Materials and Methods: Archival formalin-fixed, paraffin embedded tissue materials from 40 cases of invasive breast cancer were randomly selected and revealed from the archives of our department. The breast cancer specimen had been processed according to standard laboratory protocols. Tumors had been classified and staged according to the WHO criteria. Immunohistochemic staining with D2−40, according to protocol of the manufacturer DAKO® was used to selectively mark lymphatic vessels. Statistical analysis was performed using the chi-square test, calculated by Statgraphics Plus®.

Results: The possibility for peri-tumor lymphatic evaluation depended significantly on the amount of peri-tumor tissues analyzed χ^2=14.48; p = 0. 0007 (n = 40). In general, the presence of LVI correlated with axillary lymph node (LN) status χ^2=6.37; p = 0. 0116 (n = 40). When analised in more than 3 mm of peri-tumor tissues, LVI matched significantly better with axillary LN status than when analyzed in peri-tumor tissues less than 3 mm wide χ^2=8.65 p = 0.0343; (n = 35). D2−40 played decisive role in the differentiation of LVI from post-fixation tumor tissue shrinkage.

Discussion: We believe that underestimation of lymphatic invasion in breast cancer can be reduced by evaluation of at least 3 mm of peri-tumor tissues. Overestimation can be practically avoided by the application of specific endothelial marker. The application of large section technique may be the most appropriate approach for LVI evaluation in breast cancer.

390 Poster

Turnaround-time reduction of pathological examination

H. Hashidate[1], H. Shibuya[1], H. Makino[2], K. Kuninaka[2], C. Yoshida[2], M. Shiotani[3]. *[1]Niigata City General Hospital, Pathology, Niigata, Japan; [2]Niigata City General Hospital, Breast Oncology, Niigata, Japan; [3]Niigata City General Hospital, Radiology, Niigata, Japan*

Background: Reduction of waiting time is very important for patient service because short turnaround time (TAT) of pathological examination allows for rapid response including medical decision-making by clinicians that may increase patient satisfaction. Pathological examination of breast specimens tends to take longer TAT because breast tissue contains abundant fat and its diagnosis routinely requires results of IHC staining. To shorten the TAT of breast cancer cases, improvements of routine work and rescheduling of procedures have been performed in our hospital.

Material and Methods: 202 breast cancer specimens, performed surgical resection (preservation resection or mastectomy) from 2007 November to 2008 May, were typically examined according to the protocol as follows. Specimens were fixed with formalin injection immediately after tissue removal. On the second day, tissue specimens were cut for pathological samples, and samples for IHC (ER, PgR, HER2) were selected at the same time. The whole of the cancer areas including intraductal spread was cut for pathological examination. After cutting sections, fixation and delipidation were accelerated by supersonic wave and thermostat bath. On the third day, pathological reports with results of IHC and digital images (demarcated cancer area with separate colors accordingly invasive or non-invasive lesions) were submitted to clinicians through electronic-pathology-data-record system (Dr. Helper, FUJITSU, Japan). In our pathology section, there are two full-time pathologists and six technicians.

Results: Average number of slides was 36.2/case (excluded LN samples). In 202 cases, TATs (after-operation days, excluding holidays) were consumed to complete each diagnosis as follows, 2 days for 78 (38.6%); 3 days for 89 (44.0%); 4 days for 25 (12.4%); 5 or more days for 10 (5.0%) cases. Less than 20% of all cases required 4 or more days mainly because of necessity of additional samples and staining.

Conclusions: In more than 80% of the surgical cases, final pathological reports including result of IHC and digital images were completed within three days after operation. To compare with previous period before practice of this protocol, average TAT of breast cancer cases was obviously shortened. These procedures do not need special equipment or extra manpower and thus this protocol for breast cancer specimens is available in other laboratories.

391 Poster

Characteristics of invasive micropapillary carcinoma of the breast: Is it related to the triple negative breast cancer?

J. Ryu[1], M. Choi[1], S. Lee[1], S. Kim[1], S. Nam[1], J. Yang[1], J. Lee[1], S. Jung[2], W. Noh[3], S. Han[4]. *[1]Samsung Medical Center Sungkyunkwan University School of Medicine, General surgery, Seoul, South Korea; [2]Chonbuk National University Medical School, General surgery, Chonbuk, South Korea; [3]Korea Cancer Center Hospital, General surgery, Seoul, South Korea; [4]Inje University, General surgery, Gyeongsangnam-do, South Korea*

Background: Invasive micropapillary carcinoma (IMPC) of the breast is a rare and associated with high incidence of lymph node metastasis and poor outcome. The aims of this study were to provide a comprehensive analysis of clinicopathologic and mmunohistochemical characteristics of IMPC and to elucidate the differences between IMPC and invasive ductal carcinoma (IDC).

