patients with breast cancer. The aims of this study were to assess the usefulness of axillary sampling in conjunction with sentinel node biopsy, and to compare the incidence of lymphoedema after treatment of the axilla.

Patients and methods: Two-hundred and five women who underwent curative surgery for pT1−2, N0−1, M0 primary breast cancer, were retrospectively reviewed.

According to the treatment of the axilla, four groups of age- and stage-matched patients were obtained: Group A (N = 54 patients): sentinel node biopsy alone; Group B (N = 48 patients): sentinel node biopsy and axillary sampling by using ultrasound scissors; Group C (N = 53 patients): axillary dissection by using ultrasound scissors; Group D (N = 50 patients): traditional axillary dissection. Patients were followed-up for at least 18 months. The diagnosis of lymphoedema was made when a difference of 2 cm or more was observed in the arm circumference between affected and non affected arms.

Results: Final pathology showed axillary node metastases in 20, 17, 16, and 17 patients in Groups A, B, C, and D, respectively (p = NS, chi-squared test). In Group A and B patients frozen section examination of the sentinel node biopsy showed axillary node metastases in 16 of 20 (sensitivity = 80%), and 16 of 17 cases (sensitivity = 94.1%) patients, respectively (p=NS). At follow-up patients with lymphoedema were 2 (3.7%), 2 (4.2%), 3 (5.6%), and 8 (16%) in Groups A, B, C, and D, respectively (p = NS).

Conclusions: Axillary sampling is a safe and low-morbidity procedure that in conjunction with sentinel node biopsy may reduce the number of false-negative results of sentinel node biopsy alone. Lymphoedema is a rare occurrence both in patients who underwent sentinel node biopsy alone, and in those who underwent axillary sampling. The use of US may reduce such late complication especially when axillary dissection is required.

References

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How many nodes are enough in sentinel lymph node biopsy for breast cancer?

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Backgrounds: Sentinel lymph node (SLN) biopsy is as a minimally invasive alternative to axillary lymph node dissection for breast cancer. SLN biopsy is performed by injection a vital blue dye, radioactive colloid, or both around the site of the primary breast cancer. A dual tracer technique with blue dye and radioisotope increases both the success rate and the accuracy of the procedure, but also increases the number of lymph nodes removed per case. The purpose of this analysis was to determine whether there is a threshold (based on number of SLNs removed) after which the surgeon does not need to excise additional lymph nodes.

Material and Methods: Medical records were reviewed for 136 breast cancer patients who underwent successful lymphatic mapping and SLN biopsy between Dec 2005 and March 2007 at the Kyungpook National University Hospital. All patients underwent SLN biopsy using both radioactive colloid and blue dye. Lymph nodes were removed and labeled as SLNs if they were palpably suspicious, blue, or were hot, defined as the hottest node plus any lymph node with the radioactive counts greater than the count in the axilla. A preliminary frozen section was performed on all SLNs. In 122 patients with a positive SLN or with invasive cancer, axillary lymph node dissection was done after SLN biopsy.

Results: The median age was 51 years (range, 26−76 years) and all patients were female. The mean number of SLNs removed per patient was 5.8(±3.2) and 86.0% of patients had three or more SLNs removed. The false negative rate in patients who had 3 or more sentinel node removed was 3.4%.

Of the 34 patients with SLN metastases, 100% were positive by the 3rd node.

Conclusions: SLN biopsy has an inherent false negative rate in the range of 4−10%. Based upon the findings of this study, terminating the SLN biopsy procedure at 3 nodes should identify a positive SLN in almost all cases. As long as the surgeon is confident that the blue and hottest node(s) have been removed, it is reasonable to limit sentinel node removal to 3 nodes in order to reduce both cost as well as the morbidity of the procedure.

