and surgical treatment 3−12 h. later. SLNB and quadrantectomy were performed in DS and LA without ever using vital blue dye. Axillary incision was 3−4 cm. This study was approved by an ethics committee, discussed with all patients and informed consent was obtained.

Results: Four patients underwent pre-operative lymphoscintigraphy, the radiotracer did not show any sentinel lymph node (SLN), we directly performed axillary dissection. In these cases the axilla was positive. In three other cases of multifocal (MF) and two of multicentric (MC) invasive breast cancer the SLN was identified and SLNB was performed. Only one case of MC cancer the SLNB was positive. In three other cases of multifocal (MF) and two of multicentric (MC) invasive breast cancer the SLN was identified and SLNB was performed. Only one case of MC cancer the SLN was positive. Four patients classified T4b with negative axilla to clinical examination and Positrone Emission Tomography (PET) were treated with neoadjuvant chemioterapy (NC). Afther completion of NC, lymphatic mapping was able to identify SLN and we performed SLNB. In these patients SLN was negative. Two cases of male cancer with negative axilla to clinical examination had SLN positive for macrometastases. Four cases showed isolated tumor cells, sixteen micrometastases and twenty-nine macrometastases. In one case of negative SLN there was a positive second palpable lymph node. Another case showed a double SLN in the axilla and internal mammary chain, but only the internal mammary SLN was positive. The SLN identification rate was 99%. After surgery we distributed a questionnaire to the patients about the acceptability of this approach.

Conclusions: This approach is safe, well accepted by patients who reported better quality of life (99%). The oncological results are absolutely reliable. As regards hospital logistics, operations in DS and LA can be easily managed leading to an effective cost reduction of 42.15%, less expensive than the same operation performed under general anaesthesia.

519 Poster

Intraoperative One-step Nucleic Acid Amplification Assay(OSNA) to Detect Sentinel Lymph Node(SLN) Metastasis in Breast Cancer − an Evaluation of 703 Cases in a Single Institution

Y. Rai[1], Y. Ohi[2], M. Kaikura[2], Y. Sagara[1], S. Tamada[1], Y. Sagara[3], S. Baba[1], D. Yotsumoto[1], M. Ando[1], Y. Sagara[1]. *[1]Sagara Hospital, Dept of Breast Surgery, Kagoshima, Japan; [2]Sagara Hospital, Dept of Pathology, Kagoshima, Japan; [3]Sagara Hospital, Dept of Radiology, Kagoshima, Japan*

Background: One-step nucleic acid amplification assay (OSNA) is a semi-automated lymph node examination method with semi-quantitative result reflecting the volume of metastatic foci by measuring the amount of CK19 mRNA in sentinel lymph node (SLN). Recent studies have revealed that OSNA method is as accurate as conventional histological examination for the detection of SLN metastasis. The aim of the study was to evaluate the ability of OSNA to predict SLN metastases, as well as to validate the semi-quantitative range of CK19 mRNA in detecting or excluding metastases.

Material and Methods: From August 2009 to March 2011, 703 breast cancer patients without clinical lymph node metastasis had undergone SLN biopsy during breast cancer operation. Both 99mTc and blue dye were injected into the dermis of the areola before surgery. All nodes stained with blue dye and/or those with high radioactive counts were defined as SLNs. The result of OSNA was classified by the amount of CK19 mRNA $<2.5\times10^2$ copies/μL, 2.5×10^2–5.0×10^3, and $>5.0\times10^3$ as −, + and ++, respectively. OSNA+ and ++ were defined as metastasis of SLN. OSNA+ and ++ patients received axillary dissection (ALND) while OSNA− patients were avoided. All the nodes acquired from ALND and those removed as non-SLN were examined by routine histological examination after the operation.

Results: From 703 patients, 870 SLNs were examined with an average 1.24 nodes in each patient. The average time to obtain the result of OSNA was 36 minutes. Among the 703 patients, 581 patients (82.6%) were OSNA−, while 56 (8.0%) were +, 66 (9.4%) were ++. The total median number of axillary nodes removed for both OSNA and histological examination was as follows: OSNA−/+/++: 3 (1−15)/9 (2−22)/14 (4−35). The total median number of metastatic nodes was identified in OSNA−/+/++: 0 (0−3)/1 (1−6)/2 (1−28). There appeared a correlation between tumor size and the frequency of OSNA result, with T0 (n = 104): OSNA−/+/++: 101 (97.1%)/2 (1.9%)/1 (1.0%) vs T1 (n = 314): 269 (85.7%)/21 (6.7%)/24 (7.6%) vs T2 (n = 262): 197 (75.2%)/30 (11.5%)/35 (13.4%); vs T3 (n = 18): 10 (55.6%)/2 (11.1%)/6 (33.3%) vs T4 (n = 5): 4/1/0. Non-SLN metastasis were identified in 1.5% (9/581) in OSNA−, as compared to 17.9% (10/56) in OSNA+ and 57.6% (38/66) in OSNA++ patients respectively. Positive predictive value of OSNA++ for non-SLN metastasis (38/66, 57.6%) was significantly higher than that of OSNA+ (10/56, 17.9%) (p = 0.0001).

