Advanced Oxygen Therapy Inc.

TWO2 MULTI-MODALITY OXYGEN THERAPY

The Use of a Mesenchymal Stem Cell Living Skin Substitute in Conjunction with Topical Wound Oxygen for an Ischemic Post Operative Transmetatarsal Amputation

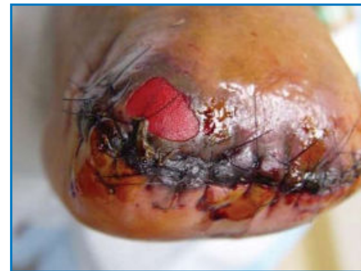
Francis Derk, DPM , CDR USN STVHCS: Chief Podiatry Services UTHSC: Assistant Clinical Professor

A 66 yr/o Male with a hx of severe PVD, CVA, CHF, Hep C, s/p BKA, End Stage Renal Dx, and DM Underwent a TMA of the Left foot secondary to Osteomyelitis and infection. Immediately post operatively, the wound became escharotic and dehisced. The patient was then placed on Topical Wound Oxygen Therapy (TWO_2) for wound staging and wound bed preparation.

The patient underwent a Vascular Bypass Graft 5 months prior to the TMA procedure. Pre and Post NIVs were N/C. The patient was not a candidate for further vascular surgery and presented with a natural hx of limb loss on the contralateral side prior secondary to PVD and infection.

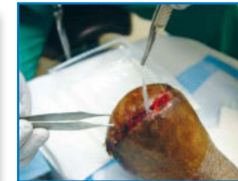
ABIs: Left Not compressible (N/C)
TBIs: (TMA)
S/P: SFA-PTA Bypass
Non palpable pulses
Dopplers: non audible
Waveforms: flat line

Hx of Smoking: 1 PPD / 35 yr Pack hx



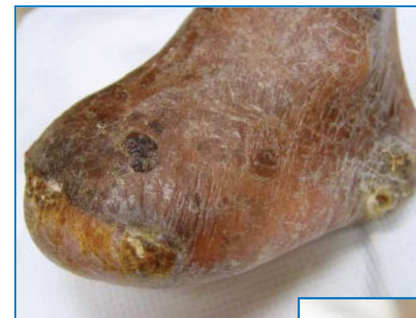
Left TMA: Immediately Post Op

Grafix Core Preparation



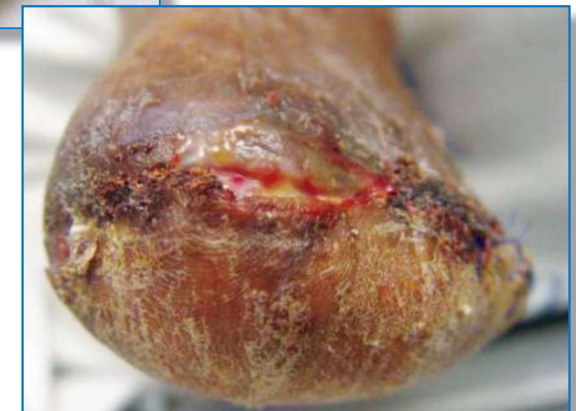
Application of the Grafix Core Mesenchymal Stem Cell Living Skin Substitute within the dehisced wound. Wound Measurement 7.5 x 2.8 cm.

Application of Steri Strips



S/P 2 applications of Grafix Core (4weeks) The Patient continued with TWO_2 until full healing.

Time of Healing	X-rays	Blood Cultures	Lab Analysis
9 Weeks	negative	negative	WBC / CPR / Sed rate WNL



S/P 5 Weeks TWO_2 Therapy 45 min/BID

Advanced Oxygen Therapy Inc.

two₂ MULTI-MODALITY OXYGEN THERAPY

The Use of Topical Wound Oxygen (TWO_2) in a Complicated Post Surgical Transmetatarsal Amputation with Incision and Drainage of the Foot

Francis Derk, DPM , CDR USN STVHCS: Chief Podiatry Services UTHSC: Assistant Clinical Professor

A 47 yr/o Female with a hx of severe DM, Retinopathy, and Neuropathy presented to the Emergency Department with a severe left foot infection. The patient presented very confused and had not seen a provider in over a year. She stated the ulcer started as a blister on the bottom of her foot and was receiving care by her immediate family.