Methods: Sixty-one patients of IMPC were identified by retrospective review of database from Jan 2004 to December 2008. 221 patients were randomly selected among the IDC patients who received operation during the same period. Two groups were compared with uni- and multi-variate analysis.

Results: We observed significant differences in mean number of metastatic lymph nodes (6.1 vs. 1.9, $p = 0.001$), positivity of lymph node (70.5% vs. 45.2%, $p < 0.001$), and presence of lymphatic vessel invasion (75.4% vs. 34.8%, $p < 0.001$) between IMPC and IDC patients. Although it has been known that triple negative breast cancer (TNBC) have lymphotropic tendency in their early T stage, 11.8% (26/221) of IDC and 3.3% (2/61) of IMPC patients were TNBC in this study ($p = 0.050$). In multivariate analysis, IMPC histology showed no correlation with disease-free survival (DFS) and the lymphatic vessel invasion was a significant predictor of DFS.

Conclusions: The results of this study confirm that IMPC is unique subtype of breast cancer that is commonly accompanied by axillary lymph node metastasis and shows poor outcome, although it rarely presents the pattern of TNBC. Lymphatic vessel invasion rather than histology of IMPC seems to be more closely related to DFS.

392 Poster

Basal-phenotypes in breast carcinoma − morphological, immunohistochemical and clinical analysis

B. Lange[1], E. Chmielik[2], E. Goraj-Zajac[2], M. Budryk[2], D. Lange[2]. *[1]Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology Gliwice Branch Poland, Department of Radiation Oncology, Gliwice, Poland; [2]Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology Gliwice Branch Poland, Department of Pathology, Gliwice, Poland*

Background: The basal-like breast cancer sub-type represents probably a new treatment challenge for oncologists. The aim of the study was to analyse morphological, immunohistochemical and clinical features in breast invasive carcinomas which diagnosed as basal-like type of invasive ductal carcinoma (BLIDC) from needle core biopsies (NCB).

Methods: We reviewed 21 (11.7%) breast carcinomas :20 primary ones (T1-T4) and one after 7 years recurrence carcinoma (r T1) for hematoxylin-eosin slides, immunohistochemistry for ER, PR, HER-2, CK 5/6, CK17, CK 18, p53, *BRCA1* testing, clinical information. Morphological aspects as architectural features (sheets, nests, tubular formation, ribbon-like formation), intensity of lymphocytic infiltration, necrosis, fibrous and/or hyalinised stroma, nuclear pleomorphism, mitoses has been studied. Semiquantitive evaluation of basal cytokeratine positive cancer cells has been performed. Overexpression of p53 cases has been examined.

Results: BRCA1 cases of BLIDC (3/21) were triple negative and just a case overexpressed p53. All sporadic BLIDC (18/21) were ER, PR negative but 3 cases were 3+ scored and 4 cases 2+ scored for HER-2. Overexpression of p53 was noted in 11/18 carcinomas. At least one basal cytokeratin CK 5/6 or CK17 was positive in all cases. 5−30% cancer cells expressed CK 5/6 in 53% BLIDC and there were more than 30% positive cells in 29% BLIDC. CK 17 was expressed in 10−30% neoplastic cells in 36% BLIDC and more than 30% positive cancer cells were noted in 56% cases. CK 18 was positive in all BRCA1 cases and 75% sporadic cases carcinoma cells.

Conclusions: CK 17 is recommended as first basal marker in NCB for immunohistochemical confirmation of basal-like type when amount of cancer cells is small.

393 Poster

The prognostic factors of breast cancer related with axillary lymph node metastasis in T1 breast cancer

G. Gwak[1], K. Park[2], S. Han[1], K. Kim[3], H. Kim[4], Y. Kim[1], H. Kim[1], K. Kim[1], B. Bae[1], K. Yang[1]. *[1]Sanggye Paik Hospital, Surgery, Seoul, Korea; [2]Sanggye Paik Hospital, Pathology, Seoul, Korea; [3]Aju University Hospital, Surgery, Suwon, Korea; [4]Dongguk University Ilsan Hospital, Surgery, Ilsan, Korea*

Background: Axillary lymph node metastasis can occur even in breast cancer sized less than 2 cm. There are several prognostic factors related to the lymph node metastasis in breast cancer. We aimed to investigate the clinicopathologic factors that affect the node metastasis in T1 breast cancer. **Methods:** We reviewed the medical records and pathologic reports of all breast cancer patients who had undergone surgical procedure from 2001 to 2006. Among these patients, we retrieved 230 T1 breast cancer patients divided them into two groups according to the presence or absence