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The Use of a Barbed Self-Retaining Suture System in the Positioning and Manipulation of the Breast Mound during Reconstructive and Aesthetic Breast Surgery

Sir:

Surgeons have used a variety of techniques to ideally position and shape breasts in both reconstructive and cosmetic surgery. Although early procedures relied on the skin envelope for support, newer techniques have increasingly focused on the parenchyma as the primary determinant of shape.[1] However, successfully manipulating the parenchyma may require additional dissection and a multitude of sutures that can impact perfusion. In this communication, we describe the use of a double-ended barbed unidirectional suture (Quill; Angiotech Pharmaceutical, Vancouver, British Columbia, Canada) to adjust breast position and shape in a simple, fast, and easily adjustable manner.

Once the surgeon is satisfied with the breast footprint and volume, the shape and location are addressed. The patient is placed in the semiupright position and the breast mound is moved to the desired location. The vector of transposition needed to secure the breast is noted and marked on the chest. A fixation point at the apex of the vector is chosen. The leading needle of a large-bore double-ended barbed suture (0- to 2-gauge polydioxanone) is then passed through the deep fascial layers of the chest wall. Periosteum may be used but is typically not necessary. An 18-gauge spinal needle is then inserted through the breast parenchyma along the chosen vector. The leading needle of the barbed suture is straightened and passed into the spinal needle, where it is secured by a snug size match and the spinal needle is extracted with the barbed suture in its barrel. A second spinal needle is then passed along the opposite arm of the suspension vector and the process is repeated. The sutures are then placed under gentle traction and the breast is translocated on the barbed suture tracks. The unidirectional barbs affix the mound at each position and the process can be repeated using multiple different vectors (Fig. 1). The mound is freely moved along the tracks and can be adjusted repeatedly until the desired outcome is achieved. The parenchymal suspension eliminates the need for dermal support so the skin is trimmed conservatively and then closed using a deep dermal and subcuticular stitch layer.

The senior author (H.S.) has used the barbed self-retaining suture system for the past 18 months in over 40 patients, with favorable results. The dual-armed unidirectional barbs allow for easy manipulation, and the 16- to 24-week dissolution time of the polydioxanone suture allows adequate time for scar tissue to secure the breast. Our longest documented follow-up is approximately 40 weeks, and in this patient, the breast remains in the desired configuration (Fig. 2). In our experience, this is representative of the excellent longevity seen using this technique, and we are actively documenting longer term follow-up.

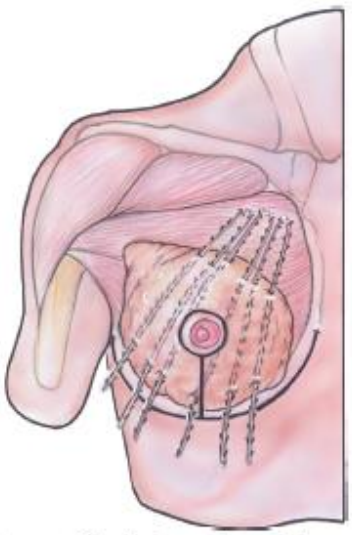

Fig. 1. Placement of barbed suture through the anchor point and then twice back through the mound retrograde to create suspension tracks. (Illustration by Anthony Pazos, 2010.)

The advantages of our system include distributed parenchymal support, nonreliance on the skin envelope, minimal ischemia, the elimination of repetitive interrupted suture fixation, and the ability to make small or large adjustable movements. We believe that barbed suture allows for detailed adjustments in shape and position that cannot be obtained with classic suture techniques.

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