

The combined use of maggot debridement therapy (MDT) and negative pressure wound therapy for the non-surgical management of diabetes foot osteomyelitis (DFO)

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Introduction

Effective debridement is one of the key principles of wound bed preparation. The presence of biofilm in chronic wounds complicates the effectiveness of regular sharp debridement. Maggot debridement therapy is a form biodebridement of non-viable tissue in a continuous and pain-free manner. Their secreted proteolytic enzymes selectively liquify necrotic tissue without damaging healthy tissue.

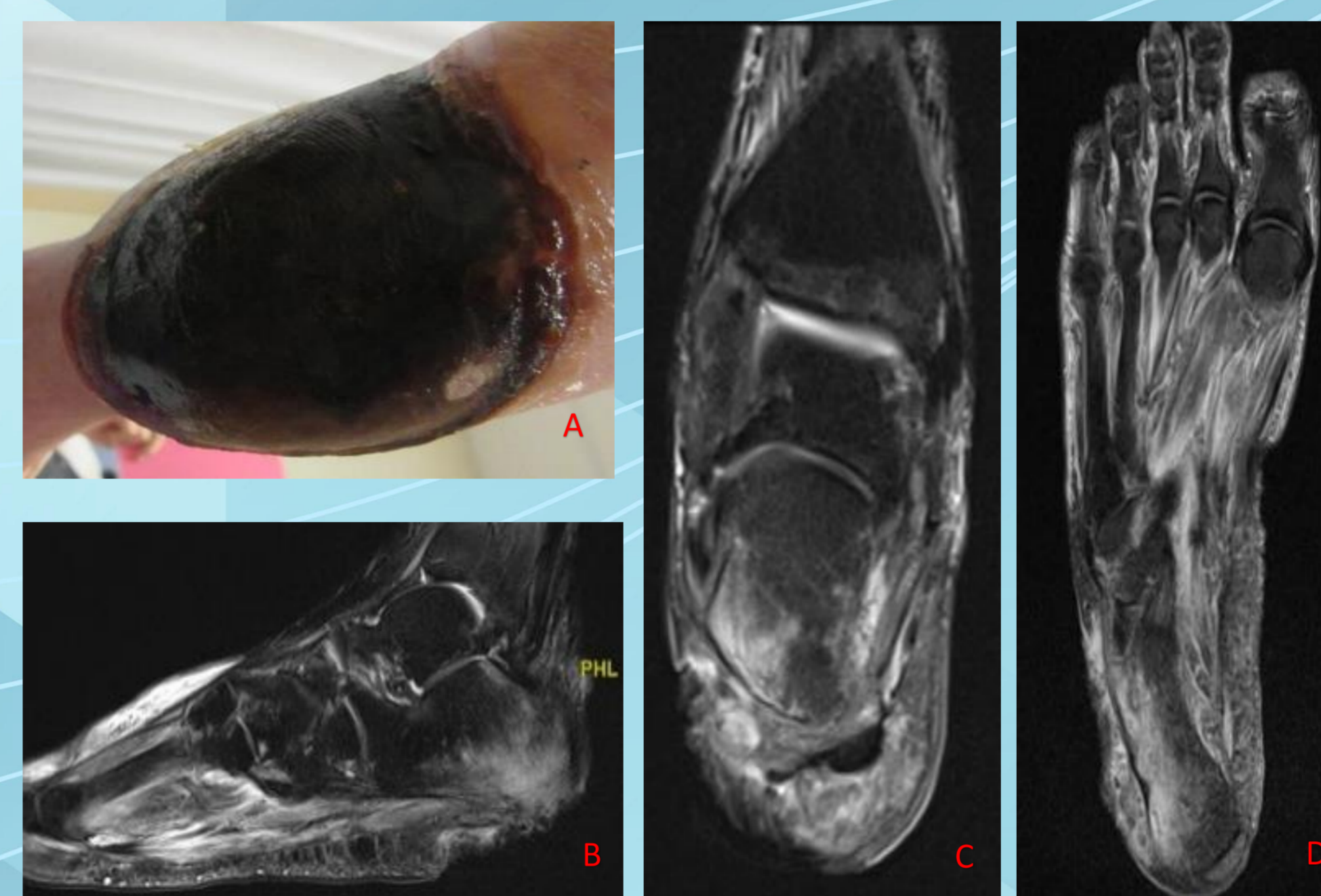
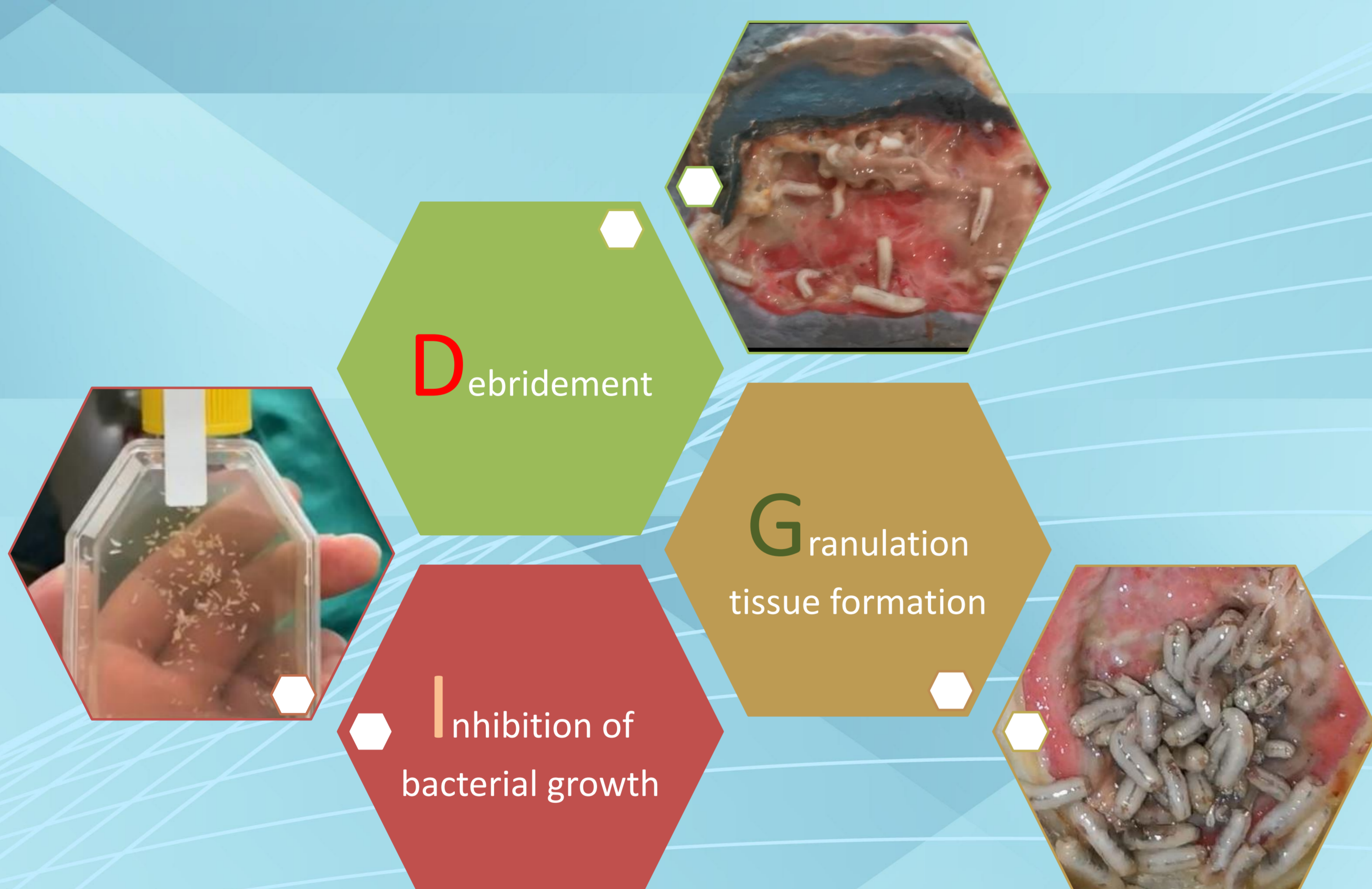


