

Repair of Recurrent Ventral Hernias Using a Combination of Tissue Expansion and Non-Cross-linked Intact Porcine-derived Acellular Dermal Matrix

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Abstract

Background: Recurrent ventral hernias are often large and associated with loss of abdominal domain, hindering primary closure. (1) One established intervention for patients with large ventral hernias is a component separation procedure that advances muscle from the lateral abdomen. (2-4) This technique allows closure without creating tension; however, the relaxing incisions weaken the lateral abdominal wall by altering its natural architecture. We propose an approach to primary midline closure that does not compromise lateral abdominal wall stability and restores the architecture of the abdominal wall while allowing tension-free midline closure.

Methods: In three patients with recurrent ventral hernias who had failed two or more repair attempts, we used a two-stage reconstruction. Bilateral rectangular tissue expanders placed between the external and internal oblique muscles via subcostal incisions were expanded for 6 to 8 weeks. (Figure 1) Second-stage surgery consisted of expander removal and primary closure of the abdominal defect reinforced by an underlay and overlay of non-cross-linked intact porcine-derived acellular dermal matrix (Figure 2). (PADM; Strattice™ Reconstructive Tissue Matrix, LifeCell, Branchburg, NJ).

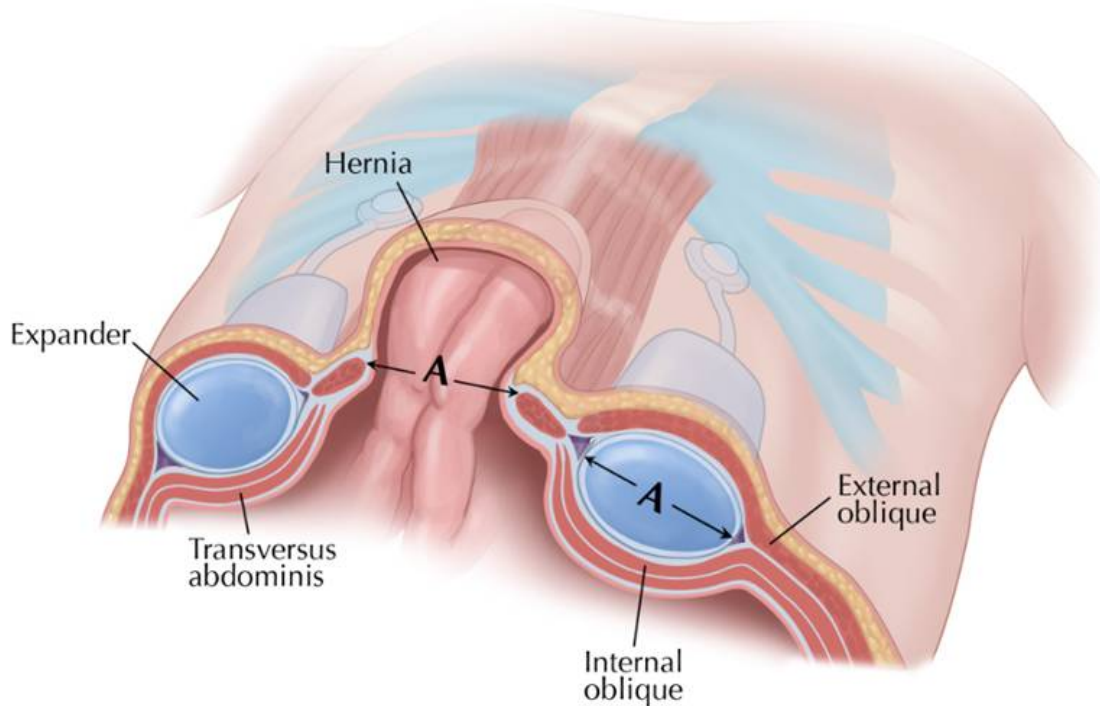


Figure 1: Tissue expander filled after placement between external and internal oblique muscles.

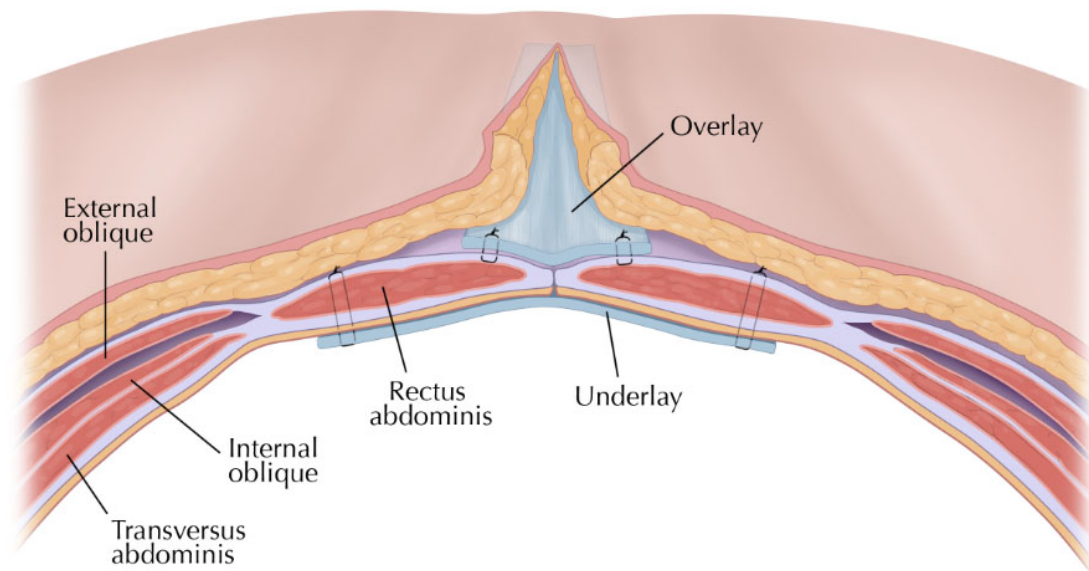


Figure 2: Closure showing expanders removed and ADM underlay and overlay in place.

Results: Primary closure of ventral hernias measuring 8 x 8 cm, 12 x 8 cm, and 8 x 6 cm was achieved with no need for component separation. At up to 1 year of follow-up, all patients had structurally intact abdomens with no hernia recurrence and no abdominal wall weakness. All patients have resumed normal daily activities, including returning to work.

Conclusions: Expansion of the external and internal oblique muscles combined with an underlay and overlay of non-cross-linked intact PADM allows strong and reliable primary closure of recurrent ventral hernias without the need for component separation.

References

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