Marking the Position of the Nipple-Areola Complex for Mastopexy and Breast Reduction Surgery

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Give me a place to stand and rest my lever on, and I can move the earth.
—Archimedes (287–212 B.C.)

In the analysis of plastic surgery of the breast, in addition to size, form, and symmetry, the appropriate position of the nipple areola has the greatest influence on our aesthetic assessment. The position of the nipple defines the point of highest projection and is a reference point for orientation during the removal of the parenchyma and skin. The static methods used for marking the location of the nipple-areola complex are based on measurements of distances from fixed anatomical points. The technique of parenchyma imbrication can be effectively applied for the positioning of the nipple. The dynamic shaping of the breast parenchyma creates the desired breast shape, shows the point of highest projection with upper pole fullness, and makes the marking of the nipple-areola complex simpler and more precise. Parenchyma imbrication can yield good results in shaping small or medium sized breasts, and in cases of breast reduction, where the parenchyma resection is less than 1000 g.

On moving pictures or statues, the power of femininity as manifested in the beauty of the breasts—whether covered or uncovered—is always an arousing image. Breast surgery poses a special challenge for the plastic surgeon, as an attractive cleavage is to be created by symmetrically positioned, taut, and full breasts.1–5 The nipples should occupy the point of highest projection and be in ideal proportion to body weight and height. The beauty of the breasts is not only influenced by the shape, size, and proportions, it is also affected by the appropriate position of the nipples.

In adolescence, the nipple is located on the vertical meridian, above the submammary fold, on the highest point of breast curvature, at a distance of 18 to 23 cm from the jugular notch.6,7 The change in the location of the nipples follows the changes in the shape and volume of the breast parenchyma—it moves downward with the stretching of the skin, at first to the level of the submammary fold, and then below it.8–10 The forward-pointing position of the nipples changes to a downward position.

The occurrence of parenchyma dislocation and the downward movement of the nipple-areola complex are influenced by many factors, including weight gain or loss, gravidity, lactation, congenital malformations, endocrine disorders, glandular hypertrophy or atrophy, the stretching and thinning of the skin, changes in the biomechanical properties of the skin, loosening of the adhesion of the muscle-parenchyma interface, decrease in the adhesion of the skin-parenchyma interface, decrease of the elasticity of breast suspensory ligaments, and the habit of not wearing a bra. In conjunction with mastopexy, breast augmentation, or breast reduction, the most important element of pre-operative planning is the marking of the proper position of the nipples.11–13

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METHODS

Positioning of the Nipple Based on Statistical Data

Because of individual variations in physical features, the positioning of the nipple based on statistical data (optimal jugulum-nipple distance, 18 to 23 cm) is only useful in terms of orientation. The expected height of the nipples must in all cases be determined through individual measurements (Fig. 1).

Marking the Location of the Nipples with the Use of Fingers

The “finger test” is the most commonly used technique, where the four fingers are placed in the submammary line, and the thumb, in opposition to the middle finger, shows the expected height of the nipple (Fig. 2).

Projection of the Lateral Endpoint of the Submammary Fold onto the Line of the Breast Meridian

The submammary fold crosses the lateral axillary line and continues toward the back. From the lateral endpoint of the submammary fold, a horizontal line is drawn onto the frontal surface of the chest and the nipple is placed on the point of intersection along the breast meridian. As a means of marking the expected position of the nipple, this method is less widely used (Fig. 3).

The Lassus Method for Marking the Position of the Nipple-Areola Complex

The technique invented by Claude Lassus determines the bisecting point of the distance between the olecranon and acromion in a standing position with arms at the sides. This height is also marked on the breast meridian in the horizontal plane. The upper edge of the areola is located 2 cm below this point (Fig. 4).14

The Method of Breast Parenchyma Imbrication

The previous methods mark the expected height of the nipple-areola complex on the breast meridian in such a way that this height is related to a fixed point, the submammary line or the midpoint of the olecranon-acromion distance on the upper arm. Dynamic imbrication recreates the optimal shape and form of the breast parenchyma in a fashion similar to the modification by molding of a round silicone breast implant to a conical one (Fig. 5).

Through the manual reshaping of the breast parenchyma into a conical shape, the method of dynamic imbrication reveals the position that indicates the point of highest projection along the breast meridian. The marking of this point determines the central location of the nipple. In a standing position, the meridians of the breasts are marked under and above the nipples. In a sitting position facing the patient,
The middle fingers of the hands are used to prop up medial and lateral sides of the breast while simultaneously pushing the parenchyma with the thumbs toward the center of the breast. The breast is molded into the desired shape with the use of the fingers (Fig. 6).

