application time was approximately 16 hours preoperatively, while the blue dye was applied 10–15 min. before operation. After SN biopsy all patients underwent mastectomy or conservative surgery with axillary lymph node dissection of level I and II.

Results: In Group A mean patient age was 59.1 years (range 27–83 years). A mean of 1.68 SNs were identified (median 1.00, range 1–4). In three patients (6%) the SN was false-negative for metastasis. False-negative rate in this group was 17.64% with sensitivity of 82.3% and negative-predictive value of 86.95%.

In Group B mean patient age was 55.3 years (range 30–78 years). The mean number of SNs excised per case was 1.62 (median 1.00, range 1–5). Two cases (2%) were false-negative while false-negative rate was 4.54%. Sensitivity was 95.45% and negative-predictive value 95.34%.

Conclusions: The detection of SNs with combined technique has significantly better sensitivity and lower false-negative rate than marking of SN with blue dye alone and therefore should be preferred.

97 POSTER

Sentinel node and ductal carcinoma in situ of the breast

C. Tunon de Lara[1], M. Baron[2], J. Classe[3]. *[1]Bergonie, surgery, Bordeaux, France; [2]Becquerel, surgery, Rouen, France*

Background: Axillary lymph node dissection in patients with ductal carcinoma in situ (DCIS) of the breast is not warranted because DCIS has no metastatic potential. However the risk of micro invasive carcinoma exists in large DCIS, which was not totally examined as in case of a mastectomy.

Material and methods: The aim of this series is to evaluate, feasibility of sentinel node procedure in DCIS.

We analysed retrospectively patients treated in 3 French cancer centres for pure DCIS or DCIS with micro invasive carcinoma. Surgical procedures were lumpectomy or mastectomy associated with an axillary sentinel node procedure alone.

Results: We included 32 patients suffering from pure DCIS (26/32, 81%) or micro invasive carcinoma (6/32, 19%). Mean age was 56 years (33–77). Seventeen tumours were non palpable (53%). 13 breast conservative procedures were performed and 19 mastectomies. Sentinel node procedure was performed using blue (10/32), technetium (8/32) or both (14/32). The detection rate was (29/32) 90% and no patient had axillary lymph node sampling.

Conclusion: Whatever the size, subtype, grade of the tumour or patient age no sentinel node was found positive. Sentinel Node in DCIS is an interesting procedure but not necessary for all patients. We need to focus on the subgroup with a risk of occult micro invasive carcinoma: a young patient, DCIS diagnosed by micro biopsy, high grade and large tumour size.

98 POSTER

Sentinel lymph node biopsy in male breast cancer patients

A. Goyal, R.E. Mansel. *University of Wales College of Medicine, Surgery, Cardiff, UK*

Background: The concept of sentinel node biopsy has been validated for female breast cancer patients whereas, ALND remains the standard of care for male breast cancer patients with similar tumours. We evaluated the results of SLN biopsy in male breast cancer patients with clinically negative axillae.

Methods: This study included all male breast cancer patients who underwent SLN biopsy between February 1998 and October 2003. All patients had negative axillae on clinical examination. All patients underwent preoperative lymphoscintigraphy. SLN biopsy was performed using a combination of Patent blue V and ^{99m}Tc-radiolabelled colloidal albumin injected peritumourally.

Results: Nine patients, 26–79 years of age, were included in the study. Pre-operative lymphoscinitgraphy identified SLNs in all patients. Intraoperatively, SLNs were successfully localised in all patients. The mean number of SLNs encountered was 2.4. Five patients had a positive SLN, 4 a negative SLN. Five patients (1 with a negative SLN, 4 with a positive SLN) had been elected preoperatively to undergo ALND regardless of findings on SLN biopsy. ALND confirmed the SLN to be negative in 1 patient (false-negative rate: 0%) and 3 of the 4 patients with positive SLN(s) had additional positive nodes in the axilla. SLN biopsy accurately predicted axillary lymph node status in these 5 patients.

Conclusion: These findings compare favourably with findings reported in the literature regarding SLN biopsy in female breast cancer patients. SLN biopsy accurately staged the axilla in male breast cancer patients and should be considered for axillary staging in male breast cancer patients with clinically negative axillae.

