Reduction Mammaplasty by Central Pedicle Flap with Short Submammary Scar

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Abstract. Reduction mammaplasty was performed in 30 patients by combining the central pedicle flap method with the short submammary scar (3-S) technique to avoid the common drawbacks of currently popular dermoglandular procedures. Reduction was accomplished by using perforating vascular branches from the pectoralis major muscle and its fascia supplying the nipple and breast parenchyme instead of the subdermal plexus. The central vascular pedicle supplying the nipple–areola complex was preserved. Only the periphery of the breast parenchyme was resected circumferentially, with the exception of the inferolateral portion, so as not to injure the sensory nerve. The remaining breast parenchyme was preserved in an inverted cone shape. The nipple–areola complex was safely transposed with great freedom, and the amount of resection was accurately adjusted for symmetry. No cases of nipple–areola complex sensory change occurred postoperatively because of preservation of the lactiferous ducts. The length of postoperative scars was reduced by using the short submammary scar technique. We believe this combined method is ideal in patients requiring resections ranging from 200 to 600 g per breast with good skin elasticity and moderate degree of ptosis.

Key words: Central pedicle—Short submammary scar—Sensory preservation

Current popular methods of reduction mammaplasty use either a bipediced, superiorly or inferiorly pedicled dermoglandular flap. The dermoglandular flap supports the nipple–areola complex, which is transposed to its desired position. The usual resulting submammary scar is a long and inverted T shape (Fig. 1).

Even with widespread use of these conventional methods, they were not without drawbacks. Unsightly long postoperative scars were common, as well as sensory loss of the nipple, absence of lactation, and nipple retraction with long-term follow-up.

To avoid these unfavorable results, reduction mammaplasty was accomplished by using perforating vascular branches from the pectoralis major muscle and its fascia supplying the nipple and breast parenchyme, instead of the subdermal plexus used in conventional dermoglandular flap procedures. The central vascular pedicle supplying the nipple–areola complex was preserved by performing circumferential resections of the periphery breast tissue, resulting in an inverted cone-shaped central block of breast parenchyme. This allowed for safe transposition of the nipple–areola complex to its desired position with great freedom. The amount of resection could be accurately adjusted, in addition to preservation of nipple sensation, and anatomic integrity of the lactiferous ducts between the nipple and gland [5]. By combining with the previously described short submammary scar (S-S-S or 3-S) technique [10], the submammary scar length was minimized in young patients requiring resections ranging from 200 to 600 g per breast with good skin elasticity and a moderate degree of ptosis.

Patients and Methods

Patients

A total of 30 female patients, ranging in age from 17 to 60 years, were admitted for macromastia (28 patients).
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Fig. 1. (A, B) Long submammary scar extending from xiphoid to the anterior axilla after a conventional reduction.


Fig. 3. Preoperative skin markings with the short submammary scar technique. A, new nipple-areola complex location; M, medial incision line; L, lateral incision line; S, new submammary fold; ///, deepithelialized areola.

One patient had postreduction nipple malposition, and another patient had postreduction breast asymmetry (both patients were initially operated at another hospital).

Anatomy

The three major arterial routes supplying the breast are the internal thoracic artery (internal mammary), lateral thoracic artery, and branches of the third, fourth, and fifth posterior intercostal arteries. Minor arterial sources are branches from the axillary artery, the thoracic artery, the subscapular artery, and the thoracodorsal pectoral branches of the thoracoacromial artery [4].

Based on the established blood supply of the breast, Hester et al. [5] developed the central pedicle flap supplied centrally by the thoracoacromial and intercostal artery perforators (nipple-areola and gland), laterally by the branches of the lateral thoracic artery, and medially by perforators of the internal mammary artery. Glandular resections were done in a tangential manner to prevent total division of any of the vessels feeding the base of the glandular pedicle (Fig. 2) [5].

Methods

Preoperative markings were done in the manner of the short submammary scar technique (3-S), as we have previously described [10].

The volume of each breast was measured using the Tegtmeier method or the Grossman and Roudner device. Preoperative markings were made with the patient standing with the back erect. The meridian line of the breast was marked as a vertical line passing through the nipple and extending superiorly to the midclavicle and inferiorly down to the submammary fold and chest wall. Superior transposition of the nipple-areola complex was done along this line. The new location of the nipple-areola complex was determined by placing the thumb on the submammary fold, and while pushing it up, palpating it by placing the index finger on the front of the breast along the meridian line. Its new diameter was drawn as 4–5 cm.

Determination of the medial and lateral resection margins was made by displacing the breast medially and laterally on each side so that a line continuous with the meridian line and chest wall extension could be traced on