

---

## Abstracts for oral presentation at the Association of Breast Surgery Conference & AGM – 16<sup>th</sup> and 17<sup>th</sup> May 2011

---

### Session 1 – BJS Prize Papers Monday 16<sup>th</sup> May 2011, 09:05 to 10:30

---

#### 1. Acellular dermal matrix in immediate implant based breast reconstruction - A single surgeon's experience

**Reza Alamouti, K. Lancaster, M. HoAsjoe**

St Thomas' Hospital, Westminster Bridge Road, London, SE1 7EH

**Introduction:** Implant based procedures remain a popular choice in immediate breast reconstruction however the cosmetic outcome can be poor. The addition of acellular dermal matrix (ADM), sutured to create an inferolateral sling, improves aesthetics and ensures complete coverage of the device without the potential complications of a donor site. The purpose of this study was to evaluate a single surgeon's experience of ADM in immediate implant based breast reconstruction.

**Methods and materials:** Data was collected prospectively for all patients undergoing an immediate implant/expander and ADM reconstruction and analysed over 2 periods, December 2008 to January 2010 and February to November 2010. In all cases a reconstructive tissue matrix derived from porcine dermis (Strattice™, LifeCell) was used.

**Results:** ADM was used in 40 patients (46 breasts), 17 patients in the first period (22 breasts) and 23 (24 breasts) in the second. In period 1 major complications requiring return to theatre occurred in 45% of cases, with an overall explantation rate of 23%. Following these observations a number of technical refinements were made reducing the return to theatre rate to 8% and explantation to 0% in the second period.

**Conclusions:** In this 2 year period it appears that ADM is safe and an effective means of covering and controlling the position of the implant/expander in immediate breast reconstruction. As is clear from our results there is a learning curve with this technique however we would suggest that ADM is a useful addition to the options available for immediate breast reconstruction.

#### 2. A Pilot Study to Validate an Objective Structured Assessments of Technical Skill Tool for Latissimus Dorsi Breast Reconstruction

**Maisam Fazel**

Imperial College Hospitals, Du Cane Road, London, W12 0HS

**Introduction:** Objective Structured Assessments of Technical Skill (OSATS) is an instrument proposed to measure skill acquisition. Here, a Latissimus Dorsi Breast Reconstruction (LDBR) specific OSATS was validated.

**Methods:** A modified LDBR OSATS based on the Intercollegiate Surgical Curriculum Program was used. Each step was scored 0 or 1, providing a total score for each domain. 3 groups with 3 trainees per group were recruited based on their seniority: Group A, B and C had trainees two, four and seven years post foundation training respectively.

The trainees were observed and rated in domains appropriate to their stage of training by independent consultants. Typically, each trainee would be assessed on two domains per patient encounter. Each trainee underwent 5 assessments per domain assessed, providing 15 scores per domain per group. This allowed comparison between the three groups using an unpaired t-test.

The assessors were asked to provide feedback on the LDBR OSATS using a pre-determined questionnaire.

**Results:** The LDBR OSATS discriminated between trainees of different seniority (construct validity) ( $p < 0.05$  for all domains assessed). Thus, group C performed better on the OSATS compared to both groups A and B. Similarly, group B performed better than group A. The global score also increased with seniority. Additionally, the assessors found the OSATS realistic (face validity), relevant (content validity) and were easily incorporated into the working day (feasible).

**Conclusion:** This pilot demonstrates the validity and feasibility of introducing an LDBR OSATS into breast reconstruction training by providing an opportunity for targeted feedback and self-directed training.

#### 3. First European Experience of Skin Sparing Mastectomy and Immediate Reconstruction Using Acellular Dermal Matrix Strattice and Implant.

**Claire Murphy<sup>a</sup>, A. Waterworth<sup>a</sup>, N. Rhodes<sup>b</sup>, R. Linforth<sup>a</sup>**

<sup>a</sup>Bradford Teaching Hospitals Foundation Trust, Department of Breast Surgery, Pre-assessment, Horton Wing, St Lukes Hospital, Little Horton Lane, Bradford, BD5 0NA

<sup>b</sup>Department of Plastic Surgery, Bradford Teaching Hospitals Foundation Trust

**Introduction:** We report the first European cases of immediate single stage implant based reconstruction performed in the UK using Alloderm™ and Strattice™ in patients undergoing skin sparing mastectomies. A limitation of tissue expander/implant based reconstruction is the lack of muscle cover in the lower pole of the breast relative to the breast skin envelope.

**Method:** The creation of acellular dermal matrix grafts from human cadaver (Alloderm™) and porcine harvest (Strattice™) has enabled single stage immediate breast reconstruction using a permanent silicone implant to be performed. Between June 2008 and Nov 2008, 4 patients underwent unilateral mastectomy and 4 patients had bilateral mastectomies using immediate implant/expander- Alloderm™ reconstruction (12 mastectomies) median follow up 30 months. Between Feb 2009 and Dec 2010 26 patients underwent unilateral mastectomy and 6 patients had bilateral mastectomies with reconstruction using immediate implant- Strattice™ (38 mastectomies). Median follow up 16.5 months (range 2-23 months).

