

and mortality were not addressed, and secondary outcomes of patient cosmetic evaluations and psychosocial well-being post-reconstruction were inadequately reported. Based on limited data there was some, albeit unreliable, evidence that immediate reconstruction compared with delayed or no reconstruction, reduced psychiatric morbidity reported three months post-operatively.

Conclusions: The current level of evidence for the effectiveness of immediate versus delayed reconstruction following surgery for breast cancer was based on a single RCT with methodological flaws and a high risk of bias, which does not allow confident decision-making about choice between these surgical options. The ethical problems associated with RCTs in this field are recognised, need to be weighed against the need for methodologically sound, adequately powered trials with a focus on clinical and psychological outcomes: this debate should be re-opened since there is no evidence or consensus on the subject. Given the paucity of RCTs in this field, we are currently carrying an updated review that evaluates study designs other than RCTs, specifically good quality cohort and case-control studies. Further high quality research is needed if decisions in this area are to have a solid evidence base.

498

Poster

Picking Flowers in a Minefield: an Audit of Completion Axillary Node Clearance After Sentinel Node Biopsy

K. Gomez¹, R. Barnes¹, T. Micio¹. ¹Nevill Hall Hospital, Oncoplastic Surgical Breast Unit, Abergavenny, United Kingdom

Background: The advent of sentinel node biopsy (SNB) to stage the axilla in breast cancer has reduced the overall rate of axillary node clearances (ANCs) by approximately two-thirds, with the majority of these ANCs being performed as a separate second operation. It has been suggested that performing this technically intricate procedure in non-virgin tissue could significantly affect the overall yield of nodes. Our study aimed to assess the validity of this statement.

Materials and Methods: A cohort of 327 consecutive patients undergoing axillary surgery was derived from a combination of hospital admission data, operative theatre lists and cancer registry data from a single Health Board in Wales over a 37-month period from January 2008 to February 2011. Patients were divided into either Primary ANC or Delayed ANC (post-SNB) groups and data collected on number of nodes harvested. Statistical analysis on the data was performed using the Mann-Whitney test.

Results: The median number of nodes harvested in primary ANC group was 16 (Range 5-42) and in the delayed ANC group was 15 (Range 4-32). 11.2% of total ANCs had a yield of less than 7 nodes. The vast majority of these were noted to be either coding errors or nodes detected on a pre-planned level 1 clearance. The average nodal harvest between the 2 groups was also comparable (16.77 vs 15.36). The difference between the nodal yields was not statistically significant.

Conclusions: Total nodal yields for primary and delayed axillary lymph node dissection were comparable suggesting completion ANC performed as a delayed second operation does not compromise axillary staging.

499

Poster

Atypical Ductal Hyperplasia at Surgical Resection Margins do not Increase the Risk of Recurrence in Invasive Breast Cancer Patients

H.C. Shin¹, W. Han¹, H.G. Moon¹, D.Y. Noh¹. ¹Seoul National University, Department of Surgery, Seoul, Korea

Background: Resection margin status after breast-conserving surgery (BCS) is the one of the most important factors associated with local recurrence in breast cancer. Atypical ductal hyperplasia (ADH) is known to increase breast cancer risk. We evaluated whether ADH at surgical resection margins would increase ipsilateral breast tumor recurrence (IBTR) after BCS in invasive breast cancer patients.

Methods: Data from consecutive 699 patients diagnosed with invasive breast cancer and received BCS between January 2003 and December 2005 were reviewed. Patients received neoadjuvant chemotherapy and metastatic breast cancer patients were excluded. Data including tumor size, nodal status, hormonal receptor, HER2 status and resection margin status were analyzed to identify risk factors of IBTR.

Results: During follow up (70.2±21.4 month), IBTR was observed in 13 patients. Tumor size (odds ratio 2.065, $p=0.216$) and nodal status (odds ratio 1.165, $p=0.803$) was not associated with IBTR. Compared with luminal A subtype breast cancer, the risk of IBTR was increased in HER2 subtype with statistical significance (odds ratio 4.320, $p=0.024$). ADH at resection margins did not increase IBTR (odds ratio 0, $p=0.988$), but carcinoma in situ or invasive cancer at resection margins was associated with risk of IBTR (odds ratio 10.994, $p=0.0001$).

