Elevating the Midface With Barbed Polypropylene Sutures

Barbed sutures, either used alone in a closed approach or as part of an open face lift procedure, may be combined with malar implants, soft tissue fillers, chemical peeling, and laser resurfacing. Because cephalad cheek repositioning affects adjacent facial areas, results may include shortening of the lower eyelid distance, flattening of the nasolabial fold, elevation of the submalar tissue, improvement of jowling, and decrease in submalar area fullness. (Aesthetic Surg J 2005;25:301-303.)

The barbed polypropylene suture is a versatile, easy-to-use means of facial soft tissue remodeling and repositioning that is effective in the malar and submalar areas when used alone or as a component of more extensive facial rejuvenation. This suspension technique may be combined with other soft tissue augmentation modalities, such as malar implants or soft tissue fillers, and also with ancillary procedures such as chemical peeling or laser resurfacing. When used as the sole method of tissue repositioning, surgical and recovery time are short.

We have used barbed polypropylene sutures in about 80 patients since September 2003, with good to excellent results and a high rate of patient acceptance.

The sole complication to date, which was noted in 2 patients, was extrusion of a single suture. This occurred when the sutures migrated caudally and the distal end became visible along the lower border of the mandible. In both of these patients the sutures extended from the temple to the mandibular border, and movement of the jaw most likely contributed to the distal migration. We retrieved these sutures through a tiny incision in the skin, leaving no visible scar. The technique is no longer used in this manner. A less than satisfactory result was also noted at times early in the surgeon’s experience when a less than ideal degree of tension was applied.

A unique advantage of the suspension technique is that, following the procedure, you can selectively tighten the sutures at any time with a simple surgical procedure.

Material

The sutures, made of polypropylene material #2-0, are equipped with barbs in the distal 10 cm that engage the tissue to be repositioned. The proximal 15 cm of the suture is smooth to facilitate gliding, exert traction, and control the tissue reposition. A suture passer is used for suture insertion. An allograft material of nonabsorbing mesh is used to reinforce the deep temporal fascia to prevent tearing and a “cheese wiring” effect of the soft tissue, which might prevent sustained and prolonged tissue reposition.

Surgical Technique

Barbed sutures can be used as the sole means of tissue repositioning in a closed approach, or as part of an open facial rejuvenation approach that may incorporate an endoscopic, supraperiosteal, or subperiosteal face lift. The cephalad reposition of the cheek tissues brings about a series of effects on the surrounding adjacent tissues. Therefore, in addition to elevation of the malar area, results may include shortening of the lower eyelid distance, flattening of the nasolabial fold, elevation of the submalar tissue, improvement of jowling, and decrease in fullness of the submalar area (Figure 1).

In our practice, the decision of whether to use a closed or open approach has been primarily based on the mobility of the cheek tissues. In patients with adequate cheek tissue mobility, we have tended to select a closed approach. Other factors that we consider include the extent of intervention the patient desires, general health status, and the extent of preauricular and cervical soft tissue redundancy.
Suture Application in Closed Percutaneous Melopexy

Make an incision in the temporal area, about 2 cm behind the hairline, starting medially at the level of the superior temporal crest (Figure 2, A). Undermine the superficial temporal fascia, 2 cm around the incision, to allow placement of the allograft patch. The patch is used to reinforce the deep temporal fascia, preventing the “cheese-wiring” effects of the sutures (Figure 2, B). Secure this patch to the deep temporal fascia using 4 or 5 “0” absorbing sutures.

Insert the suture passer in the superficial tissue from the temporal incision through the malar fat pad. The suture passer will traverse the mid-thickness of the malar fat pad (Figure 2, F). Insert the barbed suture into the suture passer until it emerges at the distal end. Hold the distal end of the barbed suture to retrieve the suture passer. Make sure that the barbed portion of the sutures remains in the malar fat pad only. Exert traction from the proximal end, and the barbs will engage into the soft tissue of the malar area, repositioning it. Apply about 6 sutures for each side. Make the first suture exit about 1 cm from the nasolabial fold, and locate the other sutures 1 cm apart on a line drawn from the mid-nasolabial fold to the lower portion of the tragus (Figure 2, F). Secure the proximal end of the sutures on the patch (at the temporal area) in pairs: 2 medial, 2 central, and 2 lateral. Adjust the malar soft tissue and trim the distal ends of the sutures. Apply Steri-Strips (3M, St. Paul, MN) on the face, splinting the soft tissue for 1 week to prevent dis-
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lodgement of the sutures during the early inflammatory phase of the healing process.

Suture Application With Other Approaches

In open face lift procedures, apply the barbed sutures in the malar area and perform tissue traction first. Then make a preauricular incision, followed by limited undermining to prevent rupture or suture dislodgment. When using an endoscopic technique, either supraperiosteal or subperiosteal, perform the endoscopic procedure first and then apply the sutures as described. In our facial rejuvenation practice, we have found that the barbed suture suspension system has been very useful by itself, or used in combination with other approaches (Figures 3 and 4).

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Figure 3. A, C, E, G, Preoperative views of a 52-year-old woman, 5 years after undergoing a face lift. B, D, F, H, Postoperative views 8 months after closed suture suspension of the midface, without any additional surgery.

Figure 4. A, C, E, The suspension technique may be combined with other soft tissue augmentation modalities, as demonstrated by this 49-year-old woman. B, D, F, Postoperative views 6 months following endoscopic forehead lift, cheek and chin augmentation, and suture suspension of the midface.