MiMedx

PATIENT CASE EXAMPLE

AmnioFix® for Lower Extremity Amputation

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OVERVIEW/DISCUSSION

Chronic wounds, with or without concomitant infection, have been and will continue to be a significant problem in our complex patient population. Nicotine use, peripheral neuropathy, controlled and uncontrolled diabetes, and peripheral vascular disease are only a few of the risk factors that lead to the often unsuccessful eradication of infection and the persistent presence or recurrence of wounds. Whether failure of treatment comes from patient non-compliance or the natural evolution of their medical diagnoses, surgeons continue to look for new knowledge and technology to improve outcomes in these complex situations.

CLINICAL HISTORY

This patient is a 74-year-old male with a complex medical history including chronic obstructive pulmonary disease, obesity, peripheral vascular disease, peripheral neuropathy, and hypertension. He also has an 80 pack-per-year smoking history and is currently smoking two packs of cigarettes per day. He had a below knee amputation one year prior to presentation secondary to chronic osteomyelitis and non-healing wounds on his foot. His surgical site underwent secondary closure twice (Figure 1) and had been dehisced for approximately 6 months (Figure 2) at his initial visit. The extent of the wound was the complete surgical incision and the distal 2 inches of tibia was exposed circumferentially.

TREATMENT

The patient was taken to the operating room for conversion of his below knee amputation to an above knee amputation. Smoking cessation and follow-up compliance was discussed extensively pre-operatively. The above knee amputation incision dehisced within 3 weeks of surgery. The patient continued to smoke 2 packs of cigarettes per day. He underwent two more surgical debridements with secondary wound closures. The surgical plan for the fourth above-knee procedure (Figure 3) included extensive debridement, deep tissue cultures, use of AmnioFix and a layered wound closure. After sharp debridement and extensive irrigation, a 6 cm x 6 cm AmnioFix membrane was placed superficial to the muscle layer that had been repaired by myodesis. The subcutaneous layer was reapproximated with non-absorbable suture and the skin closed with nylon suture.

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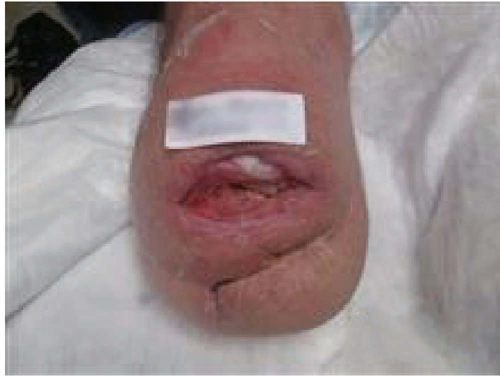

Figure 1
Below knee amputation post-operative wound dehiscence on surgical day of debridement and repeat primary closure

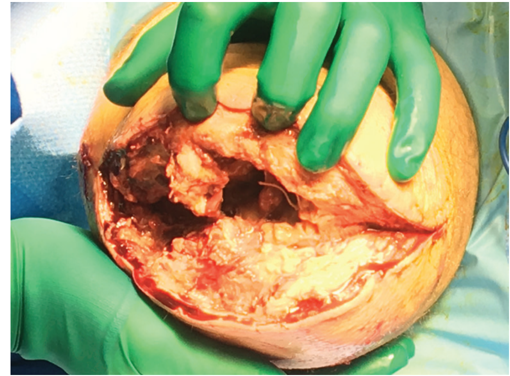

Figure 3
Extensive debridement of recurrent dehiscence of above knee amputation prior to placement of AmnioFix

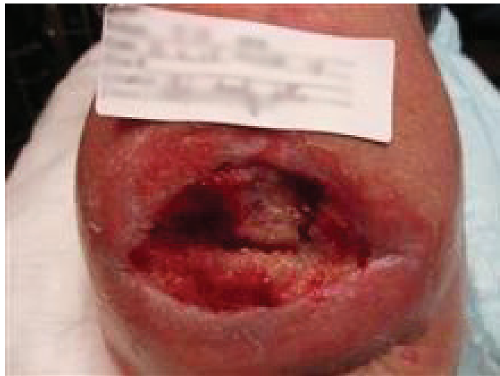

Figure 2
Wound dehiscence less than a month after surgical debridement and primary closure

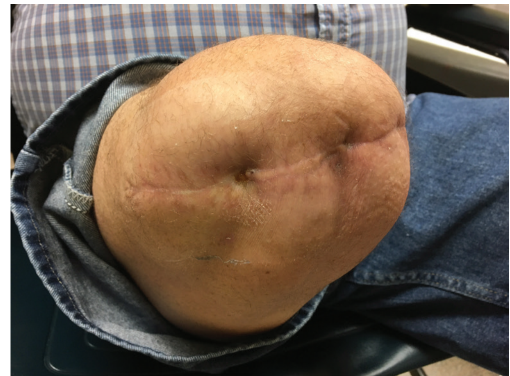

Figure 4
Complete wound healing one month after debridement and wound closure using AmnioFix

FOLLOW UP

The patient continued to take the same antibiotics for 3 weeks and also continued physical therapy. Smoking cessation education was emphasized, again, unsuccessfully. The nylon sutures were removed on post-operative day 16. A 2 mm sinus presented within the lateral aspect of the incision. This was treated with ¼ inch packing changed twice daily and closed successfully via secondary intent within 2 weeks (Figure 4). The patient began prosthetic fitting and ambulated on his above knee prostheses, his first prosthetic-assisted ambulation since his initial below knee amputation 18 months prior.

CONCLUSION

AmnioFix is a composite amniotic membrane that maintains its collagen characteristics and its compacity to modulate inflammation at a surgical site. These same qualities allow AmnioFix to be a durable tissue graft with natural barrier properties. It has proven to be helpful in supporting natural tissue integrity and maintenance of surgical wound closure in this patient who has a complex wound, recurrent infection, extensive medical comorbidities as well as the risk factors associated with nicotine use.

purion® process

Patents and patents pending see:
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