

SOME SAID TO "CHOP" BUT I SAID "NO"

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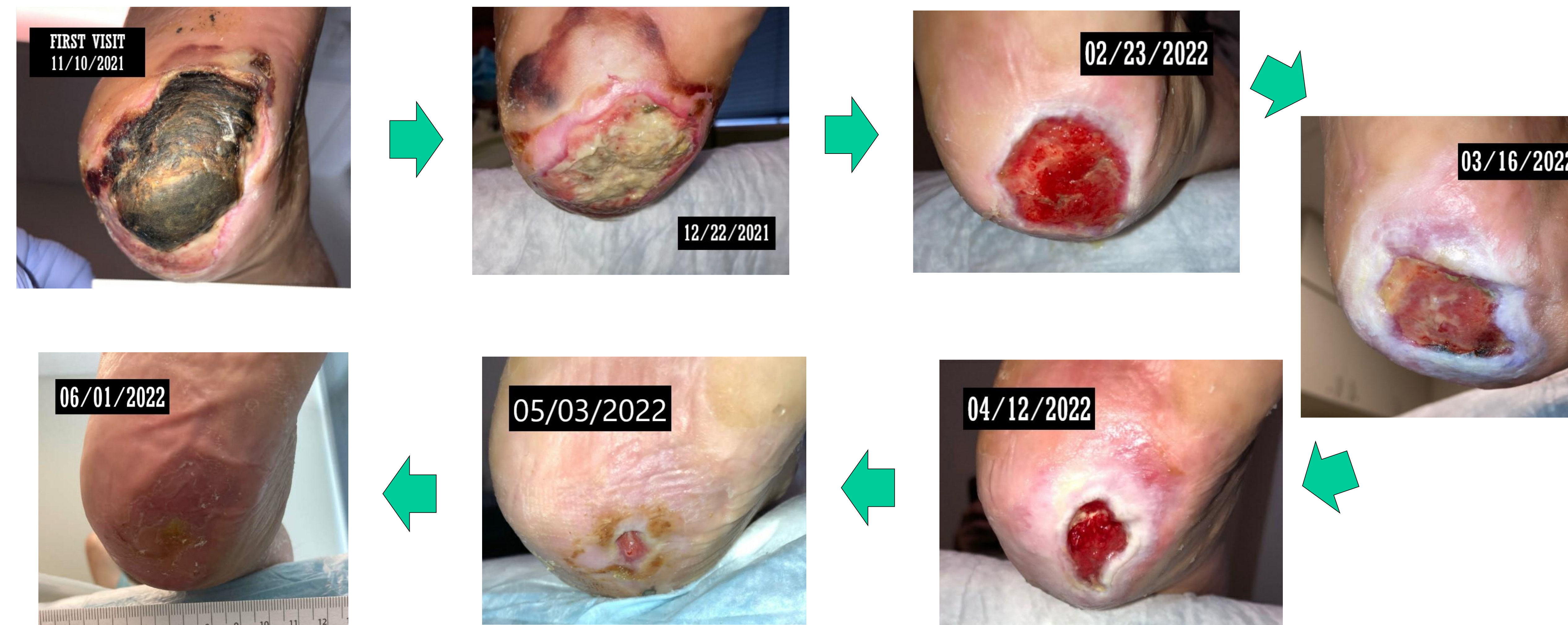
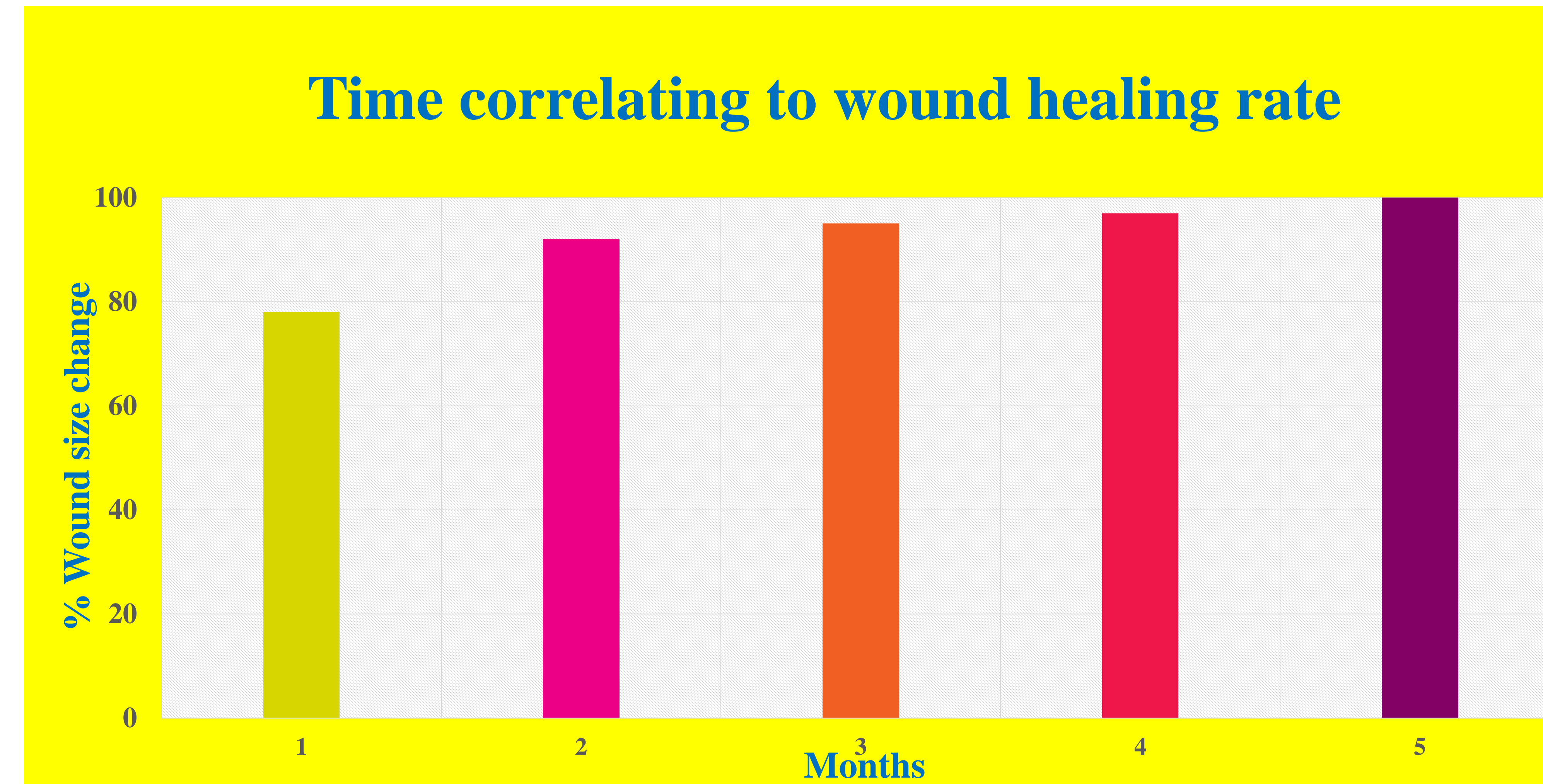
Intro

