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A Multidisciplinary Team Approach for Limb Salvage in a Rare Case of Pyoderma Gangrenosum in a Significant Circumferential Lower Extremity Wound Complicated by Diabetes and End-stage Renal Disease

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Abstract : Introduction: Pyoderma gangrenosum (PG) is a rare, rapidly progressive, neutrophilic ulcerative colitis condition with an incidence of 3 to 10 cases per year [1] [2]. Due to the similar appearance, PG is often misdiagnosed as a diabetic ulcer in diabetic patients. Though they may clinically appear similar in appearance, the treatment protocol and diagnostic criteria differ. Also, end-stage renal disease (ESRD) is often a condition seen in diabetic patients, which can have a significant impact on wound healing due to the wide range of uremic toxins[3]. This case study demonstrates a multidisciplinary team and multimodal treatment approach by podiatric surgery, general surgery, rheumatology, infectious disease, interventional cardiology, wound care and hyperbaric medicine for an uncontrolled diabetic with pyoderma gangrenosum of a significant circumferential wound, covering almost the entire right lower extremity. Methods:56 y.o male presents with multiple PG ulcerations, including the chest, right posterior lower extremity and sacrum. All ulcerations were previously managed by the same wound care specialist. His chief complaint was worsening PG ulcerations accompanied by a fever of 103 °F . This case study focuses on the wound to his RLE. Past medical history significant for diabetes mellitus type 2 with hemoglobin A1c of 10% and end stage renal disease (ESRD) on hemodialysis. A multidisciplinary team approach by podiatric surgery, general surgery, rheumatology, infectious disease, interventional cardiology, wound care and hyperbaric medicine was successfully used to perform right lower extremity limb salvage. The patient was managed by rheumatology for the continuation of prior medication, as well as the mutual agreement with wound care for the addition of dapsone. A coronary CT angiogram was performed by interventional cardiology, but no significant disease was noted, and no further vascular workup was necessary. Multiple surgical sharp wide excisional debridements with application of allografts and split thickness skin grafts for the circumferential ulceration that encompassed almost the entire right lower extremity were performed by both podiatric surgery and general surgery. Wound cultures and soft tissue biopsies were performed, and infectious disease managed antibiotic therapy. Hyperbaric oxygen therapy and wound vac therapy by wound care were also completed as adjunct management. Results: Prevention of leg amputation by limb salvage of the RLE was accomplished by a multidisciplinary team approach, with the wound size decreasing over a total of 29 weeks from 600 cm^2 to 12.0 x 3.5 x 0.2 cm. Our multidisciplinary team included podiatric surgery, general surgery, rheumatology, infectious disease, interventional cardiology, wound care and hyperbaric medicine. Discussion: Wound healing, in general, can have its challenges, and those challenges are only magnified when accompanied by multiple systemic illnesses. Though the negative impact of diabetes on wound healing is well known, the compound impact of being a diabetic with ESRD and having pyoderma gangrenosum is not. This case demonstrates the necessity for a multidisciplinary team approach with a wide array of treatment modalities to optimize wound healing and perform limb salvage with prevention of lower extremity amputation.

Keywords : diabetes, podiatry, pyoderma gangrenosum, end stage renal disease
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