(CS-006) Negative Pressure Wound Therapy with Instillation and Dwell Using New Novel Foam Dressing of Infected Wounds

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INTRODUCTION:

Negative pressure wound therapy with instillation + dwell has been used to remove slough/exudate/fibrin/biofilm from infected wound beds. Previously, a reticulated foam dressing was used in conjunction with a separate thin and/or thick foam in the wound bed. There is a new novel foam that fuses both the reticulated and solid foam pieces together to improve ease of use and time.

METHODS

Digital photo documentation
Non-contact real time fluorescence wound imaging for bacterial presence + location.
Non-contact near infrared spectroscopy studies of wound measurement of deoxyhemoglobin, oxyhemoglobin, and ratio of tissue oxygenation (S^tO^2)
Negative pressure wound therapy with instillation + dwell with hypochlorous acid
Hybrid novel silicone-acrylic drape

PATIENT INFO:

PATIENT 1:

The patient is a 50 year old male with a significant past medical history of Fournier's gangrene, hypertension, heart failure with reduced ejection fraction, dyslipidemia, end stage renal disease on hemodialysis and diabetes mellitus type 1 (uncontrolled) with complications of nephropathy, neuropathy, peripheral arterial disease, and prior diabetic foot ulcerations who was hospitalized secondary to Fournier's gangrene.

OPERATIVE REPORT 6/24/2022:

Sharp excisional debridement of skin and subcutaneous fat on right thigh and right lower abdomen

PATIENT 2:

The patient is a 70 year old female with a significant past medical history of varicose veins of the left lower extremity with ulceration of left calf, secondary lymphedema of venous etiology and hypertension who was directly admitted from the wound care clinic secondary to acute infection of left venous ulcerations.

The patient has undergone the following treatments/procedures in the recent past:

- Venous ablation
- Negative pressure wound therapy
- Application of topical oxygen
- Application of advanced cellular and/or tissue products -
- Venous compression
- Lymphedema clinic appointments

RESULTS:

Both patients showed marked improvement of the wound bed. There was marked removal of slough/exudate/biofilm/fibrin showing increased granulation tissue.

The non contact near infrared spectroscopy of both patients initially showed decreased oxygenation and microcirculation of the wound beds. Likewise, non contact real time florescence wound imaging showing greater than 10^4 log of pathogenic bacteria.

After using negative pressure wound therapy with instillation and dwell, there was marked improvement of the oxygenation/microcirculation and near eradication of pathogenic bacteria.

DISCUSSION:

In both patient cases, the novel fused reticulated foam was used with negative pressure wound therapy with instillation and dwell. In addition, the hybrid novel silicone-acrylic drape was used. This process was done in lieu of using the separate reticulated foam and solid thick plus thin foam pieces.

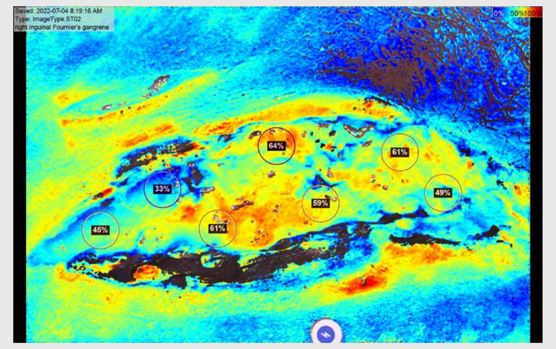
The novel foam afforded the opportunity to save time compared to using a separate reticulated foam with solid foam. There was also ease of use with the novel foam.

