Innovations in Wound Healing Therapy

"Where Wounds Go To Heal"SM

Chronic Venous Insufficiency (CVI) Ulcer Complicated by Arterial Insufficiency

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Case Report - 4

Abstract

Chronic venous insufficiency (CVI) accounts for over 70% of the lower extremity ulcers treated in the U.S. Despite it's high prevalence, the treatment of venous ulcers remain a clinical challenge.

The foundation of medical management of CVI ulcer is compression therapy. If compression therapy is appropriately utilized, approximately 85% of venous ulcers will heal.

A certain percentage of venous ulcers have an additional underlying arterial component causing tissue hypoxia at the ulcer site. This will cause non-healing despite adequate wound care and compression therapy.

The following case is a example of how Transcutaneous oxygen pressure monitoring ($TcpO_2$) identified an underlying arterial component causing non-healing due to tissue hypoxia.

Case Report

Insulin dependent diabetic with a chronic non-healing venous ulcer of his right lower extremity. The ulcer has been present for over 10 years. The patient has been non-compliant in the treatment of his diabetes and his ulcer. His past surgical history is positive for a failed STSG to the ulcer site. Initial physical exam revealed pitting edema, severe stasis changes and a large weeping ulcer. No pulses were palpable distal to the popliteal arteries due to the edema.

Before Treatment

The patient was treated with appropriate standard wound care and compression therapy for a number of months.

During Treatment

There was a progressive decrease in the size of the ulcer.

During Treatment

During Treatment

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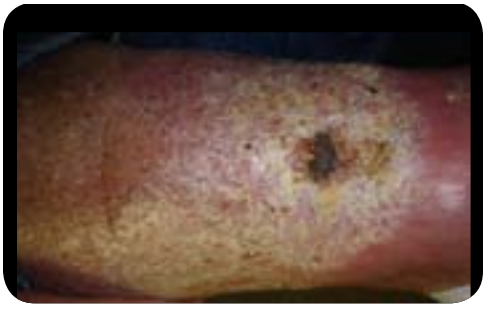
Over time we reached a point where the ulcer failed to progress.

During Treatment



Underlying tissue hypoxia was suspected and a $TcpO_2$ study was performed which confirmed reversible tissue hypoxia. Standard compression therapy and wound care was continued along with hyperbaric oxygen therapy (HBOT). The baseline $TcpO_2$ and ulcer improved after 14 HBOT's.

TcpO2 Studies

During Treatment

After 9 additional HBOT's (23 treatments total) and continued compression therapy the ulcer healed.

TcpO2 Studies

After Treatment

Conclusion

1. Venous ulcer disease is at times complicated by the addition of arterial disease causing tissue hypoxia. This will slow or prevent healing despite adequate wound care and compression therapy.
2. $TcpO_2$ is useful in identifying underlying tissue hypoxia.

THE PRIMARY CARE PHYSICIAN SHOULD REFER THE PATIENT FOR ADVANCED WOUND CARE IN A WOUND HEALING CENTER IF THE PATIENT:

- Has a wound that persists for more than 30 days after treatment
- Has a wound and Reynaud's phenomenon
- Has purpura
- Has a wound and hypertension
- Has gangrene or necrotic tissue in a wound
- Has a wound and diabetes

About Precision Health Care

Precision Health Care is a comprehensive wound healing and hyperbaric medicine service organization dedicated to the development of state-of-the-art hyperbaric and wound healing centers through partnership and collaboration with our affiliate hospitals.

Community-based and patient-focused, we are driven by this mission philosophy: To provide select hospitals safe, comprehensive, compassionate wound healing and hyperbaric services for patients in need.

Questions or Comments?

Contact us:
at Precision Health Care:
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About the Author

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