**Results:**

Procedure Performed	number of mastectomies	infection	skin necrosis	no complications
SSM plus axillary procedure primary breast disease	39	3	2	34
Bilateral ssm with nipple preservation	3 patients BRCA 1	6	0	0
ssm recurrent breast cancer with previous radiotherapy	3 patients (2 bilateral)	5	0	2
Total	50	3	4	43

Seromas required only simple aspiration without complication. Two patients had haematomas evacuated. No capsular contractures have been encountered.

**Conclusion:** Skin sparing mastectomy and immediate single stage implant based reconstruction using Strattice™ is a safe and highly effective method of immediate breast reconstruction with comparable complications to other reconstructive methods.

#### 4. Intra-operative assessment of sentinel lymph nodes in breast cancer with Touch Imprint Cytology in 460 consecutive patients.

**Geeta Shetty, S. Randhawa, M. Iqbal, F. Sandhu, S. Chachlani, S. Harries, L. Jones, D. Clarke**

Warwick Hospital, Breast Unit, Lakin Road, Warwick, CV34 5BW

**Background:** Number of techniques have been used for intraoperative assessment of the sentinel node (SN) include frozen-section, touch-imprint-cytology (TIC) and more recently molecular biology assays in order to avoid second operation, thus proceeding to axillary node clearance (ANC) if SN is positive. The aim of this study was to evaluate the accuracy of TIC in the assessment of the SN.

**Methods:** A prospective study to include 460 patients with breast cancer who underwent sentinel node biopsy (SNB) and had SN assessed intra-operatively with TIC. The SN was bisected and a touch imprint was made on to a slide. The imprint was stained with Giemsa stain. Permanent sections were evaluated with H&E and immunohistochemical staining. The TIC results were compared with the final histology of the SN.

**Results:** 766 SNs were harvested from 460 patients (Mean-1.7). Of the 460 patients, TIC was falsely negative in 50 (24%) patients and none had false positive results. Negative predictive value was 87% with accuracy of 89%. 94 patients were positive on histology and TIC was positive in 44. The sensitivity, specificity and positive predictive value of TIC was 47%, 100% and 100% respectively. By acting on the results of TIC, 44 patients (47%) had an ANC at the primary operation.

**Conclusion:** Our study confirms that TIC is a simple, quick, reliable and reproducible technique that can be used for intra operative assessment of the SN. About half of SN positive patients were spared from second operation. We had hoped that with more experience, our sensitivity would improve but this has not been the case.

#### 5. A Comparison of Nodal Positivity Between 'One Step Nucleic Acid Amplification' (OSNA) and Routine Pathology of Sentinel Lymph Nodes

**Vivien V. Ng, F. Charlton, Y. Chia, G. Cunnick**

Wycombe General Hospital/Buckinghamshire Healthcare NHS Trust, Queen Alexandra Road, High Wycombe, Buckinghamshire, HP11 2TT

**Introduction:** OSNA is a new rapid, accurate, intra-operative molecular method of analysing sentinel lymph nodes for the presence of metastases in breast cancer patients. The aim of this study was to see whether there was a difference in nodal positivity between patients whose sentinel

nodes underwent OSNA analysis and those who underwent conventional histopathology.

**Methods:** We compared the data from 100 patients undergoing surgery immediately before and after the introduction of OSNA, between 2009-2010 (total 200 patients). More specifically, we recorded the presence of micro- and macrometastases and the incidence of non-sentinel node involvement in those patients undergoing completion axillary dissections. The axillae of all patients were clinically and radiologically negative prior to surgery.

**Results:** OSNA patients: 39/100 patients were found to be node positive with OSNA. 19 patients had macrometastases of which 9 had further non-sentinel node involvement following axillary dissection (47%). 20 had micrometastatic disease of which 4 had positive non-sentinel nodes (20%).

**Histopathology patients:** Only 19/100 patients had positive nodes with routine pathology. 17 of these had macrometastases. 11 had additional non-sentinel node metastatic involvement (65%). Only 1 of the 2 cases of micrometastases underwent further axillary dissection, which was negative. The difference in the number of micrometastases was statistically significant between the two groups, but not significantly different for macrometastases.

**Conclusion:** Significantly more micrometastatic disease was found in the sentinel nodes using OSNA than by conventional histopathology, although the difference in macrometastases was very similar. The incidence of non-sentinel nodal involvement was similar to other studies.

#### 6. Is completion axillary lymph node dissection necessary for micrometastases?

**Wen-Chan Yeow, E. Thomee, F. MacNeill, G. Gui, N. Roche, W. Allum, J. Rusby**

Royal Marsden NHS Foundation Trust, Downs Road, Sutton, Surrey, SM2 5PT

**Introduction:** Completion axillary lymph node dissection (cALND) is often performed on patients with sentinel lymph node micrometastasis (SLNmi). However, the majority of cALND do not reveal further axillary disease. In addition the impact of further axillary staging information on treatment planning remains debatable. The aim of this study was to assess the influence of a cALND on adjuvant treatment decisions in patients with SLNmi.