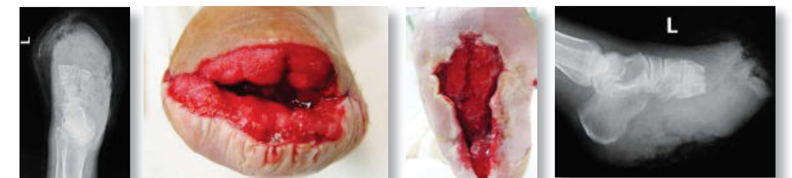
A multidisciplinary team approach was attained and collaboration was established with Medicine, Vascular Surgery, and Infectious Disease. The patient had palpable pulses (2/4) and were audible upon bedside testing. The patient presented with a 560 glucose level along with normocytic anemia with an H/H of 7.9/25.3. Two units of packed RBCs were given during surgery and 2 more units were given at post op day 1. The patient had a spike in her WBC at post op day 1 which was attributed to the transfusion. A negative pressure device was used for 3 days and then discontinued due to pain and discomfort. Topical Wound O_2 therapy was initiated following surgery bid for 90 mins.

The patient was discharged on post op day 6 and was placed on po Augmentin 500/125 mgs bid for 14 days. Wound dressings consisted of light wet to dry packing changed bid in conjunction with TWO_2 therapy bid/90 mins. The patient was placed in a removable posterior splint for 3 weeks and then transitioned to a CAM boot until healed. Once healed, the patient was placed into a custom molded shoe with filler.

Vitals
Tm:98.5
R:20
HR:104
BP:125/79

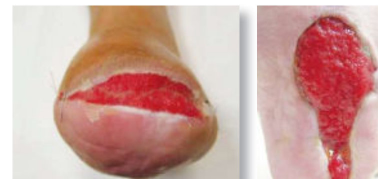
Culture and Susceptibility
*Streptococcus angiosus
Blood Culture
- + growth Coag negative staph x 2 initially
- negative growth x 3 following
- Susceptible to Vancomycin and Cefazolin

Labs
WBC:13.3
H/H:7.9/25.3
Plt:729
Na:123
K:4.7
BUN:11
Cr:0.68
Glu:892
HbA1c:14.3
PTT:27.5
INR:1.0

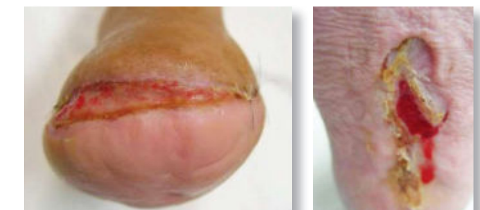


S/P 1 Week

Wet to Dry Saline Packing BID: TWO_2 started immediately Negative pressure for 3 days only

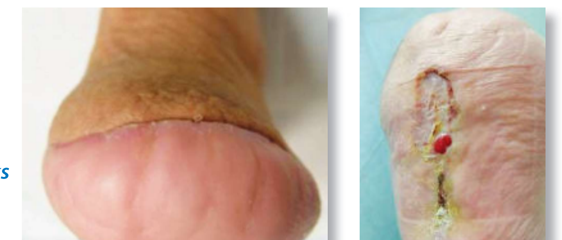


S/P 3 Weeks



S/P 5 Weeks

	Admission	Post op Day 1		Day 2	Day 3	Day 4	Day 5
Hgb	7.9	5.8	8.2	8	9.8	8.2	8.4
Hct	25.3	17.2	25.0	25	29	25	25.1
WBC	13.3	17.9	16.3	12.3	11.1	10.8	10.2



S/P 8 Weeks

Conclusion: This is a very complicated case of a Diabetic Foot infection that responded favorably to a multidisciplinary approach and Topical Wound O_2 Therapy. The TWO_2 was very effective not only from a wound healing perspective, but also in providing the patient with comfort, direct involvement with her wound care, and ease of use at home.