Figure 1 : Clinical presentation of shows well-demarcated gangrenous lesion (A); osteomyelitic changes in the right calcaneal across triplanar views in T2-FS weighted images (B-D)

The “DIG” model of mechanism



Patient Management

Revascularization: Drug-eluting balloon angioplasty of left SFA; Post-PTA scan shows single-vessel outflow to the feet via the PTA.

Abx regimen: Initial 10-days IV clindamycin 600mg and followed by 5days oral clindamycin 450mg; subsequent 6-weeks IV vancomycin (dose-adjustment from 2g to 250mg)

Maggot species: *Lucilia Cuprina*

Wound care management: Alternating treatment involving 1-week MDT, 1-week NWPT and back to 1-week of MDT (See figure 2 for details)

Illustrative case

Case 1

A 59-year-old Chinese male presented with worsening gangrene of left posterior heel despite previous revascularization and DAPT (Aspirin + Clopidogrel)

Phmx: Triad disease[#], PAD, DPN, ESRF

PE: 7cm by 7cm well-defined gangrene over left plantar heel (Figure 1A);

PTA non-palpable, DPA palpable;

Lab: Inflammatory markers unremarkable

Imaging: Cortical erosions and signal accentuation within calcaneal marrow cavity in both T2-FS and STIR- weighted images (Figure 1B-D)

Bone Culture: *methicillin-resistance s. aureus*

WIFI: 322.

