

## Case Report

# Sentinel Lymph Node Biopsy in the Augmented Breast: Role of the Transaxillary Subpectoral Approach

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*Given the use of sentinel lymph node biopsy for breast cancer staging, some plastic surgeons may be hesitant to offer patients a transaxillary approach to augmentation for fear of disrupting the lymphatic drainage of the breast. Dissection within the axilla theoretically compromises the normal drainage of the breast tissue to the axillary lymph node basin, a critical element in the procedure of sentinel lymph node mapping. We present a case report in which successful sentinel lymph node biopsy was performed after transaxillary subpectoral augmentation mammoplasty. Remaining high and anterior in the axilla within the subcutaneous plane is crucial in minimizing any compromise of normal lymphatic drainage. In addition, it is generally agreed that subpectoral placement of the implant generates less distortion in the mammographic evaluation of the breast than does a subglandular implant. As a result, the transaxillary subpectoral method of augmentation may be one of the most amenable techniques with regard to screening and diagnosis of breast cancer. (Aesthetic Surg J 2003;23:184-187.)*

The transaxillary approach to breast augmentation was first described by Hoehler<sup>1</sup> in 1973. This approach offered patients augmentation without an incision on the breast itself, minimal tension on the healing scar, and more rapid recovery from surgery. Peterson refined this approach further in 1979 by placing the implant subpectorally.<sup>2</sup> After adopting this practice, Watanabe<sup>3</sup> and Tebbetts<sup>4</sup> found that it resulted in a decreased rate of incidence of capsular contracture and decreased risk of nipple-sensation loss.

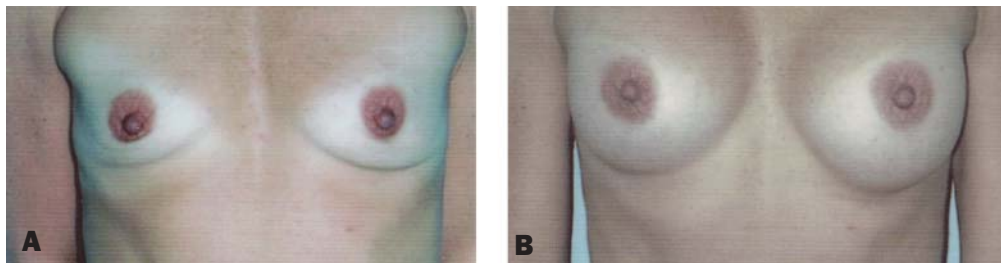
Often patients are not offered this approach, possibly because some surgeons have had little exposure to the technique during formal training. Furthermore, transaxillary augmentation may even be discouraged in the current age of sentinel lymph node biopsy for breast cancer staging. Such an incision is thought to disrupt the axillary drainage of the breast, thus preventing successful mapping of a sentinel lymph node in the future.

We present a case report demonstrating that our technique of remaining high and anterior in the axilla within the subcutaneous plane does not preclude later sentinel lymph node biopsy. In addition, the subpectoral placement of the implant permits screening mammography with minimal artifact.

## Case Report

A 39-year-old Caucasian woman first presented to the senior author (DM) in February 1999 for a transaxillary subpectoral augmentation mammoplasty with 340- and 360-cc smooth-wall implants (Figure 1). Incisions measuring 4 cm were made in the highest axillary crease (Figure 2). The skin was pulled anteriorly to facilitate blunt dissection of a subcutaneous pocket that directly exposed the lateral border of the pectoralis major muscle (Figure 3). The fascia around the pectoralis major muscle was then bluntly entered and further digital blunt dissection was performed to create a pocket between the pectoralis major and minor muscles. After completing the pocket with an Agris-Dingman dissector (Padgett, Kansas City, MO, and Snowden Pencer, Tucker, GA) and irrigating with povidone-iodine solution, the implant was placed in the pocket and the wound closed in three layers.

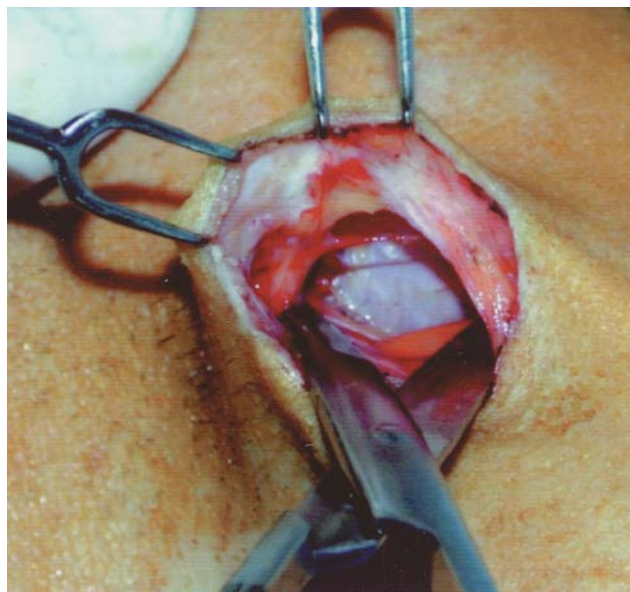
Preoperative mammography had shown scattered punctuate calcifications in the superior lateral aspect of the left breast that were believed to be benign. However, follow-up mammography in August 1999 revealed that these calcifications had increased in size, and an adjacent new cluster of irregular microcalcifications was found as



**Figure 1.** **A**, Preoperative view of a 39-year-old woman. **B**, Postoperative view 1 month after transaxillary subpectoral breast augmentation with 340-cc and 360-cc smooth-wall implants.



