

## Non-Healing Full-Thickness Thermal Burn to the Right Lower Extremity (RLE) with Marked Improvement in Microcirculation Post-Revascularization Due to PAD

Presented by: Danae Kissner: PA-C, CWS, CLT

### PATIENT DETAILS:

An 81-year-old female patient with peripheral arterial disease (PAD), PVD, breast cancer-LUE lymphedema, dementia, morbid obesity, DMT2 (A1C 5.7%), CKD, CHF (currently controlled), and COPD was admitted to the Skilled Nursing Facility (SNF) for rehabilitation and management of multiple wounds and health conditions, including a full-thickness burn from a hot coffee spill on her right calf.

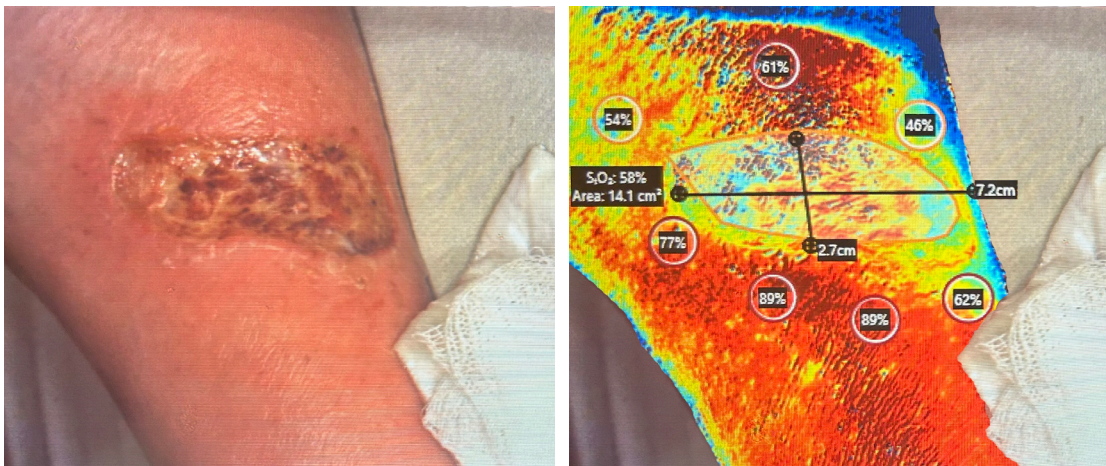


Fig 1: April 4: Image of calf with a full-thickness thermal burn. The patient was also diagnosed with significant arterial insufficiency.



Fig 2: April 12: Image of the full-thickness thermal burn a week after starting anticoagulants. Note the increase in oxygenation as well as acute deep-vein thrombosis above the wound, as well as the documented decrease in wound size with treatment.

### CASE STUDY DETAILS:

The patient's right calf wound treatments included moist wound healing, wound hygiene, anti-biofilm dressings, collagen dressings to promote granulation, topical and systemic antimicrobials, offloading and pressure reduction, sharp debridement, and dietary interventions with the appropriate nutritional/liquid protein supplementation.

Venous studies revealed acute deep vein disease (DVD), prompting the start of anticoagulation therapy. Arterial evaluation resulted in revascularization of the RLE soon after to treat arterial occlusion. She also received Intermittent Pneumatic Compression (IPC) to treat her LUE secondary lymphedema from breast cancer which was currently in remission.

After approximately 15 weeks of treatment, the patient's right calf wound was not showing signs of adequate healing. Images obtained from SnapshotNIR showed diminished/inadequate microcirculation and an inflammatory wound healing phase.

Vascular studies were obtained and revealed significant arterial insufficiency as well as acute deep vein thrombosis (DVT). IPC was held for lymphedema until DVT and PAD were appropriately and adequately treated. The DVT was then treated with systemic anticoagulation medications and vascular surgery was scheduled to treat the arterial insufficiency. Prior to anticoagulation therapy, the clinician visits for acute DVT showed inadequate microcirculation (NIRS 58%) and inflammatory wound healing phase in the right calf via SnapshotNIR images.

One week after starting anticoagulants, NIRS images showed improvements to the wound but diminished microcirculation (NIRS 61%) and a proliferative healing phase. The patient was hospitalized soon after for arterial revascularization. Her right calf wound was found to not only have decreased in the wound area and volume, NIRS imaging data showed the right calf wound to have adequate microcirculation (NIRS 72%) in the proliferative wound healing phase. The wound subsequently has shown 86% improvement in the wound area and has not had recurrent cellulitis or required systemic antibiotics for local wound infection.



Fig 3A: May 3: Clinical image of the healing burn after a month of arterial revascularization.

*"SnapshotNIR is a helpful tool for me as a wound care provider to help support the need for vascular imaging and to promote healing opportunities for patients who have vasculopathic health issues that can delay wound healing."*

**Danae Kissner, PA-C, CWS, CLT**

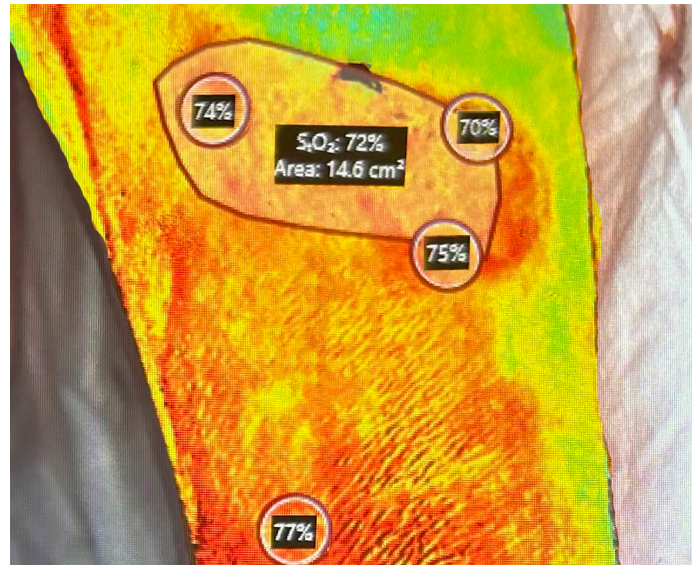


Fig 3B: May 3: S<sub>t</sub>O<sub>2</sub> image of the healing burn after a month of arterial revascularization.

**IMPACT:**

SnapshotNIR was beneficial in identifying microcirculatory issues in this non-healing wound and added more evidence to support additional vascular studies. Using Snapshot during wound assessments pre- and post-DVT treatments, as well as pre- and post-arterial revascularization procedures demonstrated improved tissue oxygenation in response to interventions which correlated with wound healing.

**Danae Kissner, PA-C**

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