

The performance of radical or conservative surgery depended on the criteria of clinical guidelines. We perform ALND in 54.1% of these patients and SLN alone in 45.8%. The average number of lymph nodes obtained (ALND + SLN) was 12. We found 1 SN affected of micrometastases in 73% of the cases, 2 SN affected in 23% and 3 SN affected in 3.84%.

When we continued with ALND, we found just one additional micrometastasis in one patient.

Systemic treatments were performed following the clinical guidelines conforming to European or American standard NCCN.

In their first visit post-surgery, these 26 patients filled the EuroQol test, scale of quality of life related to health. The mean score in these 26 patients was 67 medium score of quality of life. Although 81% maintained its principal activity, 81% also complained of moderate / severe pain. At the moment, these 26 patients are free of disease.

Conclusions: The standard approach in women with sentinel lymph node micrometastasis is performing lymphadenectomy. Data shows that, although it may be useful for better staging, this attitude doesn't seem to increase survival.

From our experience, we think that it is necessary to individualize the decision in each case and, depending on the patient characteristics, to decide before the intervention, with the participation of a multidisciplinary team, what attitude would be the best in each patient in case of micrometastases.

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Poster

Could Axillary Dissection Be Avoided After Neoadjuvant Chemotherapy in Patients with Prior Positive Axillary Sentinel Lymph Node by a RT-PCR Method?

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Background: Many women with large primary breast tumours are offered neoadjuvant chemotherapy in order to downstage these tumours to improve surgical options. The optimal timing for sentinel lymph node biopsy (SLNB) in patients receiving neoadjuvant therapy has been debated, because a higher false negative rate for SLNB performed after induction therapy has been reported, especially in those patients with micrometastasis in SLN or chemosensitive tumours.

Material and Methods: Forty-nine patients diagnosed with breast cancer classified as T2 or larger were recruited by our institution from January 2010 until April 2011. The SLN was evaluated by the OSNA method (RT-PCR mRNA Cytokeratin 19) and classified into negative, micrometastasis (>500 and <4000 copies), and macrometastasis (>4000 copies). After neoadjuvant chemotherapy based on anthracyclines and taxanes, patients with previously positive SLN were submitted to complete axillary dissection, which was evaluated by permanent paraffin sections.

Results: At least one sentinel lymph node with metastasis was identified in 26 patients, 7 were classified as micrometastasis by the OSNA method (27%) and 19 as macrometastasis (73%). The subsequent axillary dissection after neoadjuvant chemotherapy showed no residual disease in any patients with previous SLN affected by micrometastasis. Otherwise, in patients with macrometastasis in the SLN, the axillary dissection showed residual disease in 9 cases (47%) ($p = 0.2$, *Chi-Square*).

Conclusions: Axillary dissection could be avoided after systemic treatment in patients with micrometastasis in SLN detected by the OSNA method. In patients with macrometastasis the possibility to prevent axillary dissection could depend on the tumour response to chemotherapy and the breast cancer intrinsic subtype. But given the small number of patients we cannot draw conclusions. Larger randomised trials are necessary to learn if completion of axillary dissection will be needed in all patients with macrometastasis in SLN biopsy prior to neoadjuvant chemotherapy.

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Poster

The Management of Papillary Lesions of the Breast Diagnosed Using Core Needle Biopsies

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Background: Papillary lesions of the breast include a broad spectrum of lesions, from benign papillomas to papillary carcinomas. It is difficult to determine whether a lesion is benign or malignant based on the fragmented material of a core needle biopsy (CNB). This study evaluated patients with papillary lesions examined using CNB.

Methods: We retrospectively reviewed 1635 CNB performed between 2004 and 2008, and identified 70 papillary lesions. The initial diagnosis by CNB of these 70 lesions were 45 intraductal papillomas (IDP), 3 intracystic papillomas (ICP), 8 atypical ductal hyperplasia (ADH), 1 flat epithelial atypia (FEA), and 13 unclassified papillomas. All cases were reviewed

for the subsequent follow-up methods, and final pathological diagnosis. Furthermore, concerning IDP and ICP, we evaluated the clinicopathological factors associated with upgrade rate.