PATIENT 1

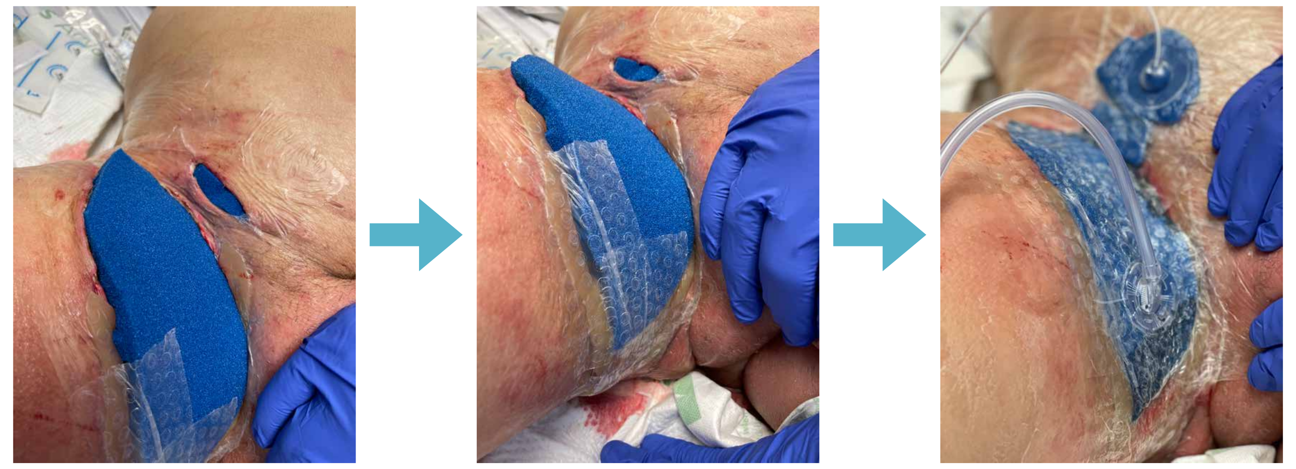
07.04.22

Initial post operative picture

non contact real-time fluorescence wound imaging for bacterial presence and location pic- There is RED fluorescence seen



near infrared imaging to detect oxygenation and microcirculation. Decreased oxygenation microcirculation.

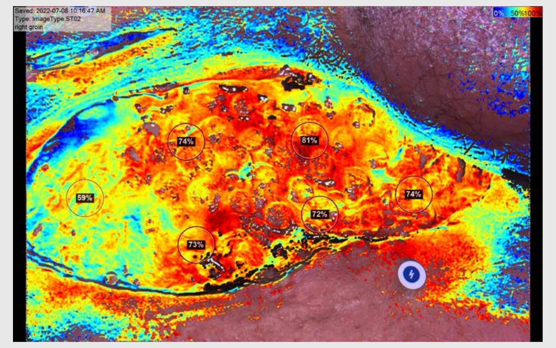


Application of novel foam using hybrid drape prior to initiating negative pressure wound therapy with instillation and dwell using hypochlorous acid

07.11.22

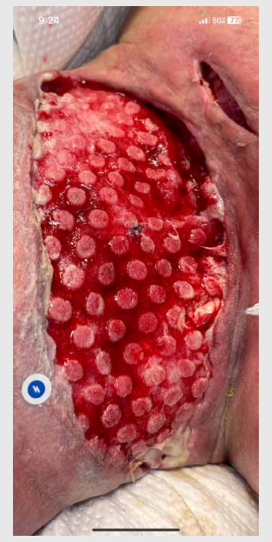
post negative pressure wound therapy with installation and dwell

non contact real-time fluorescence wound imaging



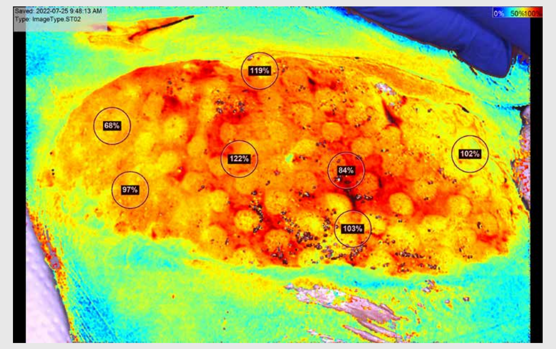
Non-contact near infrared spectroscopy. Improving oxygenation and microcirculation

07.25.22



post negative pressure wound therapy with installation and dwell

non contact real-time fluorescence wound imaging



Non-contact near infrared spectroscopy. Improving oxygenation and microcirculation

