

EP-134

지속적 국소 산소치료(Continuous Topical Oxygen, NATROX® O₂)를 이용한 절단 후 만성 족저 창상 치유 보조 : 증례보고

(Supporting Healing in a Chronic Post-amputation Plantar Wound Using Continuous Topical Oxygen (NATROX® O₂): A Case Report)



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Purpose: Chronic wounds after diabetic foot surgery may persist because of local hypoxia, microvascular dysfunction, infection risk, and pressure-related factors. Continuous topical oxygen therapy (cTOT) provides low-flow oxygen under an occlusive dressing and may support bacterial killing, angiogenesis, fibroblast activity, and collagen synthesis (Figure 1).

Case presentation: A 68-year-old man underwent transmetatarsal amputation for an infected right diabetic foot with necrosis and suspected osteomyelitis, followed by fillet coverage. Despite standard wound care, a chronic plantar stump wound remained. The target lesion measured 2.0 × 1.8 cm (3.6 cm²) on the plantar aspect (Figure 2A).

Intervention: NATROX® O₂ cTOT was used as an adjunct for approximately 10 weeks together with standard care as clinically indicated (debridement, moisture balance, infection control, and off-loading). The oxygen delivery device was placed directly on the wound bed and sealed with a secondary dressing to maintain continuous oxygen delivery. A small delayed-healing area along the incision line received topical oxygen only as supportive care; outcome assessment focused on the plantar wound.

Results: The wound demonstrated reduced exudate and progressive granulation and epithelialization during treatment. Representative images are shown mid-course and at completion (Figure 1B–C). No clinically significant local adverse events or worsening infection occurred.

Conclusion: Adjunctive NATROX® O₂ cTOT combined with standard care was associated with favorable healing progression in a chronic plantar stump wound after transmetatarsal amputation. Continuous topical oxygenation may be a practical adjunct for hard-to-heal diabetic foot-related surgical wounds.



Figure 1. NATROX® O₂ continuous topical oxygen therapy (cTOT) system.

A portable oxygen generator delivers low-flow oxygen via tubing to a single-use oxygen delivery system (ODS) placed on the wound bed under a sealed dressing, enabling continuous topical oxygenation.

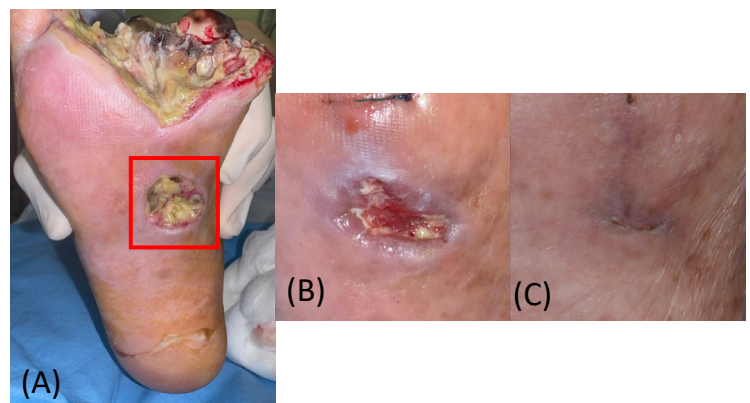


Figure 2. Serial photographs of the chronic plantar stump wound. (A) Baseline at initiation of therapy. **(B)** Mid-course (~Week 5): decreased exudate with granulation/epithelialization progression. **(C)** End of treatment (~Week 12): clinically meaningful improvement.