

Pyoderma Gangrenosum Ulcers Treated with Novel Micropore Particle Technology

AUTHORS

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Introduction

Pyoderma gangrenosum (PG) is a rare neutrophilic inflammatory condition with underlying illnesses in about 50% of cases. It is characterised by painful, rapidly expanding, violaceous, undermined ulcers. Immunosuppressants are key to management, but large chronic ulcers often result. The novel powder-based micropore particle technology (MPPT, Acapsil®) has been trialled for wound care. Porous particles absorb and remove wound exudate by capillary action and evaporation. Its benefits have been demonstrated in surgical wounds, burns, and venous and diabetic ulcers, but not PG. The time to a clean wound was reduced by 60% in 266 patients.¹ We report three patients with chronic inactive stable PG ulcers, treated with MPPT for five consecutive days. All demonstrated new granulation tissue consistent with improved healing.

Case Presentations

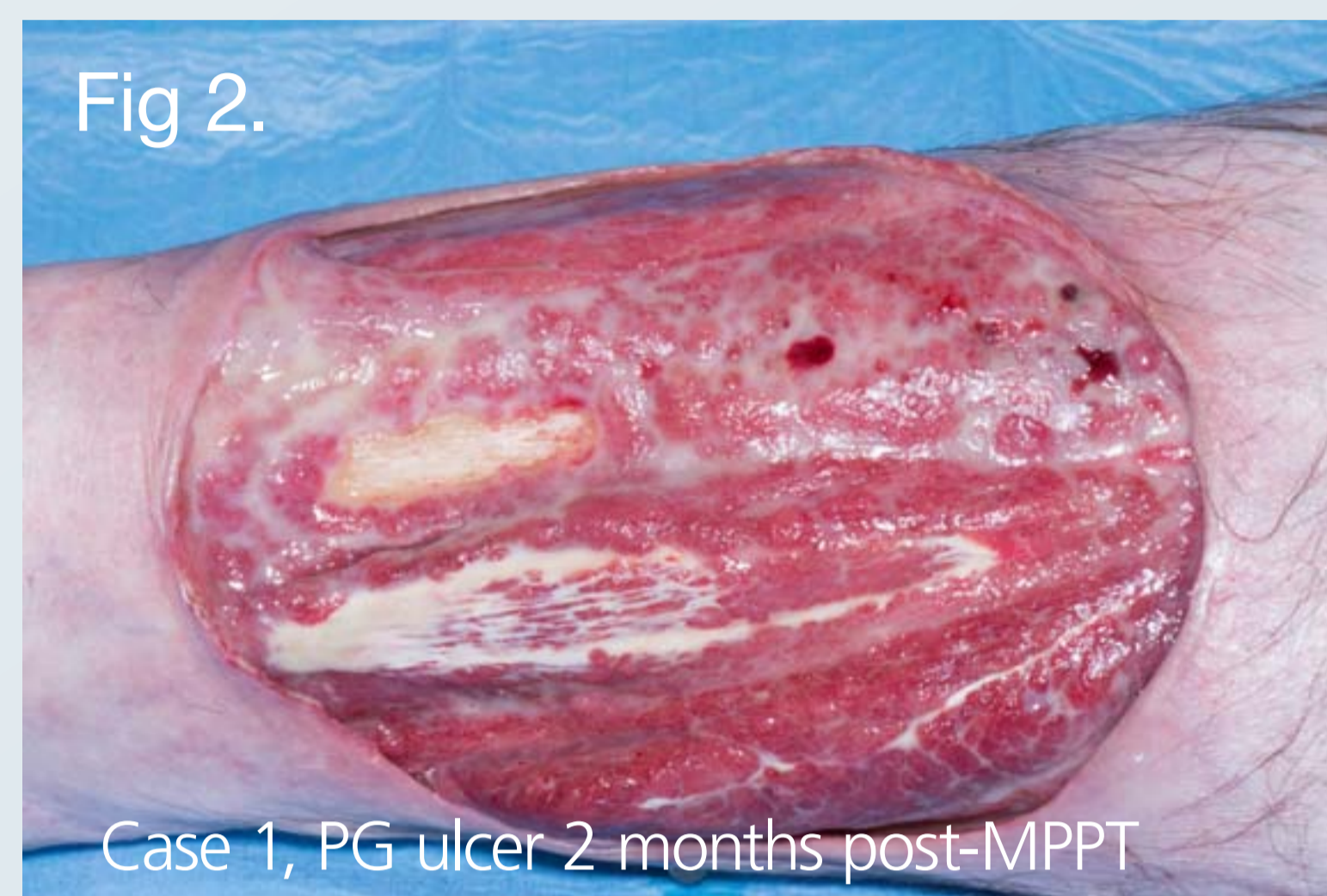
Case 1: A 55-year-old male developed right lower leg PG following a burn 8 months previously. He had insulin-dependent diabetes and hypertension. Treatments included Mycophenolate mofetil (MMF), IVIG, Doxycycline and Dermovate. Pre-MPPT, the ulcer (12.5cmx11cm) had exposed tibia and muscle, and very severe exudate without slough (Fig. 1). At 2 weeks, the wound was shallower, granulation tissue covered most exposed bone, undermining halved, and exudate reduced. Subsequently, the MMF was reduced. He continues on MPPT weekly (Fig. 2).