PATIENT 2

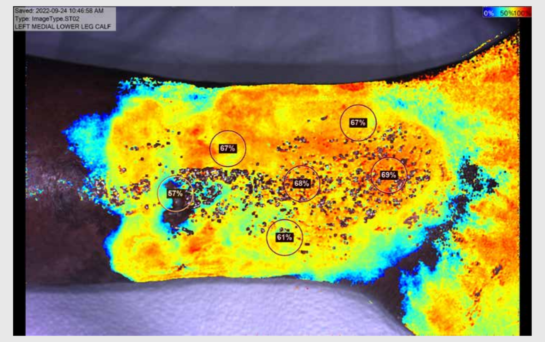
09.07.22

Image of infected left lateral lower leg

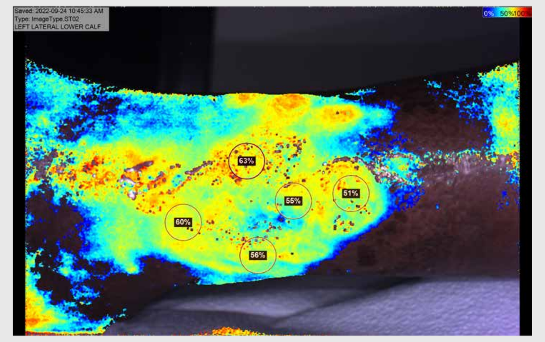
non contact real-time fluorescence wound imaging for bacterial presence and location There is heavy RED florescence seen

Image of infected left medial lower leg venous ulceration

non contact real-time fluorescence wound imaging for bacterial presence and location. There is heavy RED florescence seen.



Non-contact near infrared spectroscopy. Decreased oxygenation microcirculation is seen.



Non-contact near infrared spectroscopy. Decreased oxygenation microcirculation is seen.

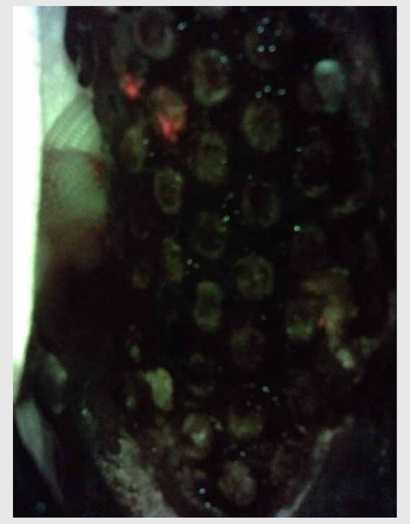
Application of novel foam using hybrid drape prior to initiating negative pressure wound therapy with instillation and dwell

09.30.22

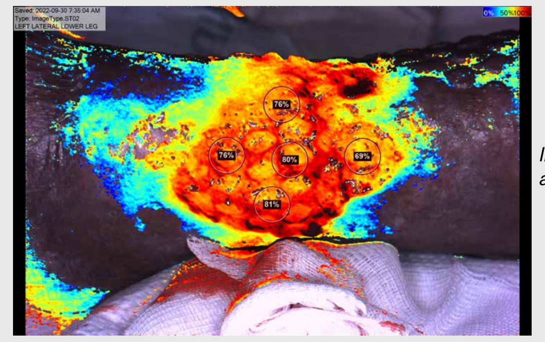
image of left lateral venous ulceration post three days of negative pressure wound therapy with installation and dwell

non contact real-time fluorescence wound imaging near eradication of pathogenic bacteria

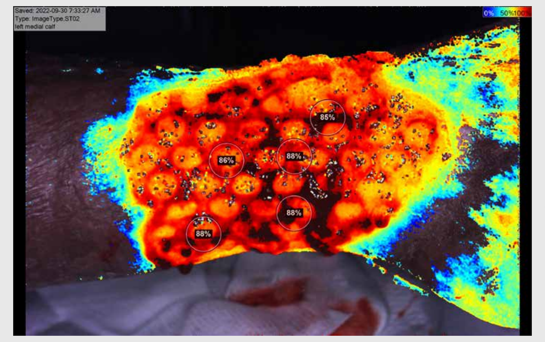
post procedure



non contact real-time fluorescence wound imaging



Improved oxygenation and microcirculation



Improved oxygenation and microcirculation