At the point of highest projection on the thus fashioned breast, the nipple is marked. The circle representing the areola is drawn in at the point of the height marked on the breast meridian. While the lateral and medial curves are determined by the tension and pressure of the fingers, the imbricating position of the thumbs provides the fullness of the upper pole and, in this way, the highest point of projection becomes clearly visible. When performing the dynamic parenchyma imbrication procedure again as a form of checking, the circle of the areola should become taut and indicate the highest point of the breast cone.

The newly molded shape of the breast should be examined frontally and in medial and lateral profile. The correspondence—or lack thereof—of the expected height of the nipple and the point of highest projection should be apparent. After the final adjustment of the markings, the planned height of the nipple must be marked on the appropriate point of the meridian on the opposite side. With the help of dynamic imbrication, the height of the nipple on the opposite breast must be checked. In case of breast asymmetry, the method shows the best possible shape at-

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**Fig. 3.** (Left) The lateral submammary line projection to the breast. The position of the new nipple-areola complex is a crossing point of the breast meridian and the horizontal line from the lateral endpoint of the submammary line. (Right) Nipple positioning with projection of the submammary line onto the breast meridian.

**Fig. 4.** Lassus method for marking the height of the nipple. The upper edge of the areola is located 2 cm below the bisecting point of the distance between the olecranon and acromion.
tainable through surgery. Optimally positioned, forward-pointing nipples located on the point of highest projection with the help of parenchyma imbrication will follow changes in breast volume and those associated with aging and will continue to show a natural position years after the operation (Figs. 7 through 10).

**DISCUSSION**

The position of the nipples is to be marked symmetrically along the horizontal plane, at equal height along the meridian, and defines the point of the highest projection of the breasts. A low placement of the nipples can give the impression of an unsuccessful procedure. In contrast, if the position of the nipples is too high or upward-pointing, they may become visible in the cleavage line and give the breasts a grotesque appearance. The low position of the nipples is relatively easily corrected. However, if the position is too high, it can only be corrected through a complicated surgery procedure, and in severe cases may require the use of an expander. Patients find a 0.5-cm to 1-cm me-

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**Fig. 5.** (Left) Demonstration of the molding and shaping of a round silicone implant to a conical shape. (Right) The two thumbs imbricate the implant centrally and in a superior direction.

**Fig. 6.** (Left) Marking with dynamic parenchyma imbrication. The two thumbs imbricate the breast parenchyma in a superior direction, and the fingers mold the conic shape of the breast. The imbrication of breast parenchyma creates adequate projection, and the upper pole contour is round. The nipple should be localized and marked to the highest point of the breast. The basal width of the breast will be more narrow. (Center) The lateral view demonstrates the projection of the breast parenchyma. The highest point of the breast should be controlled and marked. (Right) Four fingers force the medial and lateral part of the breast to the midline. Imbrication creates the fullness of the upper inner quadrant of the breast.
dial or lateral dislocation of the nipples considerably less disturbing than the displacement of the nipple in an upward or downward direction in relation to the horizontal line.

Many techniques locate anatomical reference points and mark the height of the nipple in relation to fixed points at the appropriate height of the meridian, above the ptotic nipple. Marking the nipple-areola complex for mastopexy or reduction mammoplasty with the method of static measurements has a risk of 1 to 1.5 cm of nipple dislocation.

The maneuver of dynamic imbrication of the parenchyma creates a naturally shaped breast.
with adequate tone and skin tension. The upper and lateral fullness, along with the medial cleavage, can be modeled. The manually created breast cone offers the proper position of the nipple. The dynamic parenchyma imbrication method can be effectively applied in case of mastopexy and in planning reduction (if the reduction is approximately 1000 g). In case of larger volume resections, the results of the dynamic method should be compared with and controlled by the use of fixed anatomical reference points. If the intended shape of the parenchyma is approximated and imitated manually by a dynamical molding of the breasts, the marking of the nipples will be simpler and more precise. Nipple dislocation, if it occurs, will be less than 1 cm. The basic principle of plastic surgery regarding the natural shape and size of the breasts is supported by Rohrich et al.’s recently articulated opinion: “The goal of breast reduction should not be to create a virginal-appearing breast but rather a mature, slightly pendulous breast that will persist proportional to the patient’s build.”

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REFERENCES