Conclusions: OSNA is an accurate tool for intraoperative assessment of SLN status and could reduce the burden on pathologists. The semi-quantitative result of OSNA−/+/++was a strong predictive factor indicating additional non-SLN involvement, which suggests that further axillary procedure may be potentially avoided in OSNA-patients, but considered for OSNA++ patients. In addition, for patients with OSNA+, consideration could be made for pickup of selected suspicious nodes instead of ALND.

520 Poster

Lymphoscintigraphy − is It Important for Accurate Sentinel Lymph Node Biopsy?

S. Kanaev[1], S. Novikov[1], V. Semiglazov[2], P. Krivorotko[2], O. Zotova[1], V. Ivanov[2]. *[1]N.N. Petrov Inst. Oncology, Radiation Oncology & Nuclear Medicine, Saint Petersburg, Russian Federation; [2]N.N. Petrov Inst. Oncology, Breast Cancer, Saint Petersburg, Russian Federation*

Aim of the study: to determine the value of lymph-nodes (LN) scintigraphy as a part of sentinel LN (SN) biopsy in patients (pts) with breast cancer.

Material and Methods: LN visualisation was performed before SLN biopsy in 92 primary pts with breast cancer. Scintigraphic images were acquired 1−15, 30, 240 and 480–720 min after intratumoural injection of 75–150 MBq (0.5−1 ml) of 99mTc-nanocolloids (d <80 nm). Delayed images (obtained 1−2 hr before operation) more precisely visualised hot nodes which can be detected by gamma probe during biopsy. SLN were determined according to the following criteria: first appeared LN in the area, the only visualised LN, LN connected with tumour by the 'the road of lymph flow'. All other LN were considered as second-echelon nodes.

Results: SLN were successfully visualised in 86 of 92 evaluated pts (98%). Axillary LN detected in 83 pts: in 38 (41.3%) pts it was the only region of lymph flow from tumour, in 45 (52.1%) cases − it was accompanied by drainage to internal mammary and/or sub-supraclavicular LN. In 3 pts all SLN were localised outside axillary region: subclavicular − in 1 and internal mammary − in 2 cases.

Second echelon LN detected in 64 of 83 (77.1%) pts with 'hot' nodes in the axillar. 'Hot' nodes revealed in sub-supraclavicular region were SLN only in 4 of 34 (11.7%) cases. On the contrary, visualised internal mammary LN were considered SLN in all 27 observations.

Conclusion: LN scintigraphy must be obligatory done before SLN biopsy in order to differentiate SLN from second echelon axillar LN (77.1% of cases) and because visualisation help to detect SLN outside the axillary region in 36.1% of pts.

521 Poster

The Predictive Factor of Non-sentinel Lymph Nodes Metastases for Breast Cancer Patient with Micrometastsis and Macrometastasis in Sentinel Lymph Node Only

L. Kim[1], Y. Lim[1], Y. Lee[1], J. Kim[1], H. Kim[1]. *[1]Hallym University Medical Center, Division of Breast & Endocrine Surgery, Anyang, Korea*

Background: Sentinel lymph node(SLN) biopsy is considered the gold standard technique for axillary staging in early stage breast cancer. Tumor-positive SLN suggests a risk of non-SLN metastases in breast cancer. This risk is lower after micrometastasis in SLN, and recent studies suggest that completion axillary lymph node dissection (ALND) might not improve outcome in these patients. So, we analyzed the clinicopathological factors of the primary tumor with micrometastasis in SLNs that can influence the risk of additional metastasis in the non-SLNs.

Material and Methods: We retrospectively reviewed the results of 622 consecutive SLN biopsies for breast cancer performed in Hallym University Sacred Heart Hospital from January 2006 to June 2011. We selected 140 patients with positive SLN followed by ALND for invasive ductal carcinoma. In 10 patients, isolated tumor cells were found in SLN and were not included in the study. The study population included that 10 patients with negative SLN after H&E stain had micrometastasis in SLN after IHC, eventually underwent completion ALND. All of the patients had breast cancer with T1 or T2 stage and negative axilla clinically. 69 patients(group 1) had only one of positive SLN after ALND, 71 patients(group 2) had more than 2 positive lymph node including positive SLN. We analyzed group 1 and 2 with clinicopathological factors to predict non-SLN metastasis.

Results: There were no significant differences in clinicopathological factors between patients with micrometastasis and the others with macrometastasis in group 1. Compared with gruop1 and gruop2, tumor size more than 2 cm was associated with non-SLN metastases($p = 0.039$). In addition, histologic grade($p = 0.032$) and lymphatic invasion($p = 0.002$) were significant factor to predict non-SLN metastases. Only 1 of 10 patients with micrometastasis in SLN had non-SLN metastasis. The patients had risk factor-tumor size($\geqslant$2 cm), high histologic grade(3) and lymphatic invasion.

Conclusions: Nonsentinel node metastases are rare with micrometastasis in SLN. Although data from randomized controlled trials are lacking, we suggest SLN dissection is recommended as preferred care for SLN-negative patients and selected patients with SLN-micrometastasis. Despite this, ALND remains the standard management in breast cancer patients