Results: After CNB, excisional biopsies were performed in 49 cases and Mammotome[®] biopsies in 5 cases. CNB was repeated in 5 patients. 10 patients underwent regular follow-up. One patient was lost during follow-up. Amongst patients diagnosed as IDP and ICP at initial CNB, the final diagnosis after excisional biopsy, Mammotome[®], and repeated CNB, 4/38 turned out to be malignant. Amongst patients initially diagnosed as ADH and FEA, 5/9 were malignant. Amongst patients with unclassified papillomas, 5/12 were malignant. The total upgrade rate was 23.7% (14/59). In patients with IDP and ICP, distance from the nipple to the nearest tumor edge correlated with upgrade rate. It was shown that upgrade rate was higher when the distance was more than 2 cm from the nipple ($p = 0.027$).

Conclusion: To avoid overlooking of malignancy, surgical excision is advantageous for papillary lesions, particularly in cases of IDP and ICP that are located far from the nipple.

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Poster

A Novel Technique for Lumpectomy Margin Assessment: a Cost-effectiveness Analysis

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Background: Positive or close margins are one of the strongest predictors of reoperation for breast cancer lumpectomy surgery, and reoperation is costly for the patient and the payor due to a delay in adjuvant therapy, additional treatment costs, additional patient anxiety, and less favorable cosmetic outcomes. The aim of this study is to evaluate various lumpectomy margin analysis methods (standard post-surgical pathology, frozen section analysis (FSA), and MarginProbe device) in terms of reduced reoperation rates, quality adjusted life years (QALYs), and cost-effectiveness.

Material and Methods: We developed a decision analytic model to compare 3 strategies: standard post-surgical pathology (low accuracy), FSA (high accuracy but also high cost), and MarginProbe (intermediate accuracy). MarginProbe (Dune Medical Devices, Caesarea, Israel) is a novel device for intraoperative margin analysis based on evaluation of electrical properties of tissue. In the model, all patients initially have a lumpectomy. If margins are clear, the woman proceeds to external radiation therapy. If margins are suspicious, the patient is a candidate for radiation or reoperation (either re-excision followed by radiation, or mastectomy and immediate reconstruction). Model inputs (surgical outcomes and utilities) were derived from the literature. Costs were based on Medicare reimbursements and calculated in 2011 \$USD. We determined the incremental cost-effectiveness ratios (ICERs) of MarginProbe device and FSA and ran sensitivity analyses on the cost and accuracy of these methods.

Results: Compared to standard post-surgical pathology, MarginProbe reduces reoperation rates by 55.2% and FSA reduces reoperation rates by 89.7%. Use of MarginProbe is likely to prevent 552/1000 second surgeries, thus saving approximately \$2.2 billion per 1000 women. The ICER of MarginProbe is projected to be less than \$10,000/QALY, which is well below an internationally accepted range for ICER. The use of the MarginProbe is cost-saving as long as it costs less than \$655. FSA is expected to prevent 897 / 1000 surgeries, hence saving about \$3.7 billion. The ICER for FSA is estimated to be less than \$20,000/QALY.

Conclusions: Re-operation rates vary from 15 to 50% for breast cancer lumpectomy surgery. Both MarginProbe and FSA reduce re-operation rates, thus saving money and improving patients' quality of life. Although FSA is accurate, it has limited clinical utility secondary to being expensive, time-consuming and technically difficult to perform. Thus it is recommended to explore the use of cost effective techniques such as MarginProbe as this has widespread implications for hundreds of thousands of women diagnosed with breast cancer worldwide each year.

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Poster

Feasibility of Sentinel Lymph Node Detection with Radioisotopic Method Alone After a Grade IV Anaphylactic Reaction to Patent Blue in Breast Cancer Surgery

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Background: A breast cancer patient died secondary to a grade IV anaphylactic reaction to Patent Blue (PB) dye occurred at the Curie Institute the 19th February 2011. This study was conducted in order to determine

whether Sentinel Lymph Node Detection (SLND) could be achieved with use of radioisotopic method alone instead of the usual combined method.

Patients and Methods: This study was conducted between January and May 2011, we performed the SNLD on patients with T1, T2, N0 breast cancer. In Group 1 (108 patients until the reported death) the combined method was preferred whereas in Group 2 (102 patients after the reported death) radioisotopic method alone was preferred. We registered for all patients SNLD rate, number of Sentinel Lymph Node (SLN), duration of the surgery and number of SNLD in Group 2 which required the use of Patent Blue.

