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**Disconcordance between number of scintigraphic and perioperatively identified sentinel lymph nodes and axillary tumour recurrence**

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**Introduction:** Sentinel node biopsy is a reliable method to get informed about the tumor status of the axilla. Preoperatively, radio active tracer is injected to identify the sentinel node scintigraphically. Patent blue dye is also injected to facilitate visual identification of the sentinel node during surgery. Sometimes there is a discrepancy between the number of scintigraphically identified sentinel nodes and the number of nodes identified during surgery. We hypothesized that non-identified sentinel nodes could lead to an increase in the axillary recurrence rate.

**Materials and Methods:** From a prospectively collected database patients who underwent sentinel node biopsy between Jan 2000 and Dec 2007 were identified. The number of scintigraphically and preoperatively identified sentinel nodes were reviewed. The axillary recurrences were scored. Patients were divided in 3 groups: group 1, scintigraphically more nodes identified than during surgery; group 2, more nodes identified during surgery than scintigraphically; group 3, even number of nodes identified scintigraphically and during surgery.

**Results:** Our population consisted of 935 patients who underwent a SLN biopsy. In group 1, 1/78 patients (1.3%) developed an axillary recurrence. In group 2 and 3 this was 2.4% (4/164) and 4.8% (33/693), respectively. A higher number of scintigraphically identified nodes compared to the number of nodes identified during surgery did not lead to an increase in axillary recurrence rate.

Correlation between the number of identified sentinel nodes and axillary recurrence rate

| | Scintigraphically > During surgery | During surgery > Scintigraphically | Scintigraphically = During surgery |
|---|---|---|---|
| N | 78 | 164 | 693 |
| Sentinel node status | | | |
| Negative | 45 (57.7) | 116 (70.7) | 469 (67.7) |
| Positive | 26 (33.3) | 48 (29.3) | 194 (28.0) |
| Failure | 7 (9.0) | – | 30 (4.3) |
| Recurrence, No/Yes | | | |
| No | 74 | 153 | 619 |
| Yes | 4 | 11 | 74 |
| Recurrence, localization | | | |
| Local | 1 (1.3%) | 1 | 17 |
| Regional | 3 | 3 | 16 |
| Distant | – | 8 | 56 |

**Conclusion:** There is no correlation between axillary recurrence rate and surgically non identified sentinel nodes that were identified on preoperative scintigraphy.

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**The feasibility of sentinel lymph node biopsy after neoadjuvant chemotherapy for breast cancer patients**

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**Background:** Sentinel lymph node biopsy (SLNB) has become an accurate alternative to axillary lymph node dissection for clinically node negative breast cancer. However, data are still insufficient with regards to the combination of SLNB with neoadjuvant chemotherapy (NAC). In this study, the feasibility and accuracy of SLNB after NAC in Japanese patients were investigated.

**Methods:** A database consisting of 78 patients with stage II/III breast cancer received NAC who underwent SLNB followed by a full axillary lymph node dissection (ALND) between January 2001 and September 2009 was analyzed. Both clinically node negative and positive cases before NAC were eligible for the study. Sentinel lymph node (SLN) mapping was performed with a combination of an intradermal injection of radioisotope and a subareolar injection of blue dye over the tumor.

**Results:** The overall SLN identification rate was 93.6% (73/78), and the mean number of SLNs per case was 3.0. Of the 73 cases with successful SLN mapping, 36 cases (46.1%) revealed lymph node metastasis after ALND. Seven patients (19.4%) had false-negative SLNB; that is, the sentinel node was negative, but at least one non-sentinel node contained metastases. Therefore, the negative predictive value and accuracy of SLNB after NAC was 83.7% (36/43) and 90.4% (66/73), respectively.

False-negative SLNB rate showed significantly lower in cases with clinically node negative (N0) than in positive cases (N1/2) (5.9% versus 31.6%; $p = 0.05$). Twenty eight patients turned from clinically node positive to negative after NAC and false-negative SLNB rate of these patients was 14.2% (4/28), however, that of clinically node positive after NAC was 37.5% (3/8). In the patients showing complete response (CR) after NAC, the SLN identification rate was 96.3% (26/27) and no false-negative case was found.

