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INTRODUCTION

The name Scleroderma comes from the Greek word "sclero', meaning hard, and "derma" meaning skin. Scleroderma (SD), a connective tissue disease is associated with fibrin occlusive vasculopathy and dysregulation of collagen deposition.^{1,2} SD, a collective term, may affect only skin, "localized" or is multiorgan, "Systemic Sclerosis" (SS) or may have overlapping features.³ Reports suggest 4%-12% of patients with SS develop lower extremity ulcers.⁴ Additionally, SS often presents with Raynaud's Phenomenon (RP) leading to a greater risk of ulceration with characteristic wound bed hypoxia. The devastating effect of poor blood flow is seen in case series that reported 20% of SD ulcerations resulted in amputation, with a known resultant risk of greater morbidity.⁴ The rarity of the condition, and the sparsity evidence, results in a lack of established treatment options. Cyclically pressurized topical oxygen therapy* (TOT) can be delivered to both upper and lower limbs by means of an extremity chamber. TOT is reported to increase angiogenesis 20-fold, improve collagen synthesis, and upregulate leucocyte function.⁵ These benefits result in a sound capillary bed, superior collagen deposition and a reduced risk of infection.

This case study of a 53-year-old female with SS, RP, sclerodactyly, pulmonary fibrosis and wound history in 2021 of right lower limb (LL) ulceration, treated with skin graft, 40 sessions of Hyperbaric Oxygen Therapy (HBOT) treatment pre and 20-post grafting. The patient later presented in November 2022 with left LL ulceration, bilateral digital ulcerations, and simultaneous breakdown of the right graft site. Following one month of conservative treatment with minimal improvement and denial for HBOT, TOT therapy commenced at home 90 minutes a day 5 times a week.

RESULTS

TOT and SOC successfully healed the bilateral ulcerations. Initial treatment on the lower extremities (2-months), followed by upper extremities (3-months) resulted in healing of all wounds.

DISCUSSION

This case suggests utilizing TOT with SOC enhances blood flow to the wound bed, halting deterioration and aiding resolution of SD ulceration. The versatility of the extremity chamber, 22.5 hours device-free time, maintaining dexterity and mobility, further supports TOT as a convenient, easy to use treatment option for SD wounds.

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A Case Study of Scleroderma Ulceration: A "Hard Skin" Problem to Manage



11/30/22







05/27/21





01/04/23







2/01/23



02/01/23 (TWO2 Stopped)





TREATMENT (SOC plus Bactroban)



10/27/22



11/30/22



3/29/23



05/17/23



02/01/23 (TWO2 Stopped)



02/01/23 (TWO2 Stopped) **Prioritized on hands**



3/29/23



5/17/23

