FISH SKIN SUBSTITUTE (KERECIS) USED AS BRIDGE THERAPY TO SPLIT THICKNESS SKIN GRAFT TO TREAT EXPOSED ACHILLES WOUND WITH ABSCESS: A CASE REPORT

Peter F. Lovato, DPM, FACFAS*; Patrick A. McEneaney, DPM, FACFAS, AAPWCA‡; Rimvydas P. Statkus DPM, FACFAS*; Muhammed Shamim, DPM, AACFAS †

Northern Illinois Foot and Ankle Specialists, Crystal Lake Illinois / Northwest Illinois Foot and Ankle Fellowship; Northern Illinois Foot and Ankle Specialists†Surgical Fellow, Northwest Illinois Foot and Ankle Fellowship Trector, Northwest Illinois Foot and Ankle Fellowship; Founder and President, Northern Illinois Foot and Ankle Specialists

Introduction

Patient presented post achilles repair with complication of acute MRSA abscess. After Initial hospital admission with incision & drainage, the achilles tendon was completely exposed in an uncontrolled diabetic patient with significant medial and lateral undermining. After infection was treated during hospital admission, fish skin grafting was initiated to achieve granulation tissue over the achilles to allow for wound healing and eventual split thickness skin graft.

Methods / Case Presentation

Infection was initially treated with admission, IV antibiotics, and urgent incision and drainage. After Infection was stabilized, fish skin substitute (Kerecis MariGen Micro) was used to fill medial and lateral undermining and to achieve 100% granulation tissue over the fully exposed achilles tendon. A combination of particulate and sheet graft was used. Particulate was used for undermining and sheet graft was placed over the exposed tendon. Negative Pressure Wound Therapy was also utilized at 125mm/hg initially, and when proud granulation tissue was achieved it was dropped to 75mm/hg. Once 100% granulation was achieved over the tendon a split-thickness skin graft of 0.18in thickness was used to completely heal the wound without complications. 100% acceptance of the STSG was achieved at 4 weeks after placement.

Initial I&D was performed (figure 1) while admitted and staged application of fish skin substitute was performed after infection was irradicated Figure 2b). Fish skin substitute (Kerecis MariGen fig 2b & 4b) was successful in rapidly filling extensive medial and lateral undermining tissue and achieving complete granular coverage over the wound to facilitate the use of a split thickness skin graft. Patient eventually healed despite poor glucose control, obesity, location of the wound at the watershed area of the achilles, and completely exposed tendon. Post operative management after STSG application was mineral oil over the graft, adaptic white foam and negative pressure therapy set to 75mm/Hg. Negative pressure therapy discontinued at 1 days post op. Staples were used to hold STSG in place and removed 2 weeks. Tegaderm was placed over donor site. Time from initial I&D procedure to 100% acceptance of skin graft and healing of the wound was 110 days with no recurrence of infection. No recurrence of the wound is appreciated and patient is full weight bearing in a shoe. Patient completed 8 weeks of physical therapy at 4 weeks post STSG without issues. She also reports no irritation to the donor site which rapidly healed in 2 weeks with Kerecis MariGen skin substitute.

Clinical Evaluation



Figure 1. post initial I&D procedure





Treatment and Follow up with Results



Figure 4a / 4b intra op STSG with fish skin graft used for donor site with 100% granulation over achilles



Figure 5a 2 weeks s/p STSG after staple removal and healed donor site 4 weeks





Figure 3 progression of wound healing 8 weeks

Discussion

There are many documented cases of exposed tendon after infection and/or abscess due to tissue loss. These cases frequently result in non healing wounds, further infection and even loss of limb. Fish skin substitute (Kerecis) can rapidly achieve granulation over exposed tendon even in patients with significant barriers to healing. The barriers in this case were uncontrolled DM, obesity, decreased blood flow, and infection. Combination therapy with fish skin particulate and sheet graft was required in this case to achieve granulation tissue and stimulate healing with extensive undermining medial and lateral as a result of the I&D. The skin substitutes also provided an anti-bacterial layer which reduced infection risk post I&D with exposed tendon. The addition of negative pressure wound therapy worked synergistically to help to facilitate the complete rapid granulation tissue formation in less than 10 weeks over the achilles tendon. 3 applications of fish skin sheet substitute (Kerecis MariGen) and only one initial application of fish skin particulate (Kerecis MariGen Micro) was necessary. Research has been shown to and was supported by patient experience to reduce pain scores, provide an antibacterial layer, as well as increase angiogenesis in an area of decreased arterial flow in the watershed area of the achilles to help facilitate wound healing.



Figure 6 100% acceptance of STSG at Fig. 7 STSG at 8 weeks





