



ABSTRACT

SurgiMend® Collagen Matrix for Soft Tissue Reconstruction, a novel xenograft derived from fetal bovine dermis, is FDA-cleared for implantation to reinforce soft tissues in reconstructive surgery. SurgiMend® is an excellent biomaterial to increase the periulcer dermal soft tissue volume to heal difficult, chronic wounds at prominent osseous areas. Intrinsically strong, yet soft and supple when rehydrated, the SurgiMend® implant handles like natural tissue readily conforming to the surgical site, and is easily sutured in place. Ultimately, this porous xenograft implant can be naturally integrated and incorporated in the dermal space around the ulcer, allowing the ulcer to heal, and more importantly stop the ulcer from re-occurring. This study looks at the benefit of the SurgiMend® implant in the management of chronic foot wounds that rarely heal, and often quickly re-ulcerate. SurgiMend® was proven extremely useful in healing, without reoccurrence, these difficult wounds. These results suggest that the use of SurgiMend® to increase and expand the periulcer dermal tissue is beneficial in healing lower extremity wounds at osseous prominences.

METHOD

Pre-operatively, the skin is marked for a minimal incision where the dermal space is to have its volume increased. The SurgiMend® implant is cut into small pieces approximately two by two millimeters. A small incision is made in each of the marked areas. Then the dermal space is expanded with a hemostat for later SurgiMend® implant delivery. Care is taken to expand the dermal space deep to the subcutaneous tissue along tissue planes as not to insult vascular supply. The SurgiMend® implant was then inserted into the created dermal space until adequate increased soft tissue volume was achieved. There is no need to over pack the created dermal space as only a small increase in soft tissue volume is needed. The incision is then closed with a simple suture. The patient is kept non-weight bearing for three weeks to allow the implant to fully incorporate.

CASE REVIEW OF SELECTED PATIENT

A 51-year old white non-smoker male presented with a non-reducible right foot Charcot deformity and a chronic ulcer of 3 years duration (Picture 1). The patient was quite frustrated because the ulcer had healed episodically, only to re-ulcerate. The patient understood that the Charcot deformity was the main reason for re-ulceration. The patient also was very compliant, wearing an appropriate offloading device. His diabetes was controlled and did not have any significant proximal arterial occlusive disease of the leg. The remaining past medical history included chronic heart failure, obesity, renal insufficiency, hypertension, and coronary artery disease. This patient was not a candidate for Charcot reconstruction with external fixation secondary to his overall medical condition.

An excellent alternative was provided with SurgiMend® implant. The SurgiMend® implant is an excellent biomaterial to increase the periulcer dermal soft tissue volume to offload the ulcer. Thus, healing difficult chronic ulcers such as this one at a prominent osseous area. Ultimately, the SurgiMend® implant can be naturally integrated and incorporated in the dermal space around the ulcer, allowing the ulcer to heal and more importantly stop the ulcer from re-occurring.

Pre-operatively, the dermal space to have its volume increased was marked (Picture 2). The SurgiMend® implant is cut into small pieces approximately two by two millimeters. A small incision is made in each of the marked areas. Then the dermal space, with care given to expand deep to the subcutaneous tissue, is expanded with a hemostat for later implant delivery (picture3). The SurgiMend® implant was then inserted into the created dermal space until adequate increased soft tissue volume was achieved (picture 4). The incision is then closed with a simple suture. The final result is a nicely increased dermal space to off load the pressure at the ulcer (picture 5). The patient was given instruction to be completely non-weight bearing for three weeks to allow implant incorporation. At post-operative day six the ulcer was completely healed. At week three the patient had the sutures removed and returned to weight bearing in his diabetic shoes without restriction. (Picture 6)

DISCUSSION

This technique is a very simple, straight forward procedure to increase and expand the periulcer dermal tissue to heal and decrease the recurrence of lower extremity ulcers at osseous prominences. This technique is simple enough to be done in the operating room and also in the office or clinic. It is well tolerated by the patient and requires minimal post-operative healing. This procedure avoids subjecting the patient to more invasive orthopedic procedures such as Charcot reconstruction with a major osteotomy and external fixation.

CONCLUSION

This result suggests that the SurgiMend® implant is very beneficial to increase and expand periulcer dermal tissue to heal and decrease the reoccurrence of lower extremity ulcers at osseous prominences.

Product notation: * SurgiMend® is a registered trademark of TEI Biosciences Inc. 7 Elkins Street, Boston, MA 02127