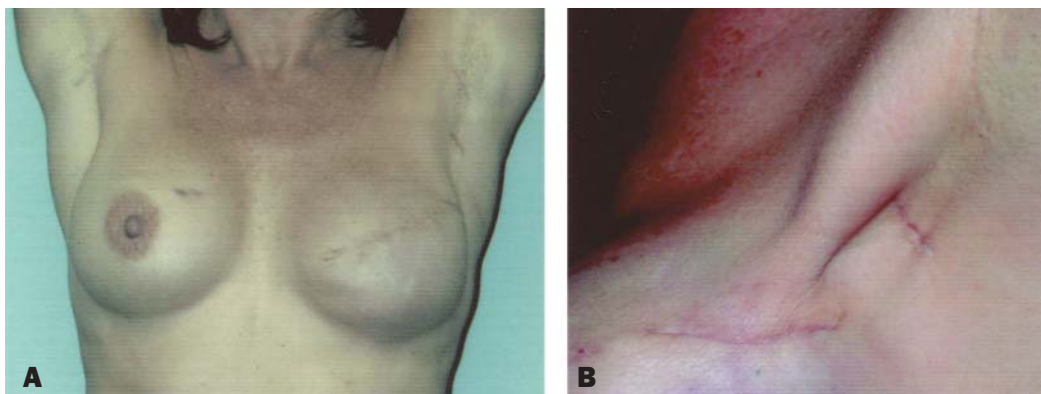
**Figure 2.** An incision was made high within the axilla to eliminate scarring on the breast and hide the scar within a natural-appearing crease.



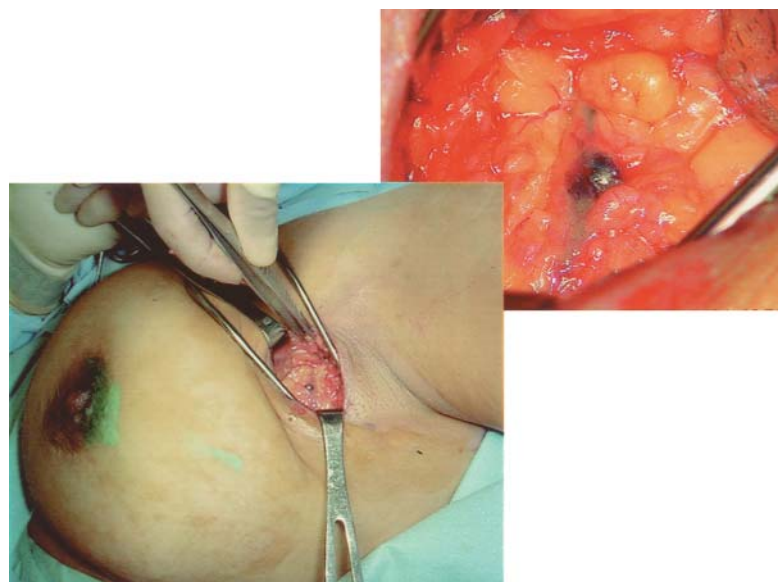
**Figure 3.** Once the subcutaneous plane was entered, a pocket was bluntly developed until the lateral border of the pectoralis major muscle was seen.

well. At this time, the patient underwent a localized left-breast needle biopsy that revealed a 5-cm area of extensive and multifocal ductal carcinoma in situ. A cluster of microcalcifications of the right breast was also subjected to localized needle biopsy but was found to be benign, consistent with fibrocystic changes. Subsequently, the patient underwent a left total skin-sparing mastectomy with left sentinel lymph node biopsy. The lymph node basin was localized to an area approximately 5 cm inferior to the augmentation incision (Figure 4). A clearly blue afferent lymphatic channel was identified, leading to one blue sentinel lymph node, which demonstrated only reactive hyperplasia. Because the tumor exhibited estrogen- and progesterone-receptor positivity, the patient was prescribed tamoxifen. She also underwent one course of postoperative radiation with a boost dose for a total of 5940 cGy. A grade II 1/2 capsular contracture developed after radiation therapy, but no skin changes occurred.

