

Intra-operative Frozen Section for Sentinel Lymph Node: a Pathologic Study of 262 Patients with Breast Cancer

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Background: Sentinel lymph node biopsy (SLNB) has been developed for assessment of the staging of breast cancer patients to minimize the morbidity of complete axillary lymph node dissection (ALND). This study evaluates the sensitivity and specificity of intra-operative frozen section (FS) examination of sentinel lymph node biopsy.

Materials and Methods: Between January 2000 and February 2004, samples were collected from breast cancer patients at the Taichung Veterans General Hospital who underwent intra-operative FS for SLNB. The frozen tissue also underwent standard paraffin tissue processing afterwards and the result of each paraffin section was regarded as the gold standard of intra-operative FS.

Results: A total of 952 sentinel lymph nodes from 262 patients were harvested. The overall sensitivity and specificity for intra-operative FS were 68.6% (72/105) and 99.6% (844/847) respectively. When further stratified according to metastatic size, the sensitivity for macrometastases, micrometastases, and submicrometastases were 95.5% (64/67), 25% (6/24), and 14.3% (2/14) respectively.

Conclusions: Intra-operative FS of SLNB is a highly specific and sensitive method for detecting macrometastases, while showing high specificity and low sensitivity for micrometastases and submicrometastases. For such metastases, more precise methods may help in accurate diagnosis. Following studies of the histological sections of "negative" sentinel nodes after using frozen sections are necessary to find occult metastases, and a two-step operation is essential for such patients.

Key words: axillary lymph node, breast cancer, intra-operative frozen section, sentinel lymph node biopsy (SLNB)

Axillary lymph node (ALN) status is the single most important predictor of disease-free survival and overall survival in breast cancer.¹ However, complete axillary lymph node dissection (ALND) carries morbidities such as lymphedema, pain and limitation of arm motion, which may cause intolerable suffering to the patient. Sentinel lymph node biopsy (SLNB) for breast cancer was introduced in the mid-1990s as an alternative procedure to determine the ALN status, while avoiding the morbidity of complete ALND.¹ It is now performed

more often and is common in staging breast cancer.

Intra-operative frozen section (FS) of SLNB during the primary operation enables the surgeon to immediately stage the breast cancer and decide further therapeutic protocols, saving both hospital cost and patient distress. It also allows selected patients to remain free from the morbidity of complete ALND. However, the frozen section carries the risk of a false negative result. A false negative may cause the surgeon to underestimate the nodal stage of breast cancer and administer improper

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