

Limb Salvage with Topical Wound Oxygen (TWO₂) – Two Cases of Complex Wounds in Multimorbid Patients and Imminent Major Amputation

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Introduction

Patients suffering from chronic ischemic wounds often have multiple chronic conditions that impair wound healing. We present two cases we treated with a new therapy working with oxygen and cyclical pressure.

Methods and Results

Topical Wound Oxygen (TWO₂) from the manufacturer AOTI Ltd, Ireland works with purified oxygen and pressure cycles between 5 and 50mbar to enhance the partial oxygen pressure in the wound tissue.

Case 1:

A 64 year old male patient had an autologous femoro-popliteal bypass surgery done 4 weeks prior to admission. We saw the patient with a complete necrosis of the skin on dorsal site of the foot. Surgical removal of necrosis and resection of compartment on back of foot as well as amputation of toes were performed. We continued therapy with negative pressure therapy (NPT) and intermittent TWO₂ therapy. After skin grafting NPT and intermittent TWO₂ therapy for 7 days was done. After stopping NPT, TWO₂ treatment alone was for 10 days before dismissal home.



17th July 2009. Patient presented in our hospital



Two days after surgery. Therapy with NPT and TWO₂ during dressing changes



Dismissed to home. After mesh-grafting NPT and intermittent TWO₂ therapy followed by TWO₂ therapy alone.



23 weeks after surgery

Case 2:

72 year old male diabetic patient with AVK developed a gangrenous forefoot. Prior to admission to surgical ward therapy with prostavasin was done. There were no possibilities to improve arterial vascular status via surgical procedures. A transmetatarsal amputation with repeated debridement was performed followed by negative pressure therapy and resection of necrotic tissue. After 6 weeks of no further improvements we started with TWO₂ for 6 days. The wound granulated well and we decided to skin graft followed by negative pressure and TWO₂ therapy on days of dressing changes for 6 days. After 13 days of solely TWO₂ the wound granulated well and the patient was dismissed to rehabilitation.



2nd June 2009. Treatment of gangraenus wound since January. Transmetatarsal amputation due to worsening infection.



19th of June, NPT started.



15th of July. Increasing swelling and infection. Start with TWO₂ therapy



21/22nd July. After 6 treatments with TWO₂. Mesh grafting planned



Dismission 3 weeks after mesh-grafting. 13 days with TWO₂ therapy.



41 weeks after first admission. Readmission due to gangrene on big toe on the right foot.

Conclusion

In these two complicated cases both associated with severe comorbidities TWO₂ proved to be an valuable adjunctive therapy with good results in healing and more important to maintain the functional status by avoiding major amputation.