Results: We did not find any significant statistical difference between group 1 and group 2 for the SLN detection rate, respectively 98.1% and 100% ($p = 0.498$); the number of SLN, 3 and 2 ($p = 0.074$), and the duration of surgery, 54 and 51 minutes ($p = 0.392$). Patent blue was used on all patients in group 1 whereas only 39.2% patients in group 2 required blue patent to complete the detection, $p < 0.001$. Surgeons with young experience (< 5 years) are more ready to change their detection technique with 79.5% of SLND with isotopic method alone.

Conclusion: this is a preliminary study which demonstrates the feasibility of SLND by the radioisotopic method alone. The side effects of patent blue could be reduced.

Table Description of SLN biopsy in each group

| | Group1 | Group 2 | p |
|--|------------|------------|---------|
| SLND rate | 98.10% | 100.00% | 0.498 |
| Method of detection | | | <0.0001 |
| Patent blue used | 108 (100%) | 45 (44.1%) | |
| Patent blue alone | 14 (13%) | 5 (4.9%) | |
| Isotope + patent blue | 92 (85.2%) | 39 (38.2%) | |
| Isotope + patent blue + lymphoscintigraphy | 2 (1.9%) | 1 (1%) | |
| Isotope alone | 0 | 57 (55.9%) | |
| Number of SLN | | | 0.2476 |
| 1 | 26 (24.5%) | 29 (28.4%) | |
| 2 | 26 (24.5%) | 33 (32.4%) | |
| 3 | 21 (19.8%) | 20 (19.6%) | |
| >3 | 33 (31.1%) | 20 (19.6%) | |
| Duration of surgery | | | 0.392 |
| average (minutes) | 54 | 51 | |
| Type of surgery | | | 0.2232 |
| Conservative treatment | 98 (90.7%) | 87 (85.3%) | |
| Radical treatment | 10 (9.3%) | 15 (14.7%) | |

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Poster

Validation of Katz Nomogram and Chagpar Score for Predicting Likelihood of Having Four or More Positive Nodes in Patients with Sentinel Lymph Node-positive Breast Cancer Patients.

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Background: The presence of 4 or more metastatic axillary lymph nodes in breast cancer patients is considered an indication for post-mastectomy radiotherapy (PMRT) treatment to the axilla and chest wall. Immediate breast reconstruction is usually avoided if radiotherapy treatment is thought to be indicated.

Predicting the occurrence of extensive axillary nodal involvement (≥ 4 positive nodes) would aid in making decisions regarding post-mastectomy radiotherapy and immediate breast reconstruction.

Two models have been introduced for predicting the likelihood of having four or more positive nodes in SLNB positive patients. In this paper we validate their accuracy in a cohort of British breast cancer population.

Methods: 147 patients with 1–3 positive SLNs who underwent completion ALND were identified. Multiple pathological variables including the histological size of the SLNs metastases were analysed.

Two models by Katz and Chagpar were applied to our data set. The area under the receiver-operator characteristic (ROC) curve (AUC), 95% confidence intervals and false negative and positive rates were calculated for these models.

AUC values, 95% CI, clinical utility, false negative and positive rates

| Nomograms | Katz nomogram | Chagpar score |
|---|----------------|----------------|
| AUC values | 0.663 | 0.701 |
| 95% CI | 0.555 to 0.770 | 0.594 to 0.807 |
| Clinical utility for 5% cut off value | 46/147 (31.3%) | 12/147 (8%) |
| False -ive rate for $\leq 5\%$ Probability (P) | 5/46 (11%) | 0/12 (0%) |
| Clinical utility for $\geq 95\%$ cut off value | 0% | 11/147 (7.5%) |
| False +ive rate for $\geq 95\%$ Probability (P) | – | 7/11 (63.6%) |

Results: 30/147 (20.4%) patients who had ALND after positive SLNB had 4 or more metastatic axillary nodes.

Conclusion: We validated two models with variable success. Chagpar score outperformed Katz nomogram contrary to the previous validation studies. Further larger studies are required to validate these models before using them in clinical practice.

