

Use of a Borate-Borate Based Bioactive Glass Matrix as an Adjunct for Adequate Limb Salvage

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PURPOSE

Diabetic Foot Ulcers (DFUs) continue to burden the healthcare system with high amputation and mortality rates.¹ The purpose of this case was to highlight adequate limb salvage in a medically complex patient with a large DFU that tracked from the dorsal to plantar surface of the lateral right foot.

METHODS

A 61-year-old male presented to the emergency department for complaints of cellulites with multiple DFUs, one on the lateral aspect of the dorsal mid foot and the second on the plantar surface below the second digit. The patient underwent right foot incision and drainage (I&D) of the deep space abscesses and debridement of nonviable tissue with washout. The likelihood of limb salvage was uncertain as the patient remained at high risk for a below-the-knee amputation (BKA) due to the severity of infection. A borate-based bioactive glass fiber matrix (BBGFM) was applied as an adjunctive treatment to achieve adequate limb salvage.

RESULTS

After undergoing an initial I&D, cortical erosive changes were evident suggestive of osteomyelitis. Consent was obtained for a second I&D procedure with wide debridement and partial 2nd ray amputation of the right foot. On post operative day (POD)-three the BBGFM was applied along with vacuum assisted closure (VAC). The open surgical sites of the right midfoot and right lateral malleolus remained stable with discontinuation of the wound VAC on POD-five. With the surrounding erythema and edema resolved, as well as the wound base largely appearing fibrogranular, the patient was discharged on POD-6.

CONCLUSIONS

This complex case highlights the use of a BBGFM alongside various treatment modalities in a large Wagner Grade III DFU, leading to adequate limb salvage and timely hospital discharge. These findings support the use of the BBGFM as part of a multimodal wound care strategy in challenging wounds.

REFERENCES

1. Armstrong DG, Tan TW, Boulton AJM, Bus SA. Diabetic Foot Ulcers: A Review. JAMA. 2023;330(1):62-75.

Acknowledgements: *Mirragen Advanced Wound Matrix, ETS Wound Care, LLC. This poster was prepared in collaboration with ETS Wound Care, LLC. All protocols and clinical assessments were conducted and reported independently by Henry Ford Health without any financial compensation from the manufacturer. For application instructions and risks of this device, please refer to the Mirragen Instructions for Use.

<p>06/24/2025</p> <p>Right lateral: 6.3 x 2.8 x 0.4 cm Dorsal lateral midfoot: 6.0 x 2.5 x 0.3 cm</p>	
<p>07/01/2025</p> <p>Graft application on this date</p> <p>Right lateral ankle: 5 x 2.1 x 0.2 cm Dorsal lateral midfoot: 5.5 x 2.5 x 0.2 cm</p>	
<p>07/08/2025</p> <p>Right lateral ankle: 5 x 2.1 x 0.2 cm Dorsal lateral midfoot: 5.5 x 2.5 x 0.2 cm</p>	
<p>08/05/2025</p> <p>BBGFM applied to both</p> <p>Right lateral ankle: 3.4 x 1.6 cm x 0.1 cm Dorsal lateral midfoot: 3.5 x 1.0 x 0.1 cm</p>	
<p>08/26/2025</p> <p>Right lateral ankle: 2 x 1 cm BBGFM applied in office Dorsal lateral midfoot epithelialized</p>	
<p>10/01/2025</p> <p>Complete wound closure</p>	