

Breast Biopsy Technique: A Plea for Cosmesis

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ABSTRACT: Breast cancer is the leading cause of cancer death among American women. Early detection and treatment greatly increase long-term survival rates, but many women delay seeking treatment of suspected lesions out of fear of mutilation. Unfortunately, this fear is compounded by the fact that although 60% to 80% of all biopsies prove benign, many women are left with unsightly scars from the biopsies themselves. The great majority of these avoidable scars result from the use of radial biopsy incisions, which are unnecessary in virtually all cases. Most lesions can be reached via periareolar incisions and even those few that require incisions away from the areola can be reached through incisions that follow Langer's lines circumferential to the breast. Even total subcutaneous mastectomy and reconstruction can often be done via periareolar incisions, with minimal scarring, less likelihood of keloid formation, no deformity, and less emotional trauma for the recovered patient.

RECENT DATA suggest that as many as 9% of all women in the United States will have breast cancer at some time during their lives. Breast cancer is the leading cause of cancer mortality among women between the ages of 15 and 75, with more than 100,000 new cases and 35,000 deaths reported annually.¹ For every biopsy that reveals conclusive proof of cancer, as many as four identify benign tumors.² Thus, somewhere between one quarter and one half million breast biopsies are performed each year.

The debate over the most effective surgical approach to removing cancerous breast tissue is one that relates, in part, to the question of how extensive disfigurement must be to attain optimal clinical results. A certain amount of disfigurement is unavoidable in many cases, though plastic surgery may be able to restore much of the original appearance. In the case of biopsy technique, however, the issue is one of equally effective surgical techniques, one of which—the radial incision—will in virtually all cases result in unsightly scars, while the other—the periareolar incision—will usually result in little or no disfigurement. Given this fact, it is tragic that many women continue to be disfigured unnecessarily and still others delay seeking treatment because of fear that they may be disfigured even if the tumor does not prove malignant.

BREAST BIOPSY

Despite the widespread use of additional diagnostic techniques such as mammography, thermography, and needle aspiration, surgical

biopsy continues to be the final definitive step in confirming malignancies of the breast.^{3,5} The desirability of offering as little local disturbance as possible to a malignant tumor during biopsy, or of minimizing disfigurement if the lump proves benign, dictates that optimal incisions should be curved over the lump and parallel with the lines of Langer close to the areola. Incisions that follow Langer's lines generally result in minimal scarring, less likelihood that keloids will form, and less lingering emotional trauma for the recovered patient.⁶ Radial incisions, with their resultant unsightly scars, are never necessary.⁷

A major fallacy on which surgeons sometimes base their decisions to use radial incisions for breast biopsies is the notion that many areas of the breast are not otherwise accessible. In fact, approximately 60% of all malignancies occur in the upper outer quadrant of the breast, an area easily accessible through a periareolar incision.⁸ Incisions away from the nipple should be necessary only when the axilla or lateral "tail of Spence" is involved, and even in these cases, scarring can still be greatly reduced by making an incision that follows Langer's lines.^{9,10}

SURGICAL TECHNIQUE

Although breast biopsy need not be done only by plastic surgeons, the use of basic plastic surgery techniques and principles can provide a minimum of disfigurement and a nearly undetectable scar, while at the same time meeting all the requirements of the general surgeon.

Breast mobility allows the nipple to be rotated to any point on the breast. A periareolar incision circumscribes one half of the circumference of

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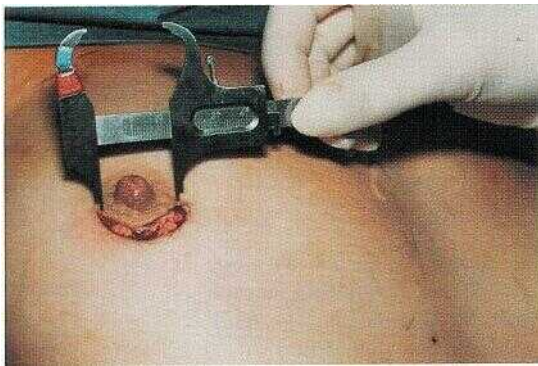


FIGURE 1. Periareolar incision circumscribing one half of circumference of areola.