Conclusions: HER2 subtype and carcinoma in situ or invasive cancer at resection margins were considered as risk factors of IBTR after BCS

in invasive breast cancer patients. Tumor size, nodal status, and ADH at resection margins were not associated with IBTR.

500

Poster

Predictive Factors for Positive Resection Margins After Breast Conserving Surgery

H.C. Shin¹, W. Han¹, H.G. Moon¹, D.Y. Noh¹. ¹Seoul National University, Department of Surgery, Seoul, Korea

Objective: To identify risk factors of positive resection margins after breast-conserving surgery (BCS) and to develop the scoring system to predict positive resection margins.

Background: Positive resection margins are the most important factor associated with local recurrence after BCS in both invasive breast cancer (IBC) and ductal carcinoma in situ (DCIS). It is widely accepted to perform re-excision or re-operation to obtain clear resection margin, but additional excisions resulted in bad cosmesis and increasing medical cost.

Methods: Data from consecutive 794 patients diagnosed with IBC or DCIS and scheduled for BCS between January 2003 and December 2005 were reviewed. Patients received neoadjuvant chemotherapy and metastatic breast cancer patients were excluded. Data including pathologic and imaging results were analyzed to identify risk factors of positive resection margins. Scoring system was developed to predict resection margin status and validated with 134 of independent patients.

Results: Multivariate analysis showed that grade 4 of mammographic density (OR 1.700, $p=0.049$), the presence of DCIS (OR 4.747, $p=0.001$), size difference between breast MRI and US >0.5 cm (OR 3.239, $p<0.0001$) and non-triple negative breast tumor (OR 5.872, $p=0.041$) were independent predictors of positive resection margins. Based on the results of multivariate analysis, we developed a new scoring system for prediction of positive resection margins. The AUC of scoring system of study population and validation population was 0.733 and 0.689, respectively.

Conclusions: Grade 4 of mammographic density, size difference between breast MRI and US >0.5 cm, the presence of DCIS, and non triple-negative breast tumor was independent predictors for positive resection margins. Our new scoring system with 4 factors to predict margin status may aid the surgeon in determine surgical plan and reduce the need for re-excision.

501

Poster

The Additional Value of Blue Dye for Sentinel Lymph Node Detection in Breast Cancer Patients, in Comparison to Lymphoscintigraphy

M.A. Korteweg¹, W.B. Veldhuis¹, M.G.G. Hobbelen², B.L. Stehouwer¹, M.A.A.J. van den Bosch¹, A.J. Witkamp³, P.J. van Diest⁴, W. Mali¹, J. van Amstel¹. ¹University Medical Center Utrecht, Radiology, Utrecht, The Netherlands; ²University Medical Center Utrecht, Nuclear Medicine, Utrecht, The Netherlands; ³University Medical Center Utrecht, Surgery, Utrecht, The Netherlands; ⁴University Medical Center Utrecht, Pathology, Utrecht, The Netherlands

Background: Sentinel lymph node biopsy (SLNB) is performed for axillary staging of breast cancer patients by blue dye injection, lymphoscintigraphy or by combining both techniques. This study assesses the added value of blue dye for sentinel lymph node (SLN) detection in comparison to lymphoscintigraphy.

Materials and Methods: Patients with invasive breast cancer who underwent a SLNB following both lymphoscintigraphy and blue dye injection between January 2007 and August 2010 were included. Sensitivity, specificity, positive and negative predictive value (PPV, NPV) for SLN metastases detection was determined.

Results: 256 SLNs were harvested in 151 patients who underwent 153 SLNB procedures. 68 (26%) nodes contained metastases. Lymphoscintigraphy was unsuccessful in 5 procedures (5/153; 3%), of which in 1 case (1/5; 20%) blue dye detected the SLN (table 1).

Table 1. Success rates of the different approaches for performing the sentinel lymph node biopsy (SLNB) procedure

	n	%
Total performed SLNB	153	
Unsuccessful	4	3
Successful with:		
lymphoscintigraphy	148	97
blue dye	98	64
combined	149	97

The added overall value of blue dye was 0.7% (1/153). Blue dye was unsuccessful in 55 procedures (36%), of which lymphoscintigraphy

was successful in 51 procedures (51/55; 93%). Of the 4 procedures in which both techniques failed, an axillary nodal dissection was performed in 3 cases. In one case the SLN was found by palpability. Sensitivity, specificity, PPV and NPV for blue dye and for lymphoscintigraphy were 68%, 50%, 33%, 81% and 97%, 12%, 40%, 92%, respectively. Combining both techniques resulted in values of 99%, 5%, 27% and 90%.