99 POSTER

Population-based sentinel lymph node biopsy (SLNB) in early invasive breast cancer (EIBC)

P. Fenaroli[1], M. Merson[2], A. Bonasegale[3], G. Virotta[4], S. Pericotti[5], M. Valentini[6], P. Poletti[7], R. Labianca[8], A. Personeni[9], C. Tondini[10]. *[1]Ospedali Riuniti, Senology, Bergamo, Italy; [2]Ospedali Riuniti, Senology, Bergamo, Italy; [3]Ospedali Riuniti, Senology, Bergamo, Italy; [4]Ospedali Riuniti, Nuclear Medicine, Bergamo, Italy; [5]Ospedali Riuniti, Pathology, Bergamo, Italy; [6]Istituto Mario Negri Sud, Biostatistics, Chieti, Italy; [7]Ospedali Riuniti, Medical oncology, Bergamo, Italy; [8]Ospedali Riuniti, Medical oncology, Bergamo, Italy; [9]Ospedali Riuniti, Radiotherapy, Bergamo, Italy; [10]Ospedali Riuniti, Medical oncology, Bergamo, Italy*

SLNB has been proposed as a reliable method for staging of EIBC. The aim of SLNB is to identify women who are likely to be pNo, avoiding the side effects of AD. In the present study we analyse the impact of this procedure when systematically applied to all unselected women of a community-based Breast Cancer Unit (BCU). The BCU at the Ospedali Riuniti of Bergamo comprises a diagnostic and surgical service for a general population of approximately 500.000 people. A team of dedicated surgeons, specifically trained both in the diagnostic and surgical procedures of breast cancer treatment, is serving full-time in the BCU. In particular, all team members, before performing SLNB in routine clinical practice, were specifically trained in the radiocolloid sentinel node localisation (RCSNL) and sampling of SLN according to current recommendations.

All consecutive women with unifocal cT1–1 ($\leqslant$3 cm) cNo EIBC diagnosed at our BCU were considered for RCSNL and biopsy. Only 387 (71%) of all 542 patients met eligibility criteria for SLNB. Reasons for ineligibility included tumour size, palpable axillary nodes, plurifocality and/or multicentricity, and refusal to undergo the procedure. Successful SLNB was performed in 362 patients (94% of those eligible), but in 108 of these axillary dissection (AD) had to be performed anyway, mainly because of SLN-positivity. Therefore, a total of 286 patients (53% of all patients with EIBC) ultimately underwent AD. Systematic application of the SLNB procedure allowed sparing AD in 256 patients, corresponding to 71% of patients eligible for SLNB and to 47% of all consecutive patients. SLNB procedure was well tolerated and resulted in no major complication. A single patient developed axillary recurrence 18 months after surgery during adjuvant tamoxifen treatment.

In conclusion, our study shows that the systematic application of SLNB by highly qualified surgical teams can have a relevant impact in terms of reduction of unnecessary AD on a population scale, with consequent improvement in patients' quality of life. In absolute terms, in the EU this could result in approximately 100,000 unnecessary AD avoided each year. We believe that radiocolloid-guided SLNB, when appropriately applied in the context of a population-based service, can help sparing unnecessary AD and related costs and morbidity in many women presenting with EIBC, and that such a strategy should be more widely and appropriately adopted for all eligible patients with EIBC.

100 POSTER

The prevalence of axillary lymph node metastases in pure tubular carcinoma of the breast

J. Leikola[1], P. Heikkilä[2], L. Krogerus[3], K. von Smitten[4], M. Leidenius[5]. *[1]Helsinki University Central Hospital, Breast Surgery Unit, Helsinki, Finland; [2]Heslinki University Central Hospital, Dept. of Pathology, Helsinki, Finland; [3]Helsinki University Central Hospital, Dept. of Pathology, Helsinki, Finland; [4]Helsinki University Central Hospital, Breast Surgery Unit, Helsinki, Finland; [5]Helsinki University Central Hospital, Breast Surgery Unit, Helsinki, Finland*

Background and Objectives: Pure tubular carcinoma (PTC, > 90% tubular component) is a rare, well-differentiated histologic subtype of invasive breast cancer. The existing data regarding the prevalence of lymph node metastases and necessity of lymph node staging and axillary treatment in PTC is controversial. We aimed to study the prevalence of lymph node metastases in PTC.

Methods: Altogether 26 patients with primary tumours classified as PTC underwent sentinel node biopsy (SNB) between March 2001 and August 2003 and were entered in the study. Histological re-evaluation of the tumours were performed by an experienced pathologist specialized in breast pathology. A level I/II axillary clearance (AC) was carried out in all patients with tumour positive sentinel nodes (SNs).

