

The effectiveness of hyperbaric oxygen therapy (HBOT) in treating post-surgical diabetic foot wounds

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Introduction: Because of neuropathy and ischemia, diabetic foot surgery results in a high rate of surgical complications such as failure of flap, wound dehiscence and delayed or non-healing wounds. At Good Samaritan Hospital, we used HBOT to treat complicated surgical wounds with high success.

Material and Method: We reviewed all diabetes-related leg wound cases treated at the Good Samaritan Hospital hyperbaric medicine department in 2013.

Result: A total of 20 patients in 25 separate accounts of diabetes-related leg wounds were treated in 2013. 56% (n=14) of total cases were the following post-operative wounds: (i) compromised flaps, (ii) necrosis of previously closed flaps (delayed flap failure), and (iii) delayed healing wounds with secondary intention wound closure.

50% of cases involved toe amputation, 21% mid-foot amputation, 21% debridement of deep tissue, and 7% sesamoid bone resection.

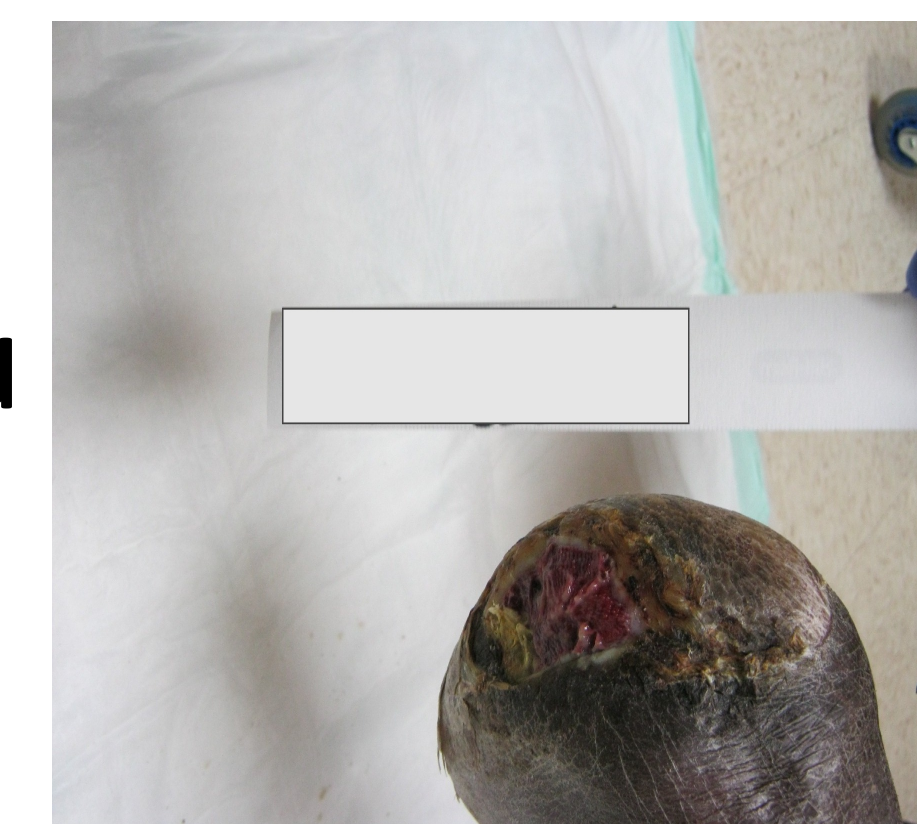
All patients had diabetic neuropathy. 79% (n=11) of patients had peripheral arterial disease. 71% (n=10) of patients received revascularization procedure (bypass n=3, angioplasty n=7).

78% (n=7) of compromised flaps (n=9) healed completely after 20±17 HBOT sessions.

33% (n=1) of delayed flap failures (n=3) healed. The single case that healed received 79 sessions of HBOT, whereas the two non-healing cases were prematurely discontinued and received only 7 sessions and 1 session, respectively.

100% (n=2) of secondary intention wound closure (n=2) cases healed completely after 58 and 59 sessions of HBOT, respectively.

Compromised Flap



Trans-metatarsal amputation flap necrosis, patient on hemodialysis



Left patient wound has healed



Sesamoid resection with flap necrosis



Wound has near completely healed with HBOT

Delayed Flap Failure



Previously healed surgical flap developed necrosis 1 year after surgery



Wound has improved with HBOT and local wound care

Secondary Intention Wound Closure



Osteomyelitis patient with history of hemodialysis. 5th ray amputation and failed primary flap closure



Wound closed with 59 HBOT sessions



Necrotizing fasciitis, with secondary intention wound closure



Wound closed after 58 HBOT

Conclusion: HBOT appears to be a highly effective treatment for complicated surgical wounds after diabetic foot surgery.



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