A Novel Method for Neurotization of Deep Inferior Epigastric Perforator and Superficial Inferior Epigastric Artery Flaps

Sir:

Currently, surgical goals for breast reconstruction tend to relegate breast sensation to a position of secondary importance. Many surgeons admit to not pursuing neurotization for several reasons: "reasonable" spontaneous reinnervation, difficulty in finding the recipient nerve, increased donor-site morbidity, increased complexity, prolonged surgical time, and no difference in flap survival rate. Several studies have demonstrated that patients with sensate breast reconstruction not only have higher satisfaction rates and benefit from injury prevention, but also show improved pressure and temperature discrimination versus their noninnervated peers.

The presence of a readily available, undamaged recipient nerve limits routine innervation. Currently, the nerve of choice is the lateral cutaneous branch of the fourth intercostal nerve. However, this nerve is frequently injured during mastectomy and lies in a different microsurgical field, thereby increasing flap inset complexity.

We present a novel technique for routine neurotization of deep inferior epigastric perforator and superficial inferior epigastric artery flaps with the medial branch of the third intercostal nerve, which is readily found during the dissection of the internal mammary vessels.

The abdominal skin is supplied segmentally by the lower thoracic intercostal nerves (T6 through T12), which terminate anteriorly to provide a lateral branch and a medial branch. After the intercostal nerves enter the rectus abdominis, cutaneous branches join the deep inferior epigastric vascular axis, forming neurovascular bundles. The nerve most proximal to the pedicle is selected for the donor nerve. Here, the accompanying inferior perforator is not used for flap perfusion and is ligated, thereby preventing flow obstruction. The nerve is cut at the fascia to preserve the motor function of the rectus while providing sensation to a major portion of the breast mound.

The breast is supplied by the lateral cutaneous and medial anterior branches of the second to sixth intercostal nerves, of which the third to fifth lateral and the second to fifth anterior branches supply the nipple-areola complex. The lateral branch of the fourth intercostal nerve has been the traditional recipient nerve. This nerve is frequently cauterized during mastectomies and is difficult to find in delayed reconstructions.

To overcome this problem, we use the medial branch of the third intercostal nerve, located near the internal mammary recipient vessels, which are dissected out in the third interspace, preserving the rib. With this approach, the third intercostal cutaneous and sensory nerve is easily dissected. The nerve is incised at the lateral border of the sternum and coapted to the flap

Fig. 2. Patient with maximum mouth opening after intermaxillary fixation release at 3 weeks postoperatively. The distraction osteogenesis devices were installed on both sides in the condylar segment and the ramus.

Yoonho Lee, M.D.
Rikap Kim, M.D.
Department of Plastic and Reconstructive Surgery
Seoul National University College of Medicine
Seoul, Korea

Correspondence to Dr. Lee
Department of Plastic and Reconstructive Surgery
Seoul National University Hospital
28 Yongon-Dong, Jongno-Gu
Seoul 110-744, Korea
lyh2974@snu.ac.kr

DISCLOSURE
The authors have no financial conflicts to disclose.
The treatment of mandibular condyle fracture is the most controversial part of facial bone fractures.

ACKNOWLEDGMENT
This work was supported by the SRC/ERC program of MOST/KOSEF (R11-2005-065) through the Intelligent Textile System Research Center at Seoul National University.

REFERENCES
donor nerve (Fig. 1). If the nerves are limited in length, a neurontube may be used. Since the third intercostal nerve is readily visualized during dissection of the IMVA, routine neurotization of the flap can be accomplished in an average time of 15 minutes.

This technique offers the possibility of routine deep inferior epigastric perforator and superficial inferior epigastric artery flap innervation with an undamaged donor nerve that is reliably found in the recipient vessel microsurgical field, without a significant increase in operative time. To objectively assess this technique, a formal sensory evaluation is being performed. We believe this neurotization technique is a beneficial tool that can help reduce the physical and emotional toll of breast cancer on our patients.

DOI: 10.1097/PRS.0b013e3181905564

A Modified Skin Pattern of Reduction Mammaplasty for Wide Local Excision, or Skin-Sparing Mastectomy in Superficial Breast Tumors, Where Skin Excision Is Required

Sir:

The optimal margin for both wide local excision/lumpectomy and skin-sparing mastectomy remains undefined. Nahabedian suggests that a lumpectomy generally requires a 2-mm margin around the tumor whereas a mastectomy requires a much larger margin, often exceeding 1 cm.

In patients undergoing oncoplastic breast surgery, if the tumor is deeply situated within the breast parenchyma or arises in the lower pole of the breast, wide local excision is achieved using the inverted-T breast reduction pattern. In this scenario, an oncologically adequate tumor margin is achieved.

However, what if the tumor is not in the lower pole of the breast and is situated more superficially (close to or adherent to skin)? In this situation, excision of the