

Case report: Expansion and closure of Anterolateral thigh free flap donor site: allowing for harvest of large free flaps without necessitating unaesthetic skin graft

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Case report #51

Prior to application of DERMACLOSE device: A 27-year-old male patient who was injured while at work after a garbage truck rolled over and crushed his left foot. Injuries included multiple mid foot fractures as well as severe soft tissue destruction. The soft tissue injury was debrided over multiple operations, eventually requiring amputation of two toes as well as a majority of the dorsal foot skin. The patient was taken to the operating room for ALT free flap reconstruction of the left dorsal foot wound as well as tissue expansion of the donor site. The free flap was harvested per standard technique, inset into the foot wound, and the microsurgery was completed. A small portion of the lateral wound was reconstructed with skin substitute. After confirming appropriate perfusion to the free flap, the wound of the donor site was evaluated. As much of the wound that could be primarily closed was done so. The remaining wound measured 15 x 10 cm in size.

DERMACLOSE device application: A single DERMACLOSE external tissue expander was placed for expansion and wound closure. The standard V-M-W technique was used with 3 total barbs on either side of the wound, each 2-3 cm away from each other and 0.5 – 1.0 cm away from the wound edge. Due to the size and geometry of the wound, a dog ear excision was necessary at the distal end of the expanded wound to create a more elliptical wound expansion and closure. 6 days after the application of the DERMACLOSE expander, the patient was found to have released the tension controller of the expander. Therefore, this was re-wound at the bedside.

DERMACLOSE device removal: After 10 days of expander application, the expanders were removed and the wound was closed with multiple layers of sutures.

Follow-up: The patient returned for follow up 2 weeks post operative. Sutures were removed and the wound went on to completely heal. The patient's free ALT flap reconstruction of the left foot allowed for limb salvage and a functional foot. The expanded and reconstructed donor site allowed for linear closure and prevented a large cosmetic deformity of the thigh.

Conclusion: External tissue expansion can be utilized as an excellent method of soft tissue reconstruction for large donor sites emanating from free tissue transfer. This allows harvest of large flaps without concern for donor site morbidity as it relates to reconstructing the donor wounds.

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INDICATIONS FOR USE: The DERMACLOSE Continuous External Tissue Expander is indicated for use in assisting with the closure of moderate to large surgical or traumatic acute full thickness wounds of the skin by approximating and reducing the size of the wound.

CONTRAINDICATIONS: The DERMACLOSE Continuous External Tissue Expander should not be used on ischemic, infected, or acute burned tissue. It should not be used on fragile tissue at the edges of a wound.

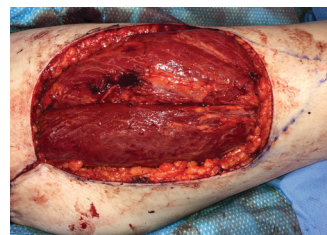
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After debridement, a large full thickness wound measuring 20 cm x 12 cm was found



Soft tissue injury was debrided over multiple operations eventually required amputation of two toes as well as a majority of the dorsal foot skin



Reconstructed foot

Donor site healed well

Case report courtesy of Ajul Shah MD.