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Intraoperative frozen section for sentinel lymph node – a pathologic experience of 262 patients with breast cancer

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Background: Sentinel lymph node biopsy (SLNB) has been developed to access the staging of breast cancer patients to minimize the morbidity of complete axillary lymph node dissection (ALND). Intra-operative frozen section (FS) of SLNB is becoming a common procedure in breast cancer operation and patients with a positive result may undergo immediate complete ALND and patients with negative result may be freed from the morbidity of complete ALND. This study evaluates the sensitivity and specificity of intra-operative frozen section examination of SLNB.

Material and Methods: Between January 2000 and February 2004, breast cancer patients from Taichung Veterans General Hospital underwent SLNB and intra-operative FS were collected. The residual tissue after intra-operative FS was sent for standard histological tissue processing and sectioning. The result was regarded as the gold standard of intra-operative FS. Most of these patients had a subsequent ALND no matter the result of SLNB.

Results: A total of 952 sentinel lymph nodes from 262 patients were harvested. The overall sensitivity and specificity for intra-operative FS are 68.57% (72/105) and 99.65% (844/847). When further stratified on metastatic tumor size, the sensitivity for macrometastases, micrometastases, and submicrometastases were 95.52% (64/67), 25% (6/24), and 14.29% (2/14). 247 patients (172 SLNB negative and 75 SLNB positive) underwent subsequent ALND.

Conclusions: Intra-operative FS of SLNB was a highly specific and highly sensitive method for detecting macrometastases; highly specific but low sensitive method for detecting micrometastases and submicrometastases. For micrometastases and submicrometastases, more complicated methods with serial sections, imprint cytology or ultra-rapid immunohistochemistry might help in accurate diagnosis if these facilities and trained personnel are available. Following the histological sections of residual tissue from FS negative nodes was necessary to find occult metastases and the two step operation was essential for these patients.

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Efficacy of sentinel lymph node biopsy under local anesthesia prior to breast-conserving surgery for early breast cancer

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Background: Sentinel lymph node biopsy (SLNB) is a technique to evaluate axillary lymph node (ALN) metastasis for early breast cancer. A standard SLNB is performed with breast-conserving surgery (BCS) under general anesthesia and the need for axillary lymph node dissection (ALND) is determined by the results of intraoperative frozen section analysis. However, the possibility of false-negative cases cannot be avoided, and ensuing ALND will be required. In our institution, we perform SLNB under local anesthesia prior to BCS and decide the indication for ALND based on the permanent section evaluation. In this report, we discuss the results of 117 cases between October 1999 and December 2007 in which we performed SLNB under local anesthesia prior to BCS.

Patients and Methods: Early breast cancer patients with non-invasive or invasive breast carcinoma of less than 20 mm, with no ALN metastasis on contrast-enhanced CT images were indicated.The two-mapping method using dye (2% patent blue, 1 ml) and radioisotope (phytate Tc, 1 mCi) was performed. The location and the number of sentinel lymph nodes (SLN) were examined by lymphoscintigraphy. A gamma probe was used to locate the SLN, and a 2-cm skin incision was performed. Each SLN was cut into 3 valves and studied with H&E and immuno-histochemical staining for cytokeratin.

Results: SLNs were detected in 100% of the patients. Out of the 117 patients studied, 86 patients (73.5%) were negative for metastasis in SLN and therefore did not receive ALND. Four cases (4.6%) of these patients recurred in the ALN. Thirty-one patients (26.5%) were positive for metastasis in SLN; of the cases, 9 cases had micrometastasis, and 3 cases had isolated tumor cells. These 29 patients received BCS with ALND under general anesthesia, and two patients had metastasis in ALN.

The average operating time of SLNB in the recent 50 cases was 36.4 minutes. The amount of lidocaine was less than 200 mg in all cases. There were no complications regarding the SLNB procedures.

Conclusion: The out-patient SLNB under local anesthesia reported here is not a difficult method. This method is a feasible procedure in deciding the indication of ALND prior to BCS for early breast cancer patients.