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Poster

Matched Pair Analysis Comparing Breast Conservation (BCT) with Immediate Techniques of Oncoplastic Surgery (iTOP): Morbidity and Cosmetic Assessment

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Introduction: Oncoplastic surgery has been shown to increase morbidity with unclear objective cosmetic outcome. Prospective trials are missing.

Materials and Methods: 30 patients with unilateral breast cancer operated with immediate techniques of oncoplastic surgery (iTOP) using reduction mammoplasties in the same breast were analyzed. Matched pairs operated with simple breast conserving therapy (BCT) up to a total number of 60 patients were found within a local database. Patients were called for a special follow up were history has been completed and a frontal picture for breast symmetry analyzes has been taken. Quality of life database were filled out.

Results: A total of 15 matched pairs have been analyzed at the time of this abstract. Age (iTOP: 53 ± 11 ; BCT: 55 ± 14) and tumor size (iTOP: size = 1.7 ± 0.8 cm, DCIS = 53%, pT1 = 60%, pT2 = 40%, invasive multifocal = 33%, DCIS multifocal = 13%; BCT: 2.1 ± 1 cm, DCIS = 53%, pT1 = 47%, pT2 = 40%, invasive multifocal = 13%, DCIS multifocal = 20%), were similar between the two groups. Compared with BCT, iTOP differed insignificantly in bleeding (0% vs. 7%), infection (7% vs. 13%), seroma puncture > 30 d (20% vs. 7%) and to more extend in wound necrosis (0% vs. 13%). Invasive surgery due to postoperative morbidity was similar in both groups (13% vs. 13%) and oncological based reoperation was reduced after iTOP when compared with BCT (2.OP R1 = 0% vs. 7%; 2.OP Mastectomy = 0% vs. 7%). Long term follow up VAS score did not differ between the two groups (iTOP: VAS = 2.3 ± 2.4 vs. BCT: VAS = 2.1 ± 2.9). Objective symmetry analyzes have been shown to be improved after iTOP (BSI = 3.8 ± 2.1) compared with BCT (BSI = 5.0 ± 2.1). Also quality of life seems to be improved in patients treated with iTOP. Generally patients are happier with their appearance (iTOP: 87% vs. BCT: 60%) and the cosmetic result (iTOP: grade = 1.5 ± 1.0 vs. BCT: grade = 2 ± 1.1) with similar breast sensitivity (iTOP: 53% vs. BCT: 47%).

Conclusion: This small study suggests that oncoplastic surgery improves objective cosmetic outcome, quality of life and reduce oncological based second surgery while morbidity may be slightly increased without causing an increased rate of second surgery.

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Lobular Histology Shows Tendency of Higher Risk of Involved Margins After First Breast-Conserving Surgery

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Background: Tumor positive surgical margin after breast-conserving treatment is used as a quality indicator in breast cancer healthcare. The aim of the study was to analyze the positive margin cases in our Breast Unit, risk factors for inadequate margin and the impact of positive margin on outcomes after breast-conserving therapy.

Materials and Methods: 107 women with invasive breast cancer (T1–2, N0–2, M0) diagnosed between 2005–2010, who underwent breast-conserving surgery (BCS) as first surgery, were retrospectively selected from the Pauls Stradins Clinical University Hospital Breast Unit Registry. A positive resection margin was defined as a microscopic invasive or in situ tumor at the cutting edge in permanent pathologic reports.

Results: The mean tumor size was 1.65 cm in the positive margin group and 1.68 cm in the other group ($p > 0.893$). 13 of 107 (12.1%) had positive margins at initial resection. Of these patients 4 (30.7%) had involved caudal margin, 2 (15.3%) cranial margin, 2 (15.3%) medial margin, 2 (15.3%) deep margin and 1 (7.6%) lateral margin, there were insufficient data available about the type of margin in 2 cases. 8 (61.5%) had an invasive carcinoma at the margins and in other cases carcinoma in situ was detected. 4 (30.7%) underwent additional surgery-mastectomy, to achieve negative margins. Postoperative radiation was performed for 12 (92.3%) patients. 7 (53.8%) received adjuvant chemotherapy. Patients with inadequate margins