LETTER TO THE EDITOR

Wound Management of Systemic Sclerosis using Maggots: Out-of-Sight Out-of-Mind

A 54-year-old female patient with a diagnosis of systemic sclerosis presented with painful, necrotic and infected digital ulcers that occurred 9 months ago. During the course of nine months she reported to receive a total of 90 sessions of hyperbaric oxygen therapy at 2.4 atm absolute pressure for 2 hours each; with no significant improvement. On physical examination, she had necrosis over the tips of the first, fourth, and fifth toes as well as on the plantar aspects of the metatarsal heads (Fig. 1A). Her pedal pulses were palpable and CT angiography obtained one-month prior revealed patency in all of the arteries of the lower limb. Transcutaneous partial oxygen pressure measured at the first metatarsophalangeal level was 65 mmHg. Laboratory studies revealed the following: C-reactive protein: 18 mg/dl and erythrocyte sedimentation rate: 48 mm/h. Because the wound culture revealed *Pseudomonas aeruginosa*, oral treatment with ciprofloxacin 2×500 mg and amoxicillin clavulanate 2×1000 mg was started. Due to the severe pain, we decided to use maggots for the debridement of the necrotic tissue. Following three consecutive application of maggot debridement therapy (MDT) necrosis was almost completely removed and a pink colored granulation tissue was observed in the wound bed (Fig. 1B–D). Following this achievement, the treatment continued with negative pressure wound treatment (NPWTi) with instillation repeated three times (Fig. 1E) and finally with punch grafting to accelerate epithelialization (Fig. 1F and G). Parallel to the recovery of the wound, the patient's pain, also, significantly decreased. Almost complete epithelialization was occurred using topical collagen-impregnated wound dressings (Fig. 1H).

Systemic sclerosis (scleroderma) is a connective tissue disorder characterized by immune activation, skin and organ fibrosis, chronic vasculopathy and painful digital ulcers. These ulcers are difficult to heal and are

usually complicated by infection, gangrene and eventually amputation.¹ The debridement of the necrotic tissue in patients with scleroderma is challenging due to severe pain. Surgical debridement using local or general anesthesia may be contraindicated in some patients. Using MDT in these patients may be a simple, effective, well-tolerated and cost-effective alternate. Mechanisms of wound healing with MDT include debridement, disinfection, initiation of granulation and improvement of blood circulation.² The fact that maggots feed primarily on necrotic or partially decomposed tissue within the ulcer without harming the healthy tissue provides an excellent means of selective wound debridement.² MDT can be considered as an alternative and effective debridement method in patients with scleroderma.

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Figure 1 (A) Patient at presentation, note the necrosis over the tips of the first, fourth, and fifth toes as well as on the plantar aspects of the metatarsal heads (B), (C), (D) Debridement of the necrotic area by the maggots observed after the 1st, 2nd and 3rd application, respectively (E) The wound bed after NPWTi (F), (G) and following Punch graft application (H) Final appearance of the wound.

References

1. Cappelli L, Wigley FM. Management of Raynaud phenomenon and digital ulcers in scleroderma. *Rheum Dis Clin North Am* 2015;41:419–38.
2. Mumcuoglu KY. Clinical applications for maggots in wound care. *Am J Clin Dermatol* 2001;2:219–27.