Results: Seven of twenty-six (27%) patients had SN metastases, five of them micrometastases only. In six cases SNs were the only tumour positive lymph nodes.

According to the pathological review by the expert pathologist, five patients, three with tumour positive SNs, did not have PTC. In addition, no histological specimens were available for re-evaluation in two patients.

Three of the 19 (16%) patients with 6, 9 and 12 mm "real" PTC had single SN micrometastases and no metastases in the AC specimen.

Conclusions: PTC appears to have a relatively high rate of axillary nodal metastases. Lymph node metastases cannot be excluded on the ground of the small size of the primary tumour. SNB seems to be an ideal staging method in PTC.

101 POSTER

Day-surgical management of Tis-T1 breast cancer using Intraoperatory Radiolocalization (R.L.I.) with Sentinel Node Biopsy

O. Buonomo[1], A.V. Granai[1], A. Felici[1], G. Guggino[1], D. Forcella[1], E. Cossu[2], C.A. Pistolese[2], G. Palmieri[3], O. Schillaci[4], T.C. Mineo[1]. [1]*University of Tor Vergata, Surgery, Rome, Italy;* [2]*University of Tor Vergata, Radiology, Rome, Italy;* [3]*University of Tor Vergata, Pathology, Rome, Italy;* [4]*University of Tor Vergata, Nuclear Medicine, Rome, Italy*

Introduction: The SLNB with R.L.I. can often be performed in an outpatients setting with local anesthesia with paravertebral block C7–T7.

Materials and Methods: This technique was employed in 163 patients (pts), the average age was 54.5 years (range:34–75 ys). All patients were scheduled to undergo surgery on an ambulatory basis. The tecnique involves a intra and peritumor injection of an average of 99-Tc. The surgical procedure of the tumor and axillary LSB included margin of more than 1 cm of normal tissue. Out of 163 cases of breast lesions, 93 invasive carcinomas staged as pT1 were identified; in the remaining 59 cases resulted to be DCIS, 11 of them with microinvasion. A questionnaire was given to them to evaluate information received, state of health at discharge.

Results: The operative time averaged 65 minutes for R.L.I. with SLNB. No intraoperative complications. Pathologic analysis revealed in all excisions specimens. The primary breast lesion was located and excised in all cases (identification rate 100%). 150 of 163 pts rated the overall surgical, anesthetic and recovery experience as "very satisfactory". At discharge main symptoms were tiredness, pain, anxiety, nausea and vomiting. Only 2.45% patients called the first night. We had two readmissions, one patient for haematoma and one for pneumothorax.

Conclusions: Our results indicated that SLNB and R.L.I. associated with troncular or paravertebral block are a significant step forward in the search for less aggressive treatments for early breast cancer.

102 POSTER

Palpation of the axilla and additional lymph node sampling as a means of decreasing false negative rates in sentinel lymph node biopsy

M. Carmon[1], O. Olsha[1], R. Abu-Dalo[1], A. Khalaileh[1], J. Alberton[1], A. Mintz[1], D. Gimmelreich[1], L. Rivkin[1]. [1]*Shaare Zedek Medical Center, Surgery, Jerusalem, Israel*

Introduction: Sentinel lymph node (SLN) biopsy is associated with a 5% false negative rate. It is reasonable to suppose that palpation of the axilla and biopsy of additional nodes that are not SLNs might reduce the false negative rate. We studied the effect of this approach on the false negative rate and the complication rate in SLN biopsy.

Methods: Pathology reports for 53 breast cancer operations in which the axilla was palpated intra-operatively (Palpation group), and in which lymph nodes were biopsied in addition to the SLN, were retrospectively reviewed. These were compared with the pathology reports for 48 operations in which a SLN biopsy only (Control group) was performed. The number of lymph nodes sampled in the 2 groups was compared. In addition 25 patients from each group were interviewed and complications were recorded.

Results: The mean number of radioactive SLNs found in the Palpation group was 2.2 (range 1–6). In the Control group there was a mean of 2.6 (range 1–6) radioactive SLNs per patient. In the Palpation group, the mean number of non-radioactive lymph nodes biopsied per patient (in addition to the SLNs) was 1.9 (range 1–6). One patient in the Palpation group had metastases in 2 non-sentinel but clinically suspicious lymph nodes, in the presence of a normal SLN. No metastases were found in non-SLNs that were biopsied blindly (i.e. that were not clinically suspicious) in patients with normal SLNs. There was no significant difference in morbidity between the 2 groups.

