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Editorial
Role of Axillary Dissection in Breast Cancer Management

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Several developments in breast cancer therapy have prompted a reevaluation of the need for axillary dissection in all cases of invasive carcinoma. These include the increased frequency of detection of very small breast cancers by mammography screening, the widespread use of adjuvant systemic therapy for patients with both node-positive and node-negative breast cancer, and a greater awareness of the morbidity of axillary dissection. If a group of patients with an extremely low risk of axillary metastases can be identified, axillary dissection could be omitted from their surgical therapy. Alternatively, axillary dissection could be avoided in cases where the findings will not change therapy. The impact of axillary dissection on both local control and survival, as well as our ability to reproducibly identify a subset of patients at low risk of metastases, must be evaluated before either of these strategies can be adopted.

In this issue of *Annals of Surgical Oncology*, Baxter et al. report a 28% actuarial axillary recurrence rate at 10 years in 112 clinically node-negative patients treated with tumor excision alone. In contrast, axillary failure rates after a level 1 and 2 dissection for patients undergoing breast-conserving therapy with breast irradiation are less than 3% (1,2). In the report by Baxter et al. the only factor found to be associated with axillary failure was tumor size, leading the authors to speculate that patients with small primary cancers were the least likely to benefit from axillary dissection. While it is true that the risk of axillary metastases is related to tumor size, small tumor size does not uniformly mean biologically favorable disease. Data bases using unselected patient populations have identified axillary metastases in 21%–25% of patients with tumors 1 cm or less in size and nodal metastases in 21%–28% of patients with tumors 0.5 cm or smaller (3,4), suggesting that size alone does not identify a patient population at low risk for axillary metastases. Silverstein et al. (5) have reported that the rate of nodal metastases was lower for mammographically detected tumors than for clinically evident tumors. However, there were important differences between patient groups in this retrospective study, and these findings were not duplicated in the work of Wilhelm et al. (6) or in our own data base (7).

An alternative approach to identifying patients at low risk for nodal metastases has been to use a combination of tumor size and other pathologic characteristics of the primary tumor. In the largest such study, Ravdin et al. (8) analyzed data from 11,964 patients to determine if tumor size, age, S-phase fraction, receptor status, and ploidy could accurately predict nodal involvement. No patient with less than a 10% risk or greater than a 75% risk of involvement was identified. The addition of epidermal growth factor receptor, HER 2 neu expression, and cathepsin D to the model in 324 patients did not improve its predictive value. The only groups of patients with invasive breast cancer regularly shown to have nodal metastases in fewer than 5% of cases are those with microinvasive carcinoma and those with pure tubular carcinomas less than 1 cm in size (7). For the remainder of patients with tumors 1 cm or smaller, axillary dissection remains critically important because these patients are not usually given systemic therapy unless positive nodes are identified.

A final consideration in eliminating axillary dissection is its impact on survival. Since the publication of National Surgical Adjuvant Breast Project Trial B04 (9), it has been generally accepted that axillary

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dissection has no therapeutic benefit. However, evidence suggests that for a small group of patients, axillary dissection may contribute to survival. Studies of patients treated with radical mastectomy alone demonstrate that 25–30% of 20-year survivors had positive axillary nodes (10–12). Further support for a therapeutic role for axillary dissection comes from a prospective randomized trial of 658 clinically node-negative patients treated by lumpectomy, axillary dissection, and breast irradiation or lumpectomy with radiation to the breast and nodal fields (13). At 5 years, a statistically significant survival benefit was observed for patients treated with axillary dissection. Although some of this benefit was due to the administration of chemotherapy only to women with histologically positive nodes, it is too large to be explained by the effects of chemotherapy alone.

At present, based on our inability to reliably identify a group of patients at low risk for axillary metastases and the uncertainties regrding the therapeutic effects of axillary dissection, the procedure should remain part of the treatment of most patients with invasive cancer. In elderly patients, the risk benefit ratio must be carefully weighed, keeping in mind that most axillary failures occur in the first 3 postoperative years and are likely to become clinically evident during the patient's lifetime. Sentinel node biopsy has the potential to allow axillary dissection to be limited to patients with positive nodes who require the procedure for local control and quantification of the number of involved lymph nodes. However, before sentinel node biopsy is widely adopted as a replacement for axillary dissection, it must be subject to the same scrutiny that accompanies the evaluation of other new cancer therapies.

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