

Case report: Continuous tissue expansion with DermaClose® closes large abdominal wound caused by necrotizing infection.

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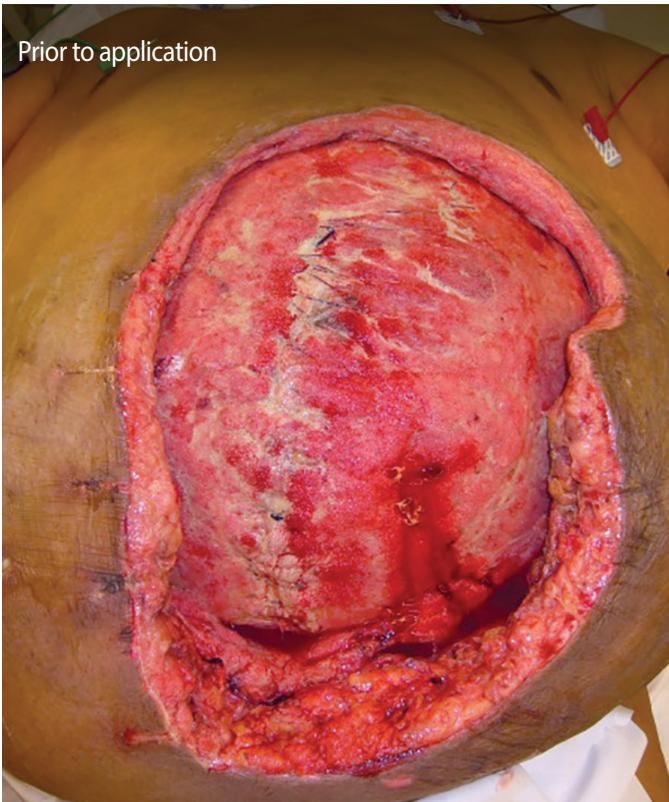
Prior to application of DermaClose: A 56-year-old morbidly obese male patient with multiple medical comorbidities including diabetes, renal insufficiency, atrial fibrillation, and Ogilvie's Syndrome presented with a large ventral hernia and obstipation. He underwent a partial colectomy and ventral hernia repair. Post-operatively, he developed a multi-microbial necrotizing infection that required wide debridement of his abdominal wall and IV antibiotics. The wound was managed with serial operative debridement and VAC changes until the infection was controlled. During that time his fascia remained intact.

DermaClose application: The resulting abdominal wound was very large and the patient was losing a significant amount of fluid from it on a daily basis, which was exacerbating his other comorbidities. After an extended stay in the hospital the decision was made to attempt closure utilizing continuous external tissue expansion. The proximal and distal ends of the wound were closed but a significant defect remained measuring 20cm x 20cm. Due to the size of the defect, and in an attempt to get complete closure of the wound, four DermaClose devices were placed spanning the length of the remaining wound.

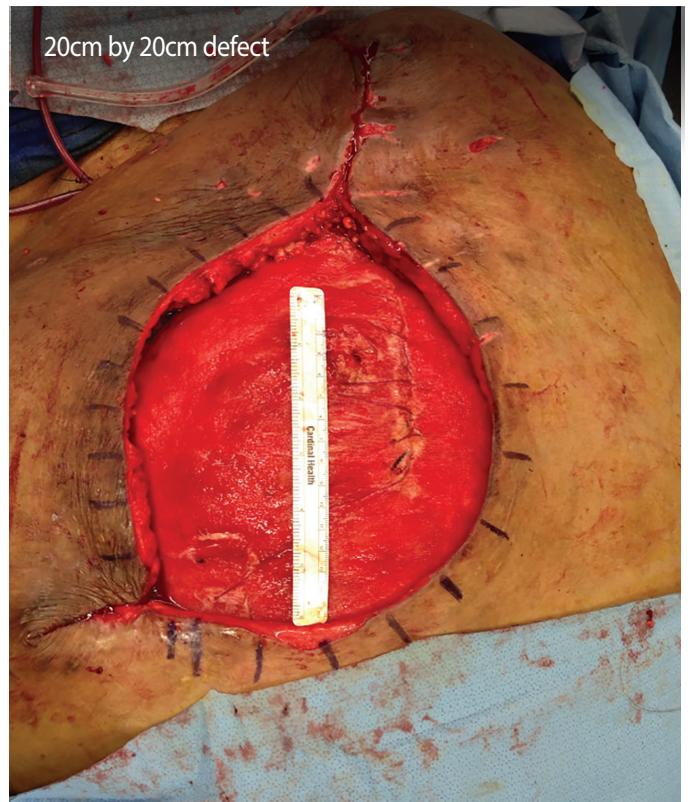
Removal of DermaClose: During the eight days of wound re-approximation, the patient was managed with daily bedside dressing changes to keep the wound clean while the edges of the wound migrated. On post-operative day 8 it was determined that the wound edges were close enough to attempt delayed primary closure. The patient returned to the OR for device removal, washout and primary closure of the wound. Following closure with buried 2-0 monocryl sutures and vertical mattress 0-nylon sutures, an incisional VAC was placed over the closure and this was left in place until post-operative day 3.

Follow-up: Post-operatively the patient did well and was discharged on post-op day 3 after the incisional VAC was removed and the closure was noted to be stable. He was readmitted weeks later for an abscess that formed on top of the abdominal wall fascia related to persistent bacterial colonization. This infection was managed with a percutaneous drain placed by interventional radiology along with a course of IV antibiotics. The patient's condition continued to improve and he was seen seven months post-closure with the wound still intact.

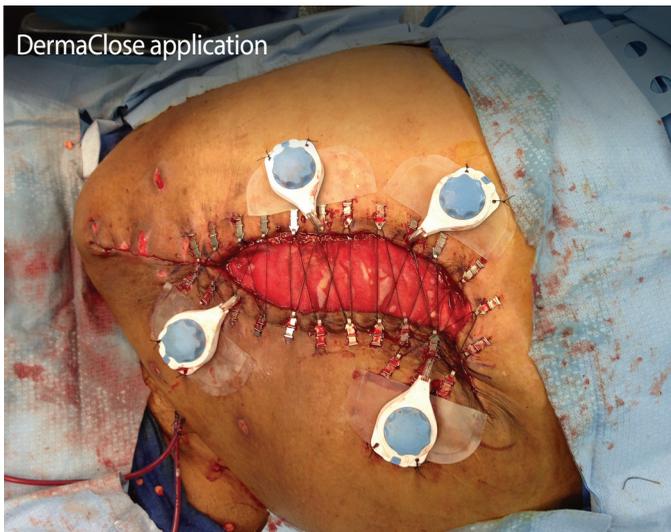
Prior to application



20cm by 20cm defect



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Conclusion: The use of the DermaClose Continuous External Tissue Expander exceeded my expectations by facilitating delayed primary closure eight days after application and should be considered as a strategy when dealing with large open abdomens or other complex wounds.

Key takeaway messages

- Continuous tissue expansion with DermaClose reapproximates wound edges to achieve delayed primary closure even in large wounds resulting from significant loss of tissue
- DermaClose is a viable surgical strategy for achieving delayed primary closure in patients with multiple comorbidities
- DermaClose can avoid the use of split thickness tissue grafting in compromised patients
- DermaClose may help improve surgical outcomes by making surgery less complicated, faster, and avoiding potential adverse effects

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