Conclusions: Limited sampling of lymph nodes other than the SLN and palpation of the axillary contents do not cause additional morbidity. Palpation that reveals clinically suspicious nodes might result in decreased false negative rates for SLN biopsy, but not for random sampling in the absence of clinically suspicious lymph nodes.

103 POSTER

Sentinel lymph node biopsy in prophylactic mastectomy for risk reduction in breast cancer patients

M. Carmon[1], O. Olsha[1], E. Levy-Lahad[2], D. Hain[3], R. Spira[1], R. Abu-Dalo[1], D.B. Odenheimer[1], A. Gabizon[4]. [1]*Shaare Zedek Medical Center, Surgery, Jerusalem, Israel;* [2]*Shaare Zedek Medical Center, Medical Genetics Unit, Jerusalem, Israel;* [3]*Shaare Zedek Medical Center, Nuclear Medicine, Jerusalem, Israel;* [4]*Shaare Zedek Medical Center, Oncology, Jerusalem, Israel*

Background: Prophylactic mastectomy is currently undertaken for a small proportion of breast cancer patients and women at high risk for developing breast cancer. The probability of finding a tumor in a "healthy" breast that has been prophylactically resected is theoretically small. If a cancer is found, however, the opportunity for performing a sentinel lymph node biopsy (SLNB) would have been lost and the patient would then be subjected to an axillary lymph node dissection (ALND) according to current standards of care. We carried out a prospective study to determine the outcome of SLNB in the healthy breast in women with breast cancer undergoing prophylactic mastectomy for risk reduction.

Methods: All women with known breast cancer who elected to have a prophylactic contralateral mastectomy were offered SLNB for the healthy breast. Tc sulfur colloid (2 mCu) radioactive tracer, with or without patent blue dye (2 to 4 ml), were injected under the areola pre-operatively and after induction of anaesthesia respectively. All the patients had had mammography and all but 1 also had ultrasound of the healthy breast. A prospective database separate from the hospital files was kept for these patients. No patients were excluded.

Results: Eight consecutive breast cancer patients undergoing prophylactic contralateral mastectomy were offered SLNB for the healthy breast from December 2002 to September 2003. One patient refused the procedure, leaving 7 patients in the study. Two of the 7 women had malignant findings in the presumed healthy breast. One patient had an occult primary cancer in the healthy breast with a negative sentinel lymph node, and the other had a metastasis in the sentinel node of the healthy breast with no primary tumor found.

Conclusions: In women with breast cancer undergoing prophylactic contralateral mastectomy, findings in the SLNB of the healthy breast may have significant implications for treatment. The cost of SLNB to the patient is small and we feel the addition of SLNB to prophylactic mastectomy for risk reduction should be evaluated further in clinical trials. There may also be a role for this procedure in prophylactic mastectomy for women at high risk who have not had breast cancer.

104 POSTER

Is it possible to combine ROLL and sentinel node biopsy at the same operation by a single injection of technetium 99m?

A.C.S. Barros, M.A. Cardoso, P.Y. Sheng, P.A. Costa, C. Pelizon. *Hospital Sírio Libanês, Gynecology, São Paulo, Brazil*

It now is widely accepted that radioguided sentinel node (SN) biopsy is valid to predict axillary lymph node status and that radioguided occult lesion localisation (ROLL) shoud be considered as option for guidance of biopsy of non-palpable breast lesions. The possibility of combining both techiques at the same time is quite attractive and we present our experience with 82 cases of ROLL and simultaneous SN indentification. The casuistic comprised 71 women with abnomal mammography (BIRADS 4–5) and 11 cases of clips placed after mammotomy. On the day before surgery 0.2 ml of dextran labelled with 15 MBq of technetium 99m was injected under stereotaxic orientation and afterwards planar scintigraphies were performed. All patients underwent surgical biopsy, specimen radiography, frozen section and SN biopsy when indicated. SN was mapped in 80 of the 82 cases and the rate of identification was very high (97.5%). In 37 malignant cases diagnosed by frozen section (27 invasive carcinoma and 10 ductal carcinoma in situ) SN was immediately biopsied using gamma detecting probe and full axillary dissection was carried out when it was involved. It was concluded that SN can be mapped simultaneously with ROLL when it is used a single injection of a solution containing dextran and technetium 99m allowing lesions frozen section and SN analysis at the same surgical time, showing many advantages over the conventional two-step procedure.