

The Use of a Human Cellular Repair Matrix* for Advanced Healing of a Complicated Symes Amputation

Amy Reeter DPM, Jaminelli Banks DPM, Robert Frykberg DPM, and Edward Tierney, DPM



Introduction- Lower extremity amputation in patients with diabetes is often associated with circulatory and neuropathic complications (1). It has been shown that patients with peripheral vascular disease have 9 times the amputation risk of those without (1). Syme amputations have been reported in history since 1914 (2). The syme amputation offers a lower risk of life, a more comfortable stump, and a that limb will be more seemly and useful for progressive motion (2.) A syme amputation is indicated for all destructive lesions of the foot provided that the skin of the heel is in good condition (2). It is common for patients who undergo amputation to have slow healing wounds due to poor blood and a number of other complications. Human cellular repair matrices (HCRM)* are being used more in podiatry practices to aid in closure of these slow healing and complicated wounds. It has been shown that HCRM* derived from placental membrane contain extracellular matrix (ECM), growth factors, and living cells. (3). It is known that ECM and a cocktail of angiogenic growth factors stimulate new blood vessel formation in wounds (3).

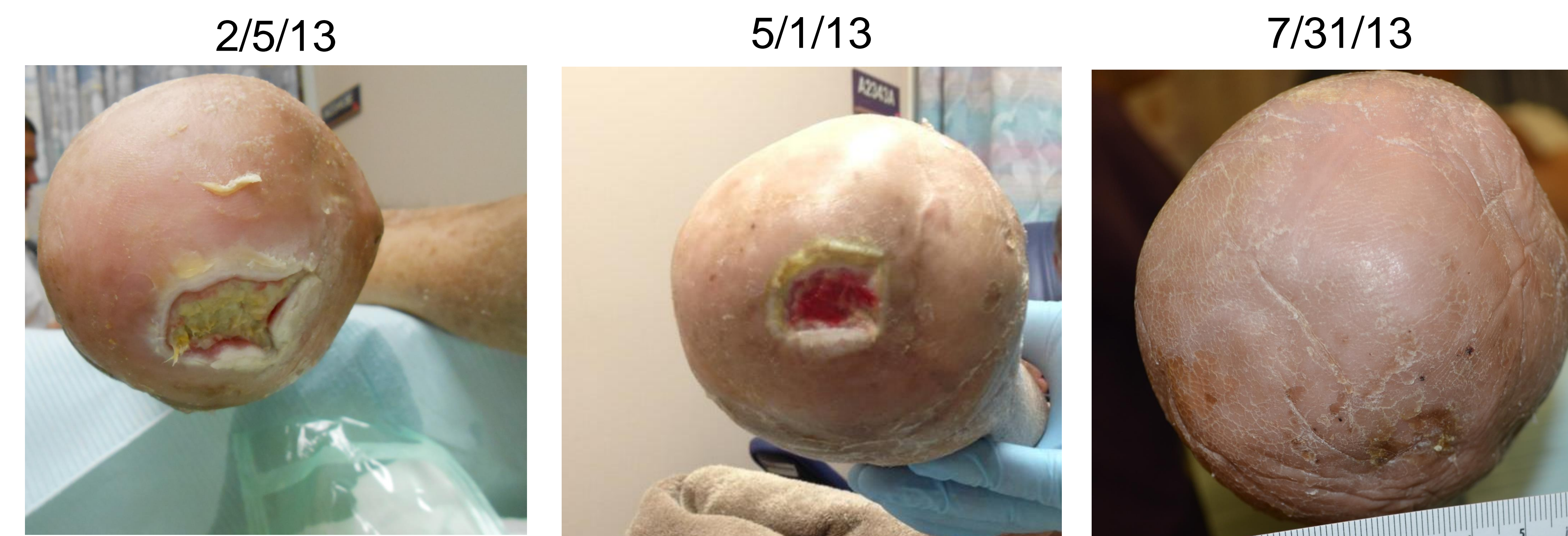
Patient Information- A 64 year old male with peripheral vascular disease and diabetes presented with a wound dehiscence to the distal aspect of his right TMA. The wound probed deep to bone. There was erythema surrounding the wound and increased drainage was noted on the bandage. X-rays taken showed concern for osteomyelitis at the remaining distal 5th metatarsal. He had non-palpable pulses and the ABI on his right LE was 0.49. The transcutaneous oxygen pressure distal to the right ankle was 45. The patient had a WBC count of 10.3. He was admitted to the hospital for IV antibiotics and further work-up. The patient was started on Zosyn due to a wound culture of Pseudomonas. Due to the patient having chronic kidney disease and him not wanting to risk an angiogram, further amputation was our only option for limb salvage on this patient.

References-

1. Reiber, GE; Pecoraro, RE; Hoepsell TD. Annals of Internal Medicine 1992;117-2:97-104.
2. Harris, RI. The Journal of Bone and Joint Surgery 1956;38-B:614-632.
3. Maxson S, Lopez EA, Yoo D, Danilkovitch-Miagkova A, Leroux MA. Concise review: role of mesenchymal stem cells in wound repair 2012;1-2: 142-149.

* **Grafix®**
Osiris Therapeutics, Inc.
Columbia, MD

Treatment and Outcome- It was decided that the patient would benefit most from a syme amputation on the right. Pt underwent surgery on 10/12/12. The patient was continued on IV Zosyn throughout his stay in the hospital due to continued cultures of Pseudomonas. The patient was discharged to the Community Living Center on oral Levaquin for two weeks and was to be non-weight bearing in a splint. The patient was to follow-up in our podiatry clinic weekly. The incision was dressed with betadine and dry sterile dressing at each visit. A wound dehiscence was first noted on 11/27/12 measuring 3.0cm x 4.0cm with a necrotic base and viable wound edges. On 2/5/13 it was decided that the patient would benefit from a HCRM* injection. The size of the wound on the day of the initial injection was 2.3cm x 1.9cm, granular and fibrotic base, no erythema or signs of infection. The patient had an additional four injections between 2/5/13 and 5/1/13. On 5/1/13 it was decided that the patient would benefit from a HCRM* graft application. The size of the wound on the day of the first graft application was 2.5cm x 2.5cm, granular base, no erythema or signs of infection. The patient had an additional four graft applications between 5/1/13 and 6/5/13. On 6/5/13 it was decided that the patient would benefit from an additional HCRM* injection. The size of the wound the day of the injection was 1.5cm x 2.0cm, granular base, no erythema or signs of infection. The patient had an additional two HCRM* injections and five HCRM* graft applications between 6/5/13 and 7/31/13. On 7/31/13 the wound was fully epithelialized.



Conclusion- The use of a human cellular repair matrix* is an effective and viable treatment option for an aid in attempt at limb salvage, specifically in this case following a complicated symes amputation. We used 8 HCRM* injections and 10 HCRM* grafts over a span of 6 months and followed this wound to closure.