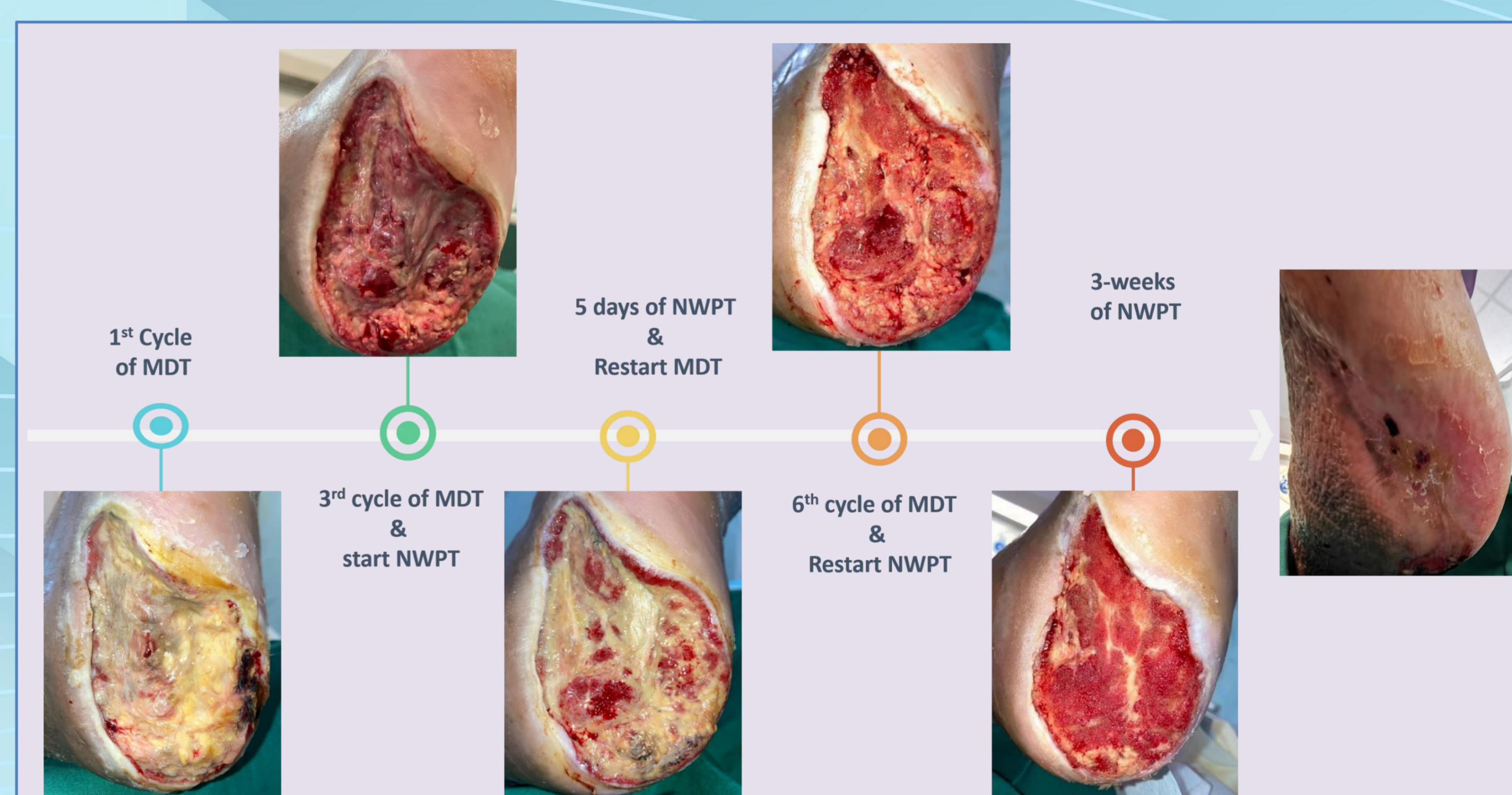


Figure 2: Alternating treatment involving 1-week MDT, 1-week NWPT and back to 1-week MDT, after which NWPT is continued for another 2 months. Wound closure achieved within 3-month from initial presentation

Conclusion

1. Maggot debridement therapy promotes wound healing by removal of necrotic and other cellular debris in a pain-free manner
2. Once the wound bed has return to its normal healing trajectory, other advanced wound care therapies can be considered.