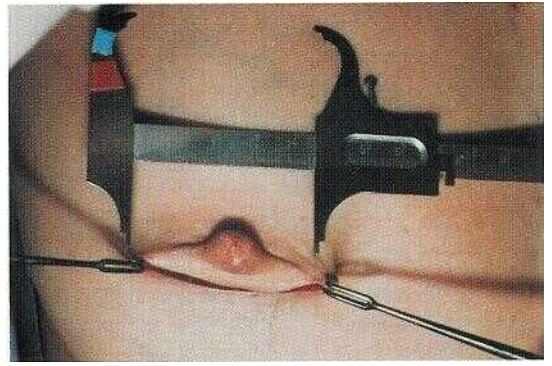


FIGURE 2. Length possible by extending periareolar incision permits excision of even very large lesions.



FIGURE 3. (Case 1) This patient had had several previous biopsies via random incisions, leaving unsightly scars. One of these scars (*left*) actually extended to edge of areola, indicating that periareolar incision could easily have been used. Subsequently, complete subcutaneous mastectomy with simultaneous reconstruction was done on each breast, entirely via periareolar incisions. These scars (*right*) are virtually unnoticeable, in stark contrast to those left by earlier biopsies.

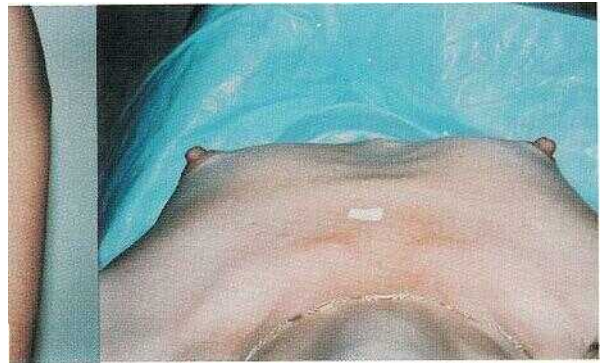
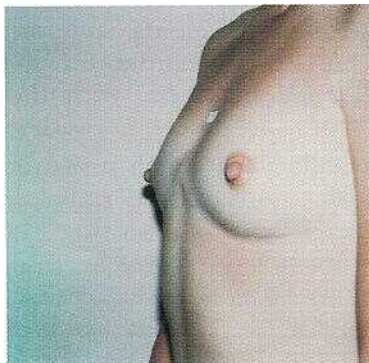


FIGURE 4. (Case 2) This patient's thoracic deformity of pectis carina caused disfigurement and discomfort.

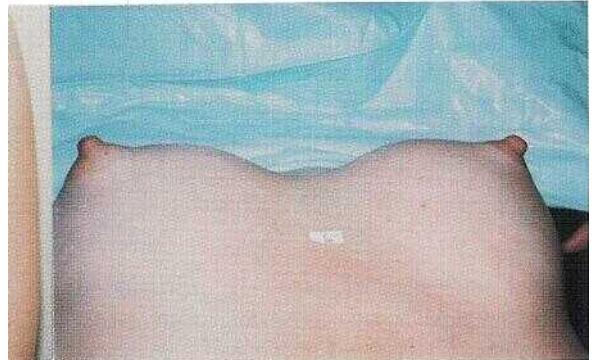
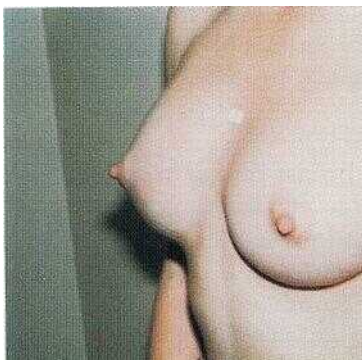


FIGURE 5. (Case 2) Via periareolar incision in right breast, protuberant bone and cartilage were completely excised and breast was subsequently reconstructed with implantation of double-lumen prosthesis. Left breast was similarly reconstructed via periareolar incision to balance profile. Procedures improved profile, with virtually unnoticeable scarring.

the areola will allow for a linear wound 3.14 times the diameter of the areola. For example, if the radius of the areola is 1 inch, a periareolar incision covering one half of its circumference will measure 6.28 inches. This size incision will allow removal of any size breast mass and, indeed, subcutaneous mastectomy may sometimes be done via this route. Subcutaneous undermining from the periareolar incision to the location of the breast mass allows adequate visualization and hemostasis.

