WISN NECROSIS TREATMENT WITH TRANSDERMAL CONTINUOUS OXYGEN THERAPY

Stephanie Wu, DPM, MSc* and Donald Kemp, MD#

* Associate Professor of Surgery, Dr. William M. Scholl College of Podiatric Medicine, Center for Lower Extremity Ambulatory Research, Chicago IL
# Renfrew Victoria Hospital, Wound care Clinic, Renfrew, ON, Canada

INTRODUCTION

WISN (Warfarin-Coumadin) Necrosis is a rare disorder that can affect the skin and subcutaneous tissues, primarily on the extremities. It is typically associated with the use of Warfarin (Coumadin), a medication used to prevent blood clots. The condition is characterized by skin necrosis, usually with a painful scab or ulceration that progresses to a localized, erythematous or hemorrhagic lesion that may become bullous and ultimately culminates into tender, full-thickness gangrenous necrosis.

INCIDENCE OF WISN

WISN is relatively rare, considering the widespread use of the agent and is also known as Coumadin-induced skin necrosis, coumarin-congener-associated skin necrosis, and Warfarin dermal gangrene.1-4 The exact incidence of WISN is undetermined but estimated to be between 0.01 - 0.1% of patients treated with Warfarin, with approximately 250 documented cases worldwide.

WARFARIN NECROSIS TREATMENT

The presentation of WISN may mimic other disorders including venous gangrene, necrotizing fasciitis, other causes of skin necrosis, and dermatologic entities.5-7 WISN seems to have a predilection for anatomic regions abraded in subcutaneous fat such as the breasts, buttocks, thighs, and abdomen.5-7 WISN classically presents with a painful skin lesion or pustule that progresses to a localized, inflammatory, erythematous or hemorrhagic, sharply demarcated ecchymosis that becomes bullous and ultimately culminates into tender, crusted, full thickness gangrenous necrosis.5-7, 10, 12

CASE STUDY

We present a patient with WISN of bilateral shoulder area that was successfully treated with a Transdermal Continuous Oxygen Therapy device (TCOT; JEPPO) Corp, Corporation Beachwood, OH. We will discuss the management challenges involved as aggressive surgical debridement is not possible with this disorder and as a result, a more conservative management strategy was used, which may be considered for future therapies.

A 62 year old female presented to the wound care clinic for treatment of extensive wounds on both shoulders and abdomen in August of 2007. The wounds began about a year before but were stable until about 2 weeks prior to initial treatment with Transdermal Continuous Oxygen Therapy. The patient had been on Warfarin Therapy for 27 years, long term dialysis, was diagnosed with breast cancer 3 years prior, and has since had a double mastectomy. Patient was noted to have both protein C and protein S deficiency, and palliative treatment was recommended by the treating physician. Initially, TCOT was applied to the right shoulder wound while negative pressure wound therapy (NPWT) (V.A.C. Wound Care, Inc., LLC, San Leandro, CA) was applied to the left shoulder. The patient noted some improvement in pain in the left shoulder and was eventually diagnosed with calciphylaxis. After 1 week, the right side flank wound was observed with some noted improvement including reduction of size, shape change of wound, defined wound edges, reduction of slough and increased granulation and a size of 11cm x 4.5 cm. The patient continued to complain of intense pain while numerous new wounds were concurrently formed. Subsequent to the success with the right flank wound after 1 week, the treating physician initiated TCOT on the left shoulder wound. The right shoulder wound which remained treated only with moist wound therapy, showed a lack of granulation and appeared less healthy than those treated with TCOT. The patient was prescribed oxycodone for the pain and received silicone based hand dressing (Surgilast, Mölnlycke Health Care US, Norcross, GA) on all other wounds since regular gauze dressings applied by home care nurse between visits to the clinic became adhered to wound tissues.

The right side flank wound continued to heal with complete epithelialization noted in 22 weeks or about 5.4 months and wounds in close proximity to treated wounds improved as well. As time progressed, the wounds treated with TCOT continued to demonstrate excellent granulation and the wounds that were in close proximity to the topical oxygen treated wounds but not treated with the device were slowly showing improvement including the untreated right shoulder wound treated only with standard moist wound therapy treatment. The patient’s outlook and demeanor also noticeably improved. Three months after presenting to the wound clinic, Warfarin was discontinued by the treating physician and heparin therapy initiated. After almost 8 months following the initial presentation to the wound clinic, the patient was completely healed and very happy with the results.

REFERENCES


DISCUSSION

As surgical treatment is required in over 50% of all cases, including mastectomies and amputations9, TCOT may serve as an efficacious non-invasive alternative to help treat WISN and its associated painful symptoms.

TCOT device utilized in case study