

# Treatment of Diabetic Foot Ulcer with Human Acellular Dermal Matrix (ADM)

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CASE STUDY

Diabetes is a group of metabolic disorders characterized by poor insulin secretion or impaired insulin function both leading to hyperglycemia. One of the long-term complications of this disease process is neuropathy. Neuropathy, particularly in the extremities, leads to poor sensation, which contributes to the occurrence of ulcers typically observed on the feet of diabetic patients.<sup>1</sup> Current treatments for diabetic ulcers include wound dressing, hyperbaric oxygen therapy, negative pressure therapy,<sup>2-4</sup> and, in advanced cases, amputation of the limb.

An alternative treatment for diabetic foot ulcers is a matrix scaffold for new tissue generation, an acellular human dermal matrix (ADM) allograft as reviewed by Moore et al.<sup>5</sup> Decellularized human skin has been used for a variety of medical procedures, primarily involving wound healing, soft tissue reconstruction, and sports medicine applications.<sup>6-8</sup>

The following case presentation involves treatment of a diabetic foot ulcer with this human ADM, DermACELL.<sup>®</sup>

## Patient

- A 55 year old diabetic, hypertensive male patient taking insulin for 8 years.

## Procedure

- The patient presented with a history of two weeks swelling on the right big toe. Surgical debridement and angioplasty was performed twice for the right lower leg, and angioplasty was also performed for the left lower leg. Upon examination, impending pedal pulses and good capillary circulation was noted. Wet gangrene on the right big toe with edema of the foot was also noted.
- The right big toe was amputated under ankle block, along with an incision and drainage procedure. After receiving culture results, tab Bactiflox 500 mg twice daily and tab Dalacin 300 mg thrice daily was started. Blood test results showed HbA1c 7.9%, Hb 10.9 g/dl, and Wbc 9.2.
- The patient received dressing and debridement on the amputated stump. A clean granulating wound and continued improvement with less necrotic tissue was noted.

- At 4 months post-operative, DermACELL was applied to the granulating surface on the right foot (**Figs. 1-4**). Mesporin was also given.

## Results

- The wound continued to show improvement over the next four months (**Figs. 4-6**).
- At 5 months post-application of DermACELL, the wound was completely healed.



Figure 1.  
Pre-operative



Figure 1.  
Pre-operative after debridement



Figure 3.  
Application of DermACELL



Figure 4.  
Seven days post application

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**Figure 5.**  
*Thirty days post-application*

**Figure 6.**  
*Forty-five days post application*

## Conclusion

- DermACELL was able to successfully heal an extremely large and treatment resistant DFU.

## References

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