OPEN

PRS GLOBAL OPEN VIEWPOINT

Efficient and Ergonomic Prepectoral Breast Reconstruction Using an Endoscopic Fixation Device

Lauren M. Woldanski, BS; Ahmed M. Afifi, MD

There has been a paradigm shift from submuscular to prepectoral reconstruction following mastectomy over the last several years.[1] This is attributable to the absence of animation deformity and decreased pain when the pectoralis muscle is left undisturbed. Acellular dermal matrix (ADM) is commonly utilized for additional support and to control the implant pocket.[1] Establishing an ideal pocket is important in expander placement, and more so in direct-to-implant reconstruction.

There are generally 2 approaches for the ADM-device assembly: in vivo and ex vivo.[2] Ex vivo techniques involve wrapping the implant with ADM on the back table before inset. While this is usually faster and simpler, it does not allow the surgeon to control the exact footprint of the pocket beyond that dictated by the expander dimensions. In vivo techniques involve direct suturing of the ADM to the chest wall, allowing the surgeon accurate control of the implant pocket, but is accompanied by laborious and time-consuming suturing. Additional challenges are fostered by the patient-driven demand for shorter and inframammary fold incisions, contributing to increased difficulty when securing the upper edge of the ADM.

To allow accurate and efficient suturing of the ADM, particularly at the infraclavicular area, we have been using an absorbable fixation device (SECURESTRAP, Ethicon Endo-Surgery Inc, Cincinnati, Ohio) since 2015. A retrospective chart review of patients who have completed the reconstruction with a minimum of 6 months follow-up identified 26 breasts in 16 patients (10 bilateral, 6 unilateral) with an average patient age of 46 years (28–63). Majority of patients had immediate reconstruction after mastectomy (63%), with the remainder undergoing a submuscular to prepectoral conversion. There have been no instances of dehiscence of the suture line between the ADM and the chest wall. One instance was noted where staple was felt postoperatively under a thin mastectomy flap; it went on to resorb uneventfully over the following months.

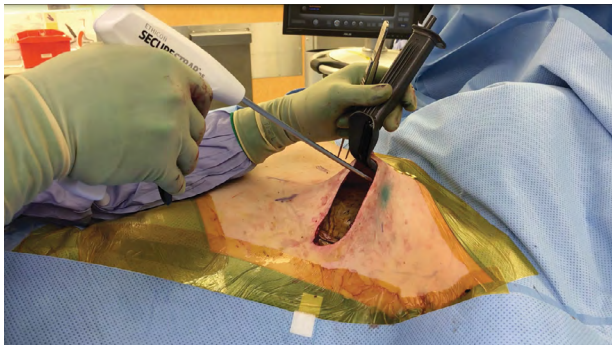

Fig. 1. SECURESTRAP being used to secure the upper edge of the ADM to the infraclavicular region of the chest wall.

The use of endoscopic absorbable fixation devices is well documented for hernia repair, but is lacking in the plastic surgery literature. They have been shown to significantly decrease operative time in comparison with suturing.[3–5] In our experience, the novel use of the SECURESTRAP for in vivo ADM fixation is a faster, easier technique with significant ergonomic advantage for the surgeon, particularly when using an inframammary fold incision. It allows for precise fixation and visibility deep in the breast pocket, as the device's long slim arm does not occupy the whole width of the incision as with the usual surgical instruments (Fig. 1). The major drawback for this technique is cost of the device, which should be considered in the context of decreased operative time and decreased strain on the surgeon's cervical spine. We usually use the device mostly for the upper pole suturing, and 1 stapler suffices for a bilateral reconstruction. Tips for using the device are to apply firm counterpressure with the other hand against the tip of the stapler and to make sure that any loose staples are removed from the pocket.

From the Division of Plastic and Reconstructive Surgery, Department of Surgery, University of Wisconsin Hospital and Clinics, Madison, Wisc.

Received for publication September 24, 2019; accepted October 3, 2019.

Plast Reconstr Surg Glob Open 2019;7:e2537; doi: 10.1097/GOX.0000000000002537; Published online 27 November 2019.)

Ahmed M. Afifi, MD
Department of Surgery
University of Wisconsin Hospital and Clinics
600 Highland Avenue, Madison, WI, 53792
E-mail: afifi@surgery.wisc.edu

DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

REFERENCES

1. Ter Louw RP, Nahabedian MY. Prepectoral breast reconstruction. *Plast Reconstr Surg.* 2017;140(5S Advances in Breast Reconstruction):51S–59S.

2. Sigalove S. Options in acellular dermal matrix-device assembly. *Plast Reconstr Surg.* 2017;140(6S Prepectoral Breast Reconstruction):39S–42S.
3. Pawlak M, Hilgers RD, Bury K, et al. Comparison of two different concepts of mesh and fixation technique in laparoscopic ventral hernia repair: a randomized controlled trial. *Surg Endosc.* 2016;30:1188–1197.
4. Bansal VK, Misra MC, Kumar S, et al. A prospective randomized study comparing suture mesh fixation versus tacker mesh fixation for laparoscopic repair of incisional and ventral hernias. *Surg Endosc.* 2011;25:1431–1438.
5. ETHICON SECURESTRAP. Absorbable strap mechanical fixation device. Instructions for use. Ethicon I. In. Available at https://www.jnjmedicaldevices.com/en-US/product/ethicon-securestrap-absorbable-strap-fixation-device.