**Conclusion:** SLNB after NAC can be considered as feasible and accurate method to predict the axillary lymph node status in the clinically node negative in the cases, especially in the case showing CR. However, further validation study should be conducted for the application of SLNB after NAC in the case of clinically node positive.

| | Clinical nodal status | | | | | | Clinical response | | |
|---|---|---|---|---|---|---|---|---|---|
| | Before NAC | | | After NAT | | | CR | Non-CR | P value |
| | N0 | N1−2 | P value | N0 | N1−2 | P value | | | |
| Successful mapping | 37/40 (92.5) | 36/38 (94.7) | 0.68 | 65/70 (92.8) | 8/8 (100) | 0.43 | 26/27 (96.3) | 47/51 (92.2) | 0.47 |
| Ax node involvement | 17/40 (42.5) | 19/38 (50) | 0.5 | 28/70 (40) | 8/8 (100) | 0.001 | 8/27 (29.6) | 28/51 (54.9) | 0.03 |
| False negative rate | 1/17 (5.9) | 6/19 (31.6) | 0.05 | 4/28 (14.2) | 3/8 (37.5) | 0.14 | 0/8 (0) | 7/28 (25.0) | 0.11 |
| Negative predictive value | 20/21 (95.2) | 16/22 (72.7) | 0.04 | 36/40 (90) | 0/3 (0) | 0.001 | 17/17 (100) | 18/25 (72.0) | 0.01 |
| Accuracy | 36/37 (97.3) | 30/36 (83.3) | 0.04 | 61/65 (93.8) | 5/8 (62.5) | 0.005 | 26/26 (100) | 40/47 (85.1) | 0.03 |

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**Touch-imprint cytology false negative patients opt for non-standard management of the axilla**

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**Background:** Intra-operative assessment (IOA) of axillary lymph nodes maximises the benefits of sentinel lymph node biopsy (SLNB) by allowing completion axillary lymph node clearance (ALNC) during the same operation if the SLN is cancer positive. Touch-imprint cytology (TIC) is a simple and inexpensive method of IOA, however, with increasing use of axillary ultrasound to pre-select node-positive axillae for primary clearance, TIC sensitivity may fall.

The aim of this study was to

- Establish sensitivity of TIC in clinical and ultrasound negative axillae (+/− fine needle aspiration cytology FNAC)
- Compare TIC sensitivity and specificity for macro- and micrometastases
- Examine decision-making regarding further axillary treatment after a false negative TIC

**Material and Methods:** Electronic records of consecutive patients with invasive breast cancer undergoing SLNB with TIC between May 2006 and September 2009 were analysed. All patients were assessed pre-operatively with axillary ultrasound; FNA was performed if indicated by ultrasound findings. Results of TIC were compared with final H&E SLN histology.

**Results:** 829 sentinel nodes were submitted for TIC in 367 cases (mean 2.3 nodes). 84 (23%) cases were node positive. TIC had a sensitivity and specificity of 51% and 100% with overall accuracy of 89%. TIC sensitivity for macrometastases and micrometastases was 69% and 8% respectively.

43 cases were tumour positive on TIC (true positive), of which 40 had macrometastases; all underwent immediate completion ALNC and 22 had additional positive nodes (51%).

41 node-positive cases were not identified by TIC (false negative); 23 (56%) had micrometastatic disease. 31 (76%) underwent delayed completion ALNC and 16 (52%) had additional positive nodes. Of the 10 remaining, 9 decided against ALNC (6 had micrometastases, 3 had radiotherapy to the lower axilla and 5 underwent adjuvant chemotherapy) and 1 remains undecided.

**Conclusions:** Intra-operative SLN assessment with TIC has only moderate sensitivity after pre-operative selection with axillary ultrasound. A high proportion of patients with false negative TIC results have micrometastases rather than macrometastases and this appears to affect their decisions regarding further axillary treatment.