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The Routine Sampling of Internal Mammary Lymph Nodes During Free Flap Based Breast Reconstruction

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Background: Current oncologic data has shed new light on the importance of assessing the metastatic involvement of the internal mammary node (IMN) chain in breast cancer patients. The metastatic involvement of the IMN has implications for staging, prognosis, potential treatment strategies, and possibly long term survival.

At our center for breast reconstruction the vast majority of reconstructive breast surgery is performed utilizing autologous tissue. The primary recipient vessels for these free tissue transfers are the internal mammary vessels. Thus the intercostal space in which the IMN reside is readily exposed. In this study we set to analyze our preliminary data gathered during routine consecutive sampling of IMN and the oncological treatment strategy changes that resulted from our findings.

Materials and methods: This study is based on a retrospective chart review of all patients who underwent consecutive free flap breast reconstruction performed at our institute over a 15 month period. All dissected IMN were submitted for pathological examination. Patient demographics, oncologic data, and the results of the IMN sampling were reviewed. Changes made in the oncologic status and treatment due to positive IMN involvement were noted.

Results: Forty four patients with an average age of 47 years (range 28 - 64 years) underwent breast reconstruction utilizing 71 free flaps (27 bilateral and 17 unilateral cases). Of the 44 patients who underwent reconstruction 4 had positive IMN (9.1%) with one patient having bilateral positive IMN.

Regarding the timing of reconstruction, 2 patients underwent immediate versus 2 delayed. Interestingly, 3 of the 4 patients (75%) had positive IMN involvement of the contralateral non affected breast. Three patients (75%) also had positive axillary nodes, one in the immediate and both of the delayed reconstructions.

Due to the positive IMN findings all 4 patients were oncologically reevaluated and upstaged. The treatment regimen change in one immediate reconstructions included the addition of chemotherapy and RT that were initially not part of the treatment plan. One patient with

immediate reconstruction is being evaluated regarding the addition of chemotherapy and RT. Both patients with delayed reconstructions are currently undergoing RT and chemotherapy due to distal metastatic spread of their disease.

Discussion: Current evidence points to the importance of the IMN as a first echelon nodal site for metastases. The routine biopsy of the IMN while dissecting the recipient vessels is simple, straight forward, and results in no added morbidity to the surgical procedure. Still, the information gathered by these routine biopsies may provide crucial information for patient staging, prognosis, and selection of the optimal oncologic regimen. Failure to inappropriately evaluate the IMN status may result in under staging, and possibly result in inadequate treatment.

Thus, we recommend that the routine biopsying of the IMN chain be preformed whenever the internal mammary vessels are dissected for microsurgical anastomosis. Positive involvement of a lymph node by metastatic disease should encourage thorough metastatic workup, restaging if indicated, and appropriate treatment.

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