

# Hyperbaric Oxygen Therapy in the Treatment of Tissue Compromise Following Total Mastectomy for Breast Tumor

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**Objective:** To report the clinical progression of a case of tissue compromise successfully treated with hyperbaric oxygen therapy (HBOT) following total mastectomy for a breast tumor.

**Methods/Case report:** Female patient, 66 years old, with no known chronic comorbidities, underwent total mastectomy and axillary lymphadenectomy with placement of a tissue expander in the left breast on 09/19/2024, due to a breast tumor still pending biopsy results for malignancy. On 09/21/2024 (Figure 1), during postoperative medical evaluation, an extensive 10 x 4 cm area of ecchymosis was observed, involving the nipple and the areolar region between 11 and 4 o'clock, with signs of tissue distress and small skin loss. The patient had not undergone chemotherapy; however, depending on the biopsy result, she might require radiotherapy, which necessitates a well-healed and intact skin surface.



Figure 1 - September 21, 2024

HBOT was initiated on 09/24/2024, after authorization from the patient's insurance provider. A total of 40 sessions were performed at 2 ATA for 90 minutes each, concluding on 11/13/2024. During treatment, the patient performed home dressings under professional guidance. The lesion evolved through several stages: the compromised skin progressed to stable necrosis (Figure 2), which gradually reduced until debridement was required to advance to further healing phases (Figure 3). Following necrosis removal, 2% papain was applied to address slough and minor local infection. Once the wound bed was clean, an emulsion containing andiroba oil was used to support epithelialization. The patient adhered to all care instructions and, by 11/21/2024 (Figure 4), the lesion was 95% epithelialized, leading to discharge from outpatient follow-up.



Figure 2 - October 16, 2024



Figure 3 - October 30, 2024

**Results:** The total time from treatment initiation to outpatient discharge was under 60 days. The patient completed 40 HBOT sessions and required only basic wound care. Full epithelialization was achieved between late November and early December 2024, rendering the patient ready for radiotherapy if necessary. Today the patient is completely healed (Figure 5)



Figure 4 - November 21, 2024

**Conclusion:** Hyperbaric oxygen therapy proved to be an effective adjunct in managing tissue distress following total mastectomy, promoting wound healing and enabling timely readiness for adjuvant treatments. The case reinforces the value of HBOT as a safe, non-invasive therapeutic option in post-surgical wound complications.



Figure 5 - May 16, 2025

**Keywords:** Hyperbaric oxygen therapy; Tissue compromise; Total mastectomy; Wound healing; Breast surgery complications