Fig 1.



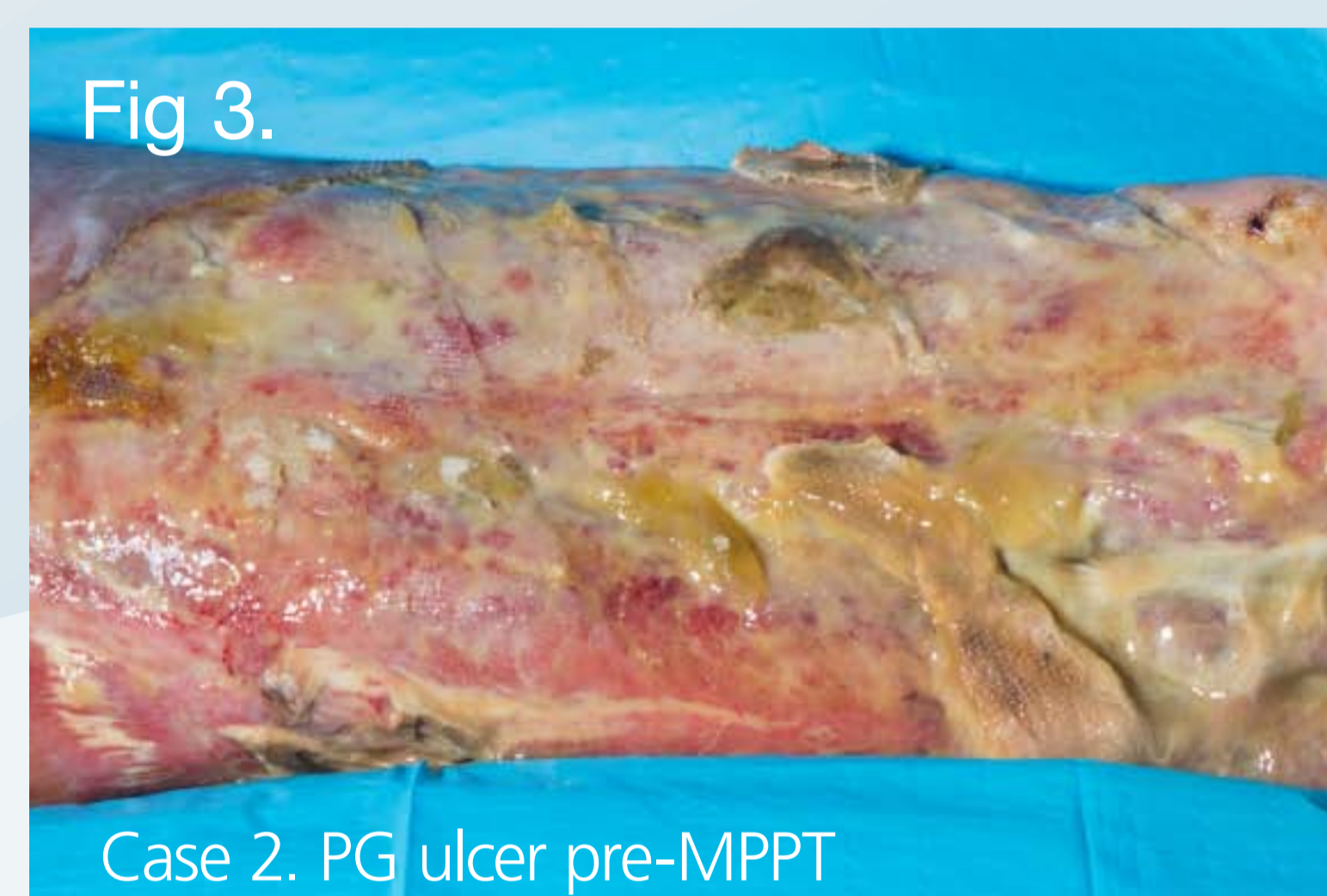
Case 1, PG ulcer pre-MPPT

Fig 2.