Figure 1 illustrates a periareolar breast biopsy incision, and Figure 2 shows the length possible by this route. Because of the extensive undermining necessary in some cases, it may be necessary to insert a drain. We use two silicone rubber vesseloops for this purpose. It is necessary to use two because the oval configuration can cause a seal to form if only one is used. The use of two silicone vesseloops also provides capillary space, and the smooth silicone surface allows easy removal. A subcuticular stitch at the drain site allows reapproximation of wound edges when the drain is removed by traction on the subcuticular stitch.

Of the 52 breast biopsies we have done over a two-year period, only two required an incision other than periareolar. These two lesions were located in the tail of Spence, where the incision was easily camouflaged by the lateral breast fold.

CASEREPORTS

Case 1. This 20-year-old Latin woman had been subjected to five previous breast biopsies done in random patterns, leaving conspicuous scars on both breasts. (Although the wounds may have been meticulously closed, it is the nature of wounds on the breast, other than in the areola and nipple area, to hypertrophy and spread over time.) Since one of the biopsy scars touched the areola (Fig 3, *left*), it was obvious that any lesion could easily have been removed through a periareolar incision. Subsequently, we did complete subcutaneous mastectomy in both breasts, with simultaneous implantation of 350 ml saline-filled silicone prostheses, entirely through periareolar incisions. Although all of the other breast biopsy scars had expanded after the previous biopsies, the periareolar incisions can be seen one year postoperatively to have retained their dimensions (Fig 3, *right*). Although the periareolar scars are visible, they are not perceived as scars because they are in the areas of transition between skin and pigmented areola.

Case 2. This 37-year-old white woman had a thoracic deformity of pectus carina; the xiphoid region of the costochondral junction protruded farther forward than her breasts (Fig 4). She had previously been to a thoracic surgeon who advised her that this could be corrected via a midline incision with reversal of the sternum. She was concerned that this would leave a scar deformity nearly as great as the bone deformity. We advised her that the deformity could be corrected with minimal scarring via periareolar incisions and augmentation

of the breasts to reshape her profile and minimize the pectus carina deformity. Through a periareolar incision in the right breast, dissection was carried down anterior to the breast gland to the medial and inferior quadrants. The region of the pectus carina deformity was dissected beyond the midline from the right breast and the protuberant bone and cartilage were removed with an osteotome. This area was then rasped smooth and cartilage and bone measuring about 15 ml in volume were removed. The breast was then reshaped with implantation of a double-lumen prosthesis. The left breast was then also reshaped through a periareolar incision using a slightly smaller prosthesis. Padding was taped to the sternum for three weeks to prevent separation of the area. The entire procedure was done under local anesthesia. At five weeks after operation scarring was minimal and the profile was much improved (Fig 5).

CONCLUSION

Because of the psychologic trauma involved in the treatment of breast cancer and the importance of early detection to long-term survival, surgeons should use breast biopsy techniques that minimize the potential for disfigurement. Unfortunately, many surgeons persist in using random incisions, resulting in obvious and disfiguring scars. In most cases,* the preferred surgical technique for breast biopsy is the periareolar incision. The periareolar incision results in virtually unnoticeable scars in most cases and can be used to achieve access to all but a few most remote areas of the largest breasts. Widespread use of the periareolar incision will eliminate much unnecessary disfigurement and thus reduce the possibility that women may fail to seek medical care for suspected lesions due to a fear that they may be mutilated even should the lesion prove benign.

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*At least one report suggests that periareolar incisions may result in a high incidence of keloids and hypertrophic scars in black people and that intra-areolar incisions are indicated for minimal scarring in these patients.¹¹