**Methods:** A retrospective review was undertaken of the electronic medical records of all patients undergoing sentinel lymph node biopsy (SLNB) for invasive breast cancer at the Royal Marsden Hospital from June 2006 to September 2009.

**Results:** Of 834 SLNB, 175 (21%) were node positive. Of these, 37 (21%) had micrometastases, 26 (70%) of whom underwent cALND. Eleven SLNmi patients did not undergo cALND either due to patient or clinician choice. Five (19%) of the 26 patients with SLNmi who had cALND had further nodal disease compared with 41% of macrometastatic SLNB. No patient with SLNmi had four or more positive nodes in total. Adjuvant treatment decisions were not altered or influenced by cALND in any patient with SLNmi: 3 had chemotherapy only, 9 radiotherapy only, 10 had both and 4 had neither.

**Conclusions:** No adjuvant treatment decisions were altered by cALND in SLNmi patients - however the final numbers were small. One fifth of our node-positive patients have SLNmi and for these SLNB is both prognostic and potentially therapeutic in up to 80%. We no longer routinely recommend cALND for SLNmi.

#### 7. Local Oestrogen Production Can Influence Mammographic Density in Postmenopausal Women

**Kelvin Chong, K. Mokbel, A. Sharma**

St. George's Hospital, Blackshaw Road, Tooting, London, SW17 0QT

**Introduction:** Studies have shown that high serum insulin-like growth factor-1 (IGF-1) and oestradiol levels can increase mammographic density (MD) in premenopausal women and subsequently increase breast cancer

risk. We aim to see if local IGF-1 and oestrogen production in breast cancer tissue can correlate with MD in postmenopausal women.

**Method:** We measured the mRNA levels of IGF-1 and two oestrogen-producing enzymes; Aromatase and Steroid Sulphatase (STS) in a series of breast cancer tissue and adjacent normal breast tissue (ANBT) using real-time PCR. MD was measured from mammogram images using a computer software. Pearson's correlation and Mann-Whitney statistical tests were used.

**Results:** We measured gene expression and MD from 71 breast cancer patients. MD was higher in premenopausal compared to postmenopausal cases ( $p = 0.001$ , 95%CI: 6.36-20.63). Age inversely correlated with MD ( $r = -.507$ ,  $p < 0.001$ ). Breast cancer tissue ER $\alpha$ -status did not influence MD ( $p=0.420$ ). Aromatase and STS mRNA in ANBT correlated with MD only in post-menopausal cases (Aromatase;  $r= .329$ ,  $p=0.047$ , STS;  $r=.336$ ,  $p= 0.045$ ) but not in premenopausal cases ( $p=0.879$  and  $0.550$  respectively). Aromatase and STS mRNA in breast cancer tissue did not correlate with MD. IGF-1 mRNA in both cancerous tissue and ANBT did not correlate with MD.

**Discussion:** In premenopausal women, circulating oestradiol may play a role in stimulating MD but in postmenopausal women, this role may be replaced by local breast tissue oestrone production via the Aromatase and STS enzymes. Local breast tissue IGF-1 production does not influence MD in pre- or post-menopausal women.

**8. D-dimer as a biomarker in early breast cancer**

**Hudhaifah Shaker, N. Bundred, C. Kirwan**

Department of Academic Surgery, 2nd Floor Education and Research Centre, University Hospital of South Manchester, Southmoor Road, Manchester, M20 5PG

**Introduction:** Venous thromboembolism (VTE) in cancer is associated with more advanced disease and poorer cancer prognosis.

**Aim:** To establish whether plasma levels of d-dimer, used clinically to exclude VTE, is associated with established prognostic markers in early breast cancer.

**Methods:** Plasma d-dimer was measured using automated ELISA in 58 patients undergoing surgery for early breast cancer. Plasma d-dimer was correlated with lymphovascular invasion (LVI), ER and PR status, tumour size, tumour grade and lymph node (LN) status.

**Results:**

Prognostic marker	n	D-dimer (CI), ng/ml	p
<b>Diagnosis</b>			
DCIS	9	372 (244–500)	0.2 *
Invasive Ca	49	636 (461–811)	
<b>ER</b>			
+ve	48	605 (422–788)	0.8 *
-ve	10	563 (384–743)	
<b>PR</b>			
+ve	38	607 (380–831)	0.8 *
-ve	20	579 (446–713)	
<b>LN metastases</b>			
Yes	12	1036 (354–1717)	<b>0.003</b> *
No	41	466 (376–557)	
<b>LVI</b>			
Yes	15	886 (332–1440)	<b>0.03</b> *
No	38	480 (384–576)	
<b>Grade</b>			
1	13	815 (230–1400)	0.7 *
2	21	579 (335–823)	
3	9	549 (334–759)	

(\*=Students t-test)

D-dimer correlated with tumour size (Spearman's  $r=0.34$ ,  $p=0.02$ ). Although plasma d-dimer levels did not correlate with hormone receptor status (independent t-test), a raised d-dimer ( $>400\text{ng/ml}$ ) was associated with PR negativity using Chi squared test. This possible relationship with PR negativity warrants further investigation.

**Conclusions:** D-dimer is a potential biomarker for tumour size, LVI and lymph node positivity in early breast cancer.