Conclusion: Blue dye injection, as adjunct to lymphoscintigraphy, resulted in 0.7% additional SLN detections. Blue dye detected the SLN in 20% of failed lymphoscintigraphy procedures. This implies that blue dye is most useful when lymphoscintigraphy is unsuccessful.

502

Poster

Validation of Three Breast Cancer Nomograms for Predicting the Non-sentinel Lymph Node Metastases After a Positive Sentinel Lymph Node Biopsy and a New Formula for Predicting Non-sentinel Lymph Node Status. (Second Study From Turkey – First Unicenter Study)

S. Derici¹, A. Sevinc¹, O. Harmancioglu¹, S. Saydam¹, M.a. Kocdor¹, T. Canda². ¹Dokuz Eylül Üniversitesi Tıp Fakültesi Hastanesi, General Surgery, Izmir, Turkey; ²Dokuz Eylül Üniversitesi Tıp Fakültesi Hastanesi, Pathology, Izmir, Turkey

Introduction: At present sentinel lymph node biopsy (SLNB) has become a standard procedure for staging and selecting the treatment of early stage breast cancer. Although patients who have positive SLNB should undergo to axillary lymph node dissection (ALND), about 40–70% of them have no nonsentinel lymph node (NSLN) metastasis. Therefore many patients undergo to unnecessary axillary dissection. Several institutions have developed nomograms to identify patients with a sufficiently low risk of nonsentinel lymph node metastasis to avoid completion axillary lymph node dissection.

Purpose: The aim of the study is to evaluate the available breast nomograms (MSKCC, Stanford, Tenon) to predict non-sentinel lymph node metastasis (NSLNM) and to determine the variables on NSLNM in the SLN positive breast Cancer (BC) patients in the our population.

Method: We retrospectively reviewed patients who underwent SLNB. 170 SLN biopsy positive patients who had completion axillary lymph node dissection were evaluated. We described two groups; group one NSLN negative (70 patients), group two NSLN positive (100 patients).

All variables recorded to the SPSS 15.0 program and analyzed by this program.

The likelihood of having positive NSLNM based on the factors was evaluated by use of chi square test, student t-test and mann whitney u test. Stepwise multiple logistic regression analysis was used to estimate a predictive model for NSLNM. Four factors were found to contribute significantly to the logistic regression model.

After multiple logistic regression analysis of significant parameters, we designed a new formula to predict non-sentinel lymph node metastasis, based on the multivariate analysis.

The areas under (AUC) the receiver operating characteristic curve (ROC) were used to describe the performance of the diagnostic value of MSKCC, Stanford, Tenon nomograms and our new nomogram.

Results: Negative SLN number, SLN extracapsular extension, proportion of positive SLN to total SLN, metastasis size of SLN, progesterone receptor status, LVI, and multifocality were found statistically significant on NSLNM with univariate analysis. The multivariate analysis was performed on the data with the parameters which were found to be significant in univariate analysis.

After stepwise multiple logistic regression analysis multifocality, proportion of positive SLN to total SLN, LVI, SLN extracapsular extension found statistically significant.

AUC results for each nomograms: MSKCC:0.713 / Tenon:0.671 / Stanford:0.534 / DEU:0.814

Conclusion: The MSKCC nomogram was good discriminator of NSLN metastasis in SLN positive BC patients for our population.

A newly created formula depending on four factors is the best prediction toll for discriminate of NSLN metastasis in SLN positive BC patients for our population.

We recommend that; nomograms must be validated before using it for the population, and more than one validated nomograms may be used together while consulting patients.