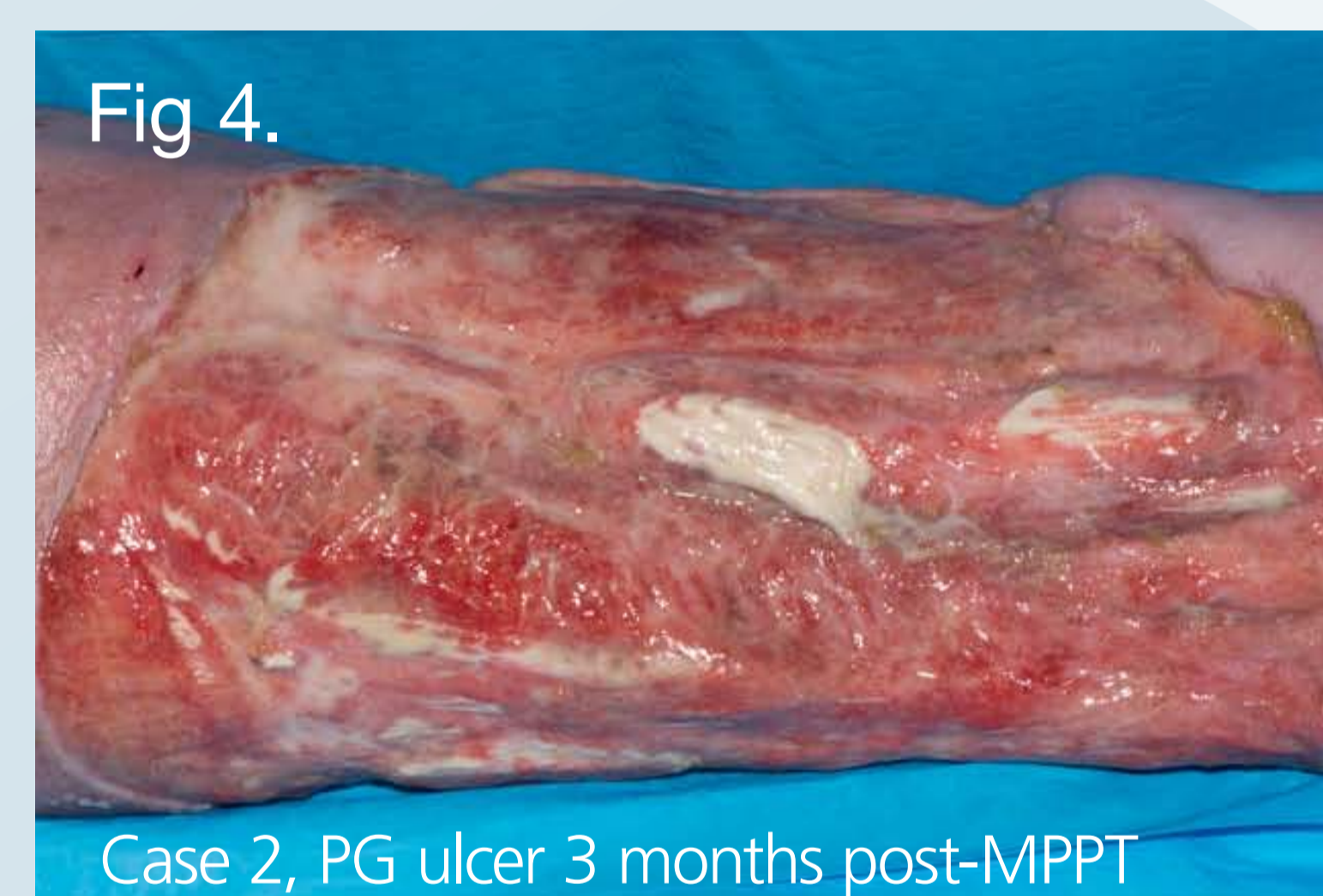
Case 1, PG ulcer 2 months post-MPPT

Fig 3.



Case 2, PG ulcer pre-MPPT

Fig 4.



Case 2, PG ulcer 3 months post-MPPT

Fig 5.



Case 3, PG ulcer pre-MPPT

Fig 6.



Case 3, PG ulcer 2.5 months post-MPPT

Case 2: A 57-year-old male with PG affecting the left lower leg since 2014. He was obese, with recurrent cellulitis, receiving Doxycycline and Dermovate. Pre-MPPT, the leg ulcer (23cmx25cm) had exposed tendons, moderate exudate and 80% slough (Fig. 3). Following MPPT, there was new granulation tissue, moderate exudate and less slough (Fig. 4). Pre-MPPT the Dermatology Quality of Life Index (DQLI) assessment was declined due to pain, post-MPPT it was 4.

Case 3: A 52-year-old male with left lower leg PG for four years. He had ulcerative colitis, ankylosing spondylitis, and Protein C and Factor V Leiden deficiencies causing thromboses. Treatments were Doxycycline, MMF and Dermovate. Pre-MPPT, the ulcer (13cmx8.5cm) was superficial with moderate exudate and 70% slough (Fig. 5). Two months post-MPPT there was new granulation, moderate exudate and 20% slough (Fig. 6). Pre- and post-MPPT DQLIs were 13 and 14, respectively.

Discussion

MPPT has no antibiotic properties. It is thought to disrupt biofilms, and remove inhibitory exudates. Our cases demonstrated increased granulation tissue, reduced slough, and controlled exudate within weeks of MPPT. Pain scores and ulcer diameters did not alter significantly, however further follow-up is required to determine long-term outcomes. Adjuvant MPPT in chronic PG ulcers appears promising. Clinical trials examining MPPT impact on PG ulcers are required.

Acapsil® supplied at no cost by Willingsford Ltd.

References

1. Bilyayeva OO, Neshta VV, Golub AA et al. Comparative Clinical Study of the Wound Healing Effects of a Novel Micropore Particle Technology: Effects on Wounds, Venous Leg Ulcers, and Diabetic Foot Ulcers Wounds 2017; 29(8): 1-9.