One year later, the presence of a palpable nodule measuring 4 to 5 mm in diameter over the lateral mastectomy incision was confirmed with ultrasound. An excisional biopsy revealed invasive ductal carcinoma. On November 7, 2001, a second left sentinel lymph node biopsy with blue dye and wide reexcision of the biopsy site were performed. The node was localized to the lymphatic basin that had previously been found. Histologic review identified a small focus of metastatic adenocarcinoma within the sentinel node, as well as involved margins in the reexcision specimen. A repeat wide excision of the lumpectomy site, with partial left capsulectomy and exchange of the implant for a subpectoral tissue expander, was then undertaken. The patient declined axillary lymph node dissection, despite the finding of a positive sentinel lymph node. Final pathology studies of the wide local excision at this time were negative for malignancy. The patient is undergoing chemotherapy at the time of this writing.



**Figure 4.** **A**, Frontal view of the incisions after transaxillary augmentation, left mastectomy, left sentinel node biopsy, and right-breast biopsy. **B**, Lateral view after second wide incision and second sentinel node biopsy, 1.5 years after augmentation. The lymph node basin was localized approximately 5 cm inferior to the earlier transaxillary incision for augmentation.



**Figure 5.** Before surgery, isosulfan blue dye was injected intradermally into the breast. An incision was made low in the axilla, where blue lymphatic channels were seen leading to a blue sentinel node.

## Discussion

Hoehler's transaxillary approach to breast augmentation initially involved making a 3-cm sagittal incision at the center of the hair-bearing axilla. Blunt dissection through the subcutaneous tissue, toward the lateral pectoral border, was used. Dissection was then continued along the pectoral major fascia to lift the mammary gland for placement.<sup>1</sup> Alternatively, in an approach similar to that described by Tebbetts,<sup>4</sup> we made an incision in the highest axillary fold of the axilla, then dissected bluntly in an anterior direction and in the subcutaneous plane until the lateral pectoral muscle border was encountered (Figures 2 and 3). The dissection then followed just posterior to the pectoralis major and superficial to the pec-

toralis minor muscle. The lymphatics remained untouched posterior and inferior to the dissection.

The concept of sentinel lymph node biopsy was first described for penile carcinoma by Cabanas<sup>5</sup> in 1977. Morton made it a standard of care in the staging and treatment of melanoma,<sup>6,7</sup> and now sentinel lymph node biopsy has been adopted for use in breast cancer. Isosulfan blue dye, with or without radiocolloid, is injected intradermally or peritumorally, after which it is taken up by macrophages and carried through the lymphatics. A low axillary incision is made to identify the blue, or "hot," "sentinel" lymph node that first receives the lymphatic drainage from the site in question (Figure 5). Giuliano<sup>8,9</sup> maintained that this minimally invasive tech-

nique diminishes the potentially disabling morbidities of a full axillary lymph node dissection, which include pain, neuropathy, and lymphedema. He also argued that sentinel lymphadenectomy permits more accurate staging through the multiple sectioning of fewer nodes for more careful histologic review, as opposed to fewer sections of the many nodes obtained in an axillary lymph node dissection. The current B32 trial of the National Surgical Adjuvant Breast and Bowel Project (also known as NSABP B32, the Phase III randomized study of sentinel-node dissection with or without conventional axillary dissection in women with clinically node-negative breast cancer) seeks to establish the use of sentinel lymph node biopsy as the standard of care. Any patient who has undergone prior breast surgery other than previous breast biopsy — namely, breast augmentation or reduction — is excluded from this study.<sup>10</sup>

Although sentinel lymph node biopsy is not yet the standard of care for breast cancer staging, it is becoming commonplace. In the academic setting, Giuliano and Cox, both pioneers in the study of sentinel lymph node mapping, agree that in their experience, previous breast reduction or augmentation of any incisional technique has not precluded successful sentinel lymph node biopsies (A. E. Giuliano [giulianoa@jwci.org], e-mail, May 6, 2002; C. E. Cox, [coxce@moffitt.usf.edu], e-mail, April 1, 2002). Patients who are offered sentinel lymph node biopsy outside of the NSABP B32 protocol understand that the presence of a positive sentinel lymph node or failure to identify a sentinel lymph node is an indication for a full axillary lymph node dissection, which is the standard of care.

## Conclusion

In the patient presented here, the sentinel lymph node was found approximately 5 cm inferior to the augmentation incision, proving that the lymphatics remained intact. The integrity of the lymphatics was confirmed a second time, even after removal of the breast tissue itself. Further mapping studies are necessary to delineate more clearly the lymphatic drainage of the postoperative breast. A randomized controlled clinical trial that accepts the feasibility of sentinel lymph node biopsy after previous breast augmentation is still required. We do want to emphasize, however, that the blunt-dissection technique we use, remaining high and anterior in the subcutaneous plane, minimizes disruption of lymphatics. It is our belief that this approach to augmentation, together with subpectoral placement, may be one of the approaches most

compatible with future breast cancer diagnosis and treatment and therefore should not be discouraged.■

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