- Ulceration or **gangrenous heel with underlying osteomyelitis** is known to be the most difficult to treat.¹ Most often, this leads to primary or major amputation even if patient has adequate or palpable pedal pulses.²
- Factors that complicate the healing process for these necrotic heels are diabetes, PAD, presence of osteomyelitis in the calcaneus, offloading failure and history of previous BKA from the contralateral limb.¹⁻²
- This case study highlighted **a success of healing gangrenous heel without undergoing surgical intervention** such as partial or total calcanectomy but only utilizing a complex combination of oral antibiotic, surgical debridement, advanced wound dressings, negative pressure wound therapy, and cellular tissue-based products (CTP).

Methods

- A 56 well-nourished year-old Caucasian male with PMH: type 2 DM, s/p of the right BKA, and PAD with significant inflow disease on LLE (per vascular, no options for revascularization)
- MRI revealed osteomyelitis of the lateral plantar aspect of the calcaneus.
- ABI of the LLE 0.57; Toe Pressure 49 mmHg; HbA1c: 6.9%
- Treatments included:**
 - **Offloading:** PRAFO, wheelchair
 - **6 weeks of oral antibiotics** (doxycycline),
 - **advanced wound dressings** (santyl, hydrofera blue)
 - **in-office surgical debridement**
 - **negative pressure wound therapy (NPWT)**
 - **CTP** (purified collagen matrix containing PHMB, and dehydrated chorion amnion membrane) for final wound closure.

Results



References

- Armstrong DG, Fisher TK. Partial Calcanectomy in High-Risk Patients With Diabetes: Use and Utility of a "Hurricane" Incisional Approach. *Journal of Plastic Surgery* 10: 140-151, 2010
- Jain A, Gupta G. Total calcanectomy: Treatment for non-healing plantar ulcer with chronic osteomyelitis of the calcaneus. *Journal of Clinical Orthopaedics and Trauma* 11: S861-S864, 2020
- Frykberg RG, Banks J. Management of Diabetic Foot Ulcers: A Review. *Federal Practitioner* 16-23, 2016
- Frykberg RG, Zgonis T, Armstrong DG. Diabetic foot disorders: a clinical practice guideline (2006 Revision). *J Foot Ankle Surg* 45(5) (suppl 1): S1-S66, 2006
- Winkler E, Waibel F. Foot Osteomyelitis Location and Rates of Primary or Secondary Major Amputations in Patients With Diabetes. *American Orthopaedic Foot and Ankle Society* 43(7): 957-967, 2022.

Discussion

- 3 main strategies when treating DFU: identifying the at-risk diabetic foot, treatment of present infection and prevention of reulceration.³
- With heel necrosis and osteomyelitis, soft tissue coverage, infection and reulceration are all challenging factors.⁴
- Total calcanectomy was not considered** as there is a potential risk for revision trans-tibial amputation, iatrogenic calcaneal gait, TNJ subluxation, decreased muscle strength of the ankle; most importantly, life-long dependency of orthosis.²

Per Winkler et al.

Location	Proportion of MA (%)
Forefoot	4.6
Midfoot	10.5
Hindfoot	21.1

Per Armstrong et al.

Year	Mortality Rate (%)
1	40
3	65
5	>85