Patients and Methods: Between June 1999 and May 2008, 1417 patients with cT1/2N0 breast cancer underwent a SLN biopsy (SLNB) as a staging procedure. Primary tumour characteristics and proportional metastatic involvement of regional lymph nodes (TNM-class pN0i+, pN1mi, and pN1−3) were collected prospectively.
Results: In our study population a linear relation between tumour size and the occurrence of regional lymph node metastases was observed: primary tumours ⩽1 cm 18.7%, 1−2 cm 35.8%, 2−3 cm 50.8%, and >3 cm 68.1% ($p < 0.001$). The relation between macrometastases and tumour size was similar (6.4%, 21.6%, 31.8%, and 54.1% respectively) while the proportion of patients with pN0i+ and pN1mi was constant (12.1%, 14.1%, 19.0%, 14.2%) (Table 1).
Conclusion: The constant frequency of small metastases (N0(i+) and Nmi) with increasing tumour size suggests that metastasizing is a constant process in the course of time. According to the results presented in this study micrometastases are a prelude to macrometastases and can not be seen as a different phenomenon.

Table 1. Tumour diameter compared to different N-stages

Tumour diameter	N0	N0(i+)	Nmi	Nmacro
<1 cm	80.6	3.2	8.9	6.4
1−2 cm	64.2	5.0	9.1	21.6
2−3 cm	49.2	3.8	15.2	31.8
⩾3 cm	31.9	1.8	12.4	54.1

Values shown are percentages; N0: no regional lymph node metastasis; N0(i+): clusters of tumour cells in regional lymph nodes <0.2 mm; N1mi: metastasis in axillary lymph nodes with a size between 0.2 mm and 2 mm; Nmacro: ⩾1 axillary metastasis (at least ⩾2 mm).

5118 POSTER

False positive sentinel node findings in breast cancer – a review of 473 sentinel node biopsy cases

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Background: Benign epithelial displacement has been suggested to cause false positive ITC (isolated tumour cells) findings in SNB (sentinel node biopsy). Detailed analysis have showed that some ITC cases represent cells from a papillary lesion adjacent to the primary tumour, lacking atypia present in the primary tumour cells. Our aim was to study the prevalence of and reasons for false positive ITC findings in SNB in breast cancer.
Methods: We reviewed all original frozen section – and permanent section – slides of 473 SNB-cases, consisting of 73 ITC cases and of 400 SNB-negative cases a, according to the original assessment.
Results: We found 4 false positive cases possibly representing macrophages with keratin deposit material or dendritic cells. No benign epithelial cells, foreign material nor nevus cells were detected in the 473 SNB cases. Five micrometastases and 64 ITC were found among the 69 true positive cases originally regarded as ITC. All micrometastases were cases with interpretation depending on the definition applied. Seven false negative cases, including three micrometastases and four ITC, were detected among the originally 400 SNB negative cases. No association between the ITC finding and the preoperative biopsy method of the primary tumour was detected, $p = 0.859$ Table 1.

Table 1: Association between preoperative biopsy method and the sentinel node findings

Sentinel node status	FNAC N = 231	CNB N = 209	Surgical biopsy N = 24	Biopsy method not registered N = 9
Negative, N = 397	190 (48%)	178 (45%)	20 (5%)	9 (2%)
ITC, N = 68	36 (53%)	28 (41%)	4 (6%)	0 (0%)
Micrometastasis, N = 8	5 (62%)	3 (38%)	0 (0%)	0 (0%)

ITC = isolated tumour cells, FNAC = fine needle aspiration cytology, CNB = core needle biopsy

Conclusions: No signs of benign epithelial displacement was detected in the examined ITC cases. Furthermore, ITC were not detected more frequently in patients with more invasive preoperative biopsy methods.

5119 POSTER

Impacts of surgical margin status in breast-conserving surgery on local recurrence

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Background: The association between a microscopic close or positive resection margin and the subsequent risk of local recurrence after conservative surgery and radiation is controversial. Using various definitions of close margins, an increased the risk of local recurrence has been reported by some series, but not others.
Material and Methods: Between August 1999 and February 2004, 373 patients who were diagnosed as invasive breast carcinoma after breast-conserving surgery received adjuvant radiation therapy at Seoul National University Hospital. Among Of them, 7 were excluded due to incompleteness of radiotherapy or loss of medical records. Thus, 366 patients were analyzed retrospectively in this study. Surgical margin status were as follows; 312 negative margins, 17 close (defined as 2 mm or less) margins by DCIS, 25 close margins by invasive carcinoma, 4 positive margins by DCIS. 8 patients had positive margins by invasive carcinoma, and then 6 of them underwent further resection and achieved negative margin eventually.
Results: The median duration of follow-up was 72 months (range; 8–110 months). The 5 years local recurrence-free survival (LRFS) in patients with close or positive margin by invasive carcinoma was not significantly lower than that of patients with negative margin (92.0% vs. 95.8%, $p = 0.49$), but the 5 years ultimate local control rate after salvage treatment in patients with close or positive margin by invasive carcinoma was lower than that of patient with negative margin (92.3% vs. 98.4%). There were no statistical differences in LRFS between patients with close or positive margin by DCIS and those with negative margin. Other pathologic factors such as T stage ($p = 0.34$), N stage ($p = 0.95$), presence of DCIS component ($p = 0.29$), presence of infiltrative tumor border ($p = 0.15$), presence of endolymphatic tumor emboli ($p = 0.12$) had no significance for LRFS. Also the time interval between surgery and radiotherapy ($p = 0.22$) as well as the sequence between radiotherapy and chemotherapy ($p = 0.41$) had no significance for LRFS. However, The sequence of hormone therapy was revealed to be important; initiation of hormone therapy after completion of radiotherapy resulted in lower 5 years LRFS (80.0% vs. 93.1%, $p < 0.01$).
Conclusions: According to this study, patients with close or positive margin by carcinoma in situ had experienced no failure. And with adjuvant radiotherapy, close or positive margin by invasive carcinoma did not raise the risk of local recurrence significantly, but lowered ultimate local control rate compared with negative margin. Delayed hormone therapy was a prognostic factor to increased local recurrence-free survival. Because of the low incidence of local recurrence, the large-scale studies are needed to obtain conclusive outcome.

5120 POSTER

Predicting the likelihood of non-sentinel lymph node metastases in breast cancer patients by three nomograms suitable for different institutions

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Background: Several tools for predicting the likelihood of non-sentinel lymph node (non-SLN) involvement in SLN positive breast cancer patients have been created so far. However, they are of limited value outside the institution they were developed because of different methodological protocols. Furthermore, they do not include the results of preoperative ultrasound (US) examination of the axilla, which is an important predictor of non-SLN metastases. The aim of our study was to create and validate different nomograms for predicting the likelihood of non-SLN involvement that would be applicable in different institutions and that would also include the results of the preoperative US examination of the axilla.
Methods: From January 2000 to January 2009 534 breast cancer patients underwent axillary lymph node dissection (ALND) due to metastatic SLN at our institution. Three nomograms (based on the logistic regression results) for predicting the likelihood of non-SLN metastases were created – (i) nomogram suitable for institutions where intraoperative examination of SLNs is not routinely performed in patients with low risk for SLN involvement (our institution), (ii) nomogram suitable for institutions where intraoperative examination of SLNs is not performed and (iii) nomogram suitable for institutions where intraoperative examination of SLNs is standardly performed. The nomograms were validated using bootstrap methods. Calibration curves were illustrated. Mean absolute error and mean area under the ROC curve were calculated for each nomogram.