

The Absorbable Dermal Staple Device: A Faster, More Cost-Effective Method for Incisional Closure

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BACKGROUND: Closure with dermal sutures is time consuming, may increase the risks of inflammation and infection secondary to foreign body reaction, exposes the surgeon to possible needlestick injuries, and has variable cosmetic outcomes depending on each surgeon's technique. The absorbable INSORB dermal stapler is hypothesized to be faster and more cost effective than sutures for dermal layer closures and provides a safer and more consistent result.

METHODS: This is a prospective, randomized, controlled study. Patients undergoing bilateral breast reconstruction with tissue expanders had one incision randomized to dermal closure with absorbable dermal staples. The contralateral side was closed with dermal sutures. During the expansion period, wounds were assessed by a blinded plastic surgeon using the 13-point Vancouver Scar Scale. At the time of implant exchange, both scars were excised and examined for histologic signs of inflammation.

RESULTS: Eleven patients (22 incisions) were enrolled in the study. The dermal stapler was four times faster than standard suture closure, reducing closure time by 10.5 minutes ($p < 0.001$). Overall cost savings with the dermal stapler was \$220 per case. In the early postoperative period, the dermal stapler had a higher Vancouver Scar Scale score than sutures because of superior wound eversion, a beneficial characteristic for wound healing. By 4 months postoperatively, no significant difference in scar scores was found between interventions. At 6 months, histologic analysis suggested decreased inflammatory cell invasion of the dermal stapler-closed scar.

CONCLUSION: Closure using the absorbable dermal stapler can be performed significantly faster than standard suture closure techniques, allowing for a more cost-effective incisional closure with equivalent cosmetic results.