to unstable hemoglobin. A combination of sheet graft and micronized fish skin graft was used to obtain granulation tissue over the bone and heal the wound. Wound healed at 12 weeks with no recurrence of infection or wound after greater than 12 months.

DISCUSSION

Negative pressure therapy is considered the gold standard to rapidly achieve granulation tissue over wounds with exposed bone. There are however cases where negative pressure is contraindicated. These cases include unstable Hemoglobin, active uncontrolled bleeding, and use of aggressive anticoagulants. We hypothesized that isolated fish skin grafting without negative pressure wound therapy can cause rapid granulation tissue and heal wounds with exposed bone in cases where negative pressure wound therapy is contraindicated. Therapy for infection was utilized immediately with proper bone cultures and intravenous antibiotic therapy. After infection was properly treated fish skin grafting was utilized at a frequency of 1-2 weeks. Rapid granulation tissue was obtained over the exposed bone even without the use of negative pressure wound therapy. We feel the fish skin grafting causes rapid granulation tissue over the bone in a similar fashion to negative pressure therapy. The results are rapid wound healing despite wounds with exposed bone when using fish skin grafting alone. We also feel that when negative pressure wound therapy is not contraindicated using fish skin grafting as dual therapy is a treatment method that can heal wounds faster than either treatment in isolation. We recommend fenestration to allow for drainage when using a fish skin graft with negative pressure therapy.

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