503

Poster

Nipple Sparing Mastectomy with Primary Breast Reconstruction – Local Recurrence and Complications in 246 Cases

V. Selakovic¹, A. Golubovic¹, M. Ranisavljevic¹, A. Plzak¹, Z. Radovanovic¹. ¹Institute for Oncology, Oncology Surgery, Sremska Kamenica, Serbia

Introduction: Although effective local control is the primary goal of breast cancer surgery, the long-term aesthetic outcome is also important. Better knowledge of the pathogenesis of breast cancer together with rising interest in improved cosmetic results has led to the consideration of the role of skin-sparing and nipple-sparing mastectomy (NSM) in breast cancer treatment.

Aim of study: The aim of our study was to compare complications and local recurrence in patients undergoing NSM with immediate reconstruction.

Material and Methods: This retrospective study was done at 246 breast cancer patients in the period from January 2004. to december 2009. At all patients was done subcutaneous mastectomy with preservation of the nipple areola complex (NAC) with the simultaneous heterologous breast reconstruction with silicone implants. All patients with inflammatory breast carcinoma, Paget's disease, extensive infiltration of skin by cancer, radiology detected infiltration of the NAC are excluded from this study. The main criteria on which the NAC excision was omitted or performed NSM, is the absence of tumor tissue in retroareolar cone (confirmed with histopathology (fast frozen analysis)). At all patient primary breast reconstruction using heterologous contour prosthesis (Mentor Contour Profile[®], a fixed volume implants) was performed.

Results: Average age of the patient was 49 years. Most surgically treated patients was in stage II of disease with the equally participation of stage IIa and IIb (25.6% IIa-IIb 24%). In 7% it was a stage 0 (in situ tumors), 16.2% of patients were in stage I, 14.2% in IIIa, and 0.8% in the IIb stage. Almost 80% percent of the tumors belonging to T1 and T2 (T1–31.9%, T2–47.7%).

The total percentage of relapses after the NSM was 1.6% (4 patients). Lenticular metastases have occurred at 3 patients (1.2%). Diffuse carcinomatous lymphangiosis mastitis appeared in one (0.4%) patient. At 11 (4.5%) patients appeared in the postoperative follow-up distant metastases.

The total percentage of early complications was 15% (37 patients). The most common early complication was skin and / or NAC necrosis (17 patients (6.9%)). Total number of prosthesis explantation due postoperative complications was 12.

Conclusion: NSM with simultaneous breast reconstruction is an adequate surgical procedure for carefully selected patients who require mastectomy. Primary reconstruction of the breast with heterologous implants by performing NSM mastectomy took place in the standard surgical treatment for breast cancer because it does not lead to an increased number of complications, local recurrence and reduced survival, and extremely facilitates socialization and increases quality of life.

504

Poster

Observational Study and Evaluation of Blue Dye-assisted Axillary Node Sampling for Axillary Staging in Early Breast Cancer

S. Shaheed¹, F. Ugolini¹, A. Yelland¹, C. Zammit¹. ¹The Park Centre for Breast Care Brighton and Sussex University Hospital NHS Trust, Breast Surgery, Brighton East Sussex, United Kingdom

Background: Sentinel Node Biopsy (SNB) is considered to be the most reliable and safe procedure for axillary staging. Many studies have reported that utilizing a combination of a blue dye and a radioisotope (RI) provides the highest success and the lowest false-negative rates. However, RIs are regulated, and not all institutions have access to nuclear medicine facilities. Here we describe our experience in using blue dye-assisted axillary node sampling (ANS) for detecting SNs without RIs.

Patients and Methods: 253 early breast cancer patients (without clinically or radiologically detected enlarged lymph node that would be consistent with metastasis) underwent blue dye-assisted ANS between February 2003 to October 2008. Lymphatic mapping was performed by injecting patent blue, and blue lymphatic vessels were identified and followed until the first blue node was revealed. If fewer than 4 blue nodes were excised, axillary sampling was performed until 4 nodes had been obtained in total. Patients with metastatic SNs (SN+ve) underwent axillary clearance or radiotherapy depending on nodal involvement, while SN-ve patients did not undergo any further axillary treatment.

Results: 57 patients were diagnosed with metastatic disease by using the blue dye-assisted node sampling technique. 5 of them underwent axillary lymph node clearance, while 48 received radiotherapy to the axilla (4 patients did receive any further axillary treatment for various reasons after multidisciplinary team discussion). The remaining 196 SN-ve patients did not undergo any further axillary treatment. After a median follow-up of 61 months (range 30–98), one patient in the SN-ve group developed