

background we did not form a submuscular pocket in individual cases, but instead placed the implant in a cranially and caudally covering mesh pocket.

**Material and Methods:** Between 06 and 12/2011 seven patients were operated according to the above protocol, and the short-term follow up analyzed. Patients that had to get radiation therapy were not admitted to the study. Furthermore, we only included patients that were planned to get a second, contralateral operation so that corrections of the first operation were possible.

Patients were between 34 and 58 years old. One patient had to receive radiotherapy due to a nodal involvement not diagnosed before.

**Results:** Four patients had received prior surgery. Indications for subcutaneous mastectomies comprised invasive carcinomas with large DCIS, R1 resections or secondary prophylaxis.

Mastectomy weights ranged between 225 and 480 g; implant volumes ranged between 225 and 430 cm<sup>3</sup>. Titanized meshes (TiLoopBra) were used in four cases and partially absorbable polypropylen meshes (SeragynBR) in three cases as interponate materials. The cosmetic outcome was excellent, we the margins of the implants were not visible. In three cases there was a partial necrosis of the nipple and in one case a partial skin necrosis with the necessity of a wound revision.

**Discussion:** Using a mesh-pocket instead of subpectoral positioning of the implant makes the operation in individual cases easier. Post-operative mobility is immediate and unrestricted. Since the implant size has to be chosen according to the tissue weight removed, a bilaterally identical cosmetic result can be achieved. Complications include a mild seroma formation without the necessity to puncture. However, the small number of cases and the short term follow up do not allow to make any statements about consecutive capsular fibrosis.

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Poster

#### Wide Local Excision of Breast Cancer Under Local Anaesthetic – a Treatment Option

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**Background:** Elderly and medically unfit patients make up a small but significant proportion of breast cancer patients. Treatment of such patients can be challenging.

**Methods:** A prospective study of breast cancer wide local excisions (WLE) performed under local anaesthesia (LA) from Mar 2008 to Apr 2010. Preoperative assessment included calculation of American Society of Anaesthesia (ASA) status, Portsmouth Physiologic and Operative Severity Score for enumeration of Mortality and Morbidity (PPOSSUM), mini mental state examination and oestrogen receptor (ER) status. Treatment options were then discussed with patients and their carers.

**Results:** 17 patients were included, with average age of 81 years (range 59–94 years). 10 patients had ASA grade 3 and 7 patients had ASA grade 2. 1% lignocaine with adrenaline was used diluted in normal saline as LA. Dose was calculated according to body weight, average volume injected was 37 ml (range 20–80 ml).

	Expected (Calculated by PPOSSUM score, if done under general anaesthesia)	Observed (Follow-up; range 8–34 months, median 19 months)
Morbidity	28.5% (range 15–60%)	5.8% (one patient developed haematoma)
Mortality	1.8% (range 0.1–6.1%)	0

Size range was 13–47 mm with median of 26 mm. 9 patients were ER negative and 7 were positive. One had involved margins needing further wider excision under LA. All patients were offered appropriate adjuvant treatment.

**Conclusions:** WLE of breast cancer under LA is a useful option. All patients in this selected 'unfit' group were treated as day cases. Despite a relatively short follow-up, all patients currently remain disease free.

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Poster

#### Role of Intra-operative Specimen Imaging and Systematic Cavity Shaves in Reducing Re-excision Rate for Breast-conserving Cancer Surgery

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**Background:** Clear cancer resection margin in breast-conserving cancer surgery is considered to be one of the predictive factors for the local recurrence. This study aims to assess the ability of intra-operative specimen imaging and systematic cavity shaves in ensuring complete cancer excision.

**Methods:** 145 patients (149 breast cancers) undergoing breast-conserving surgery over a four-year period under a single consultant were studied prospectively. All these patients underwent preoperative mammography and ultrasonography. Cancer specimens were x-rayed intraoperatively. If cancer was not seen on the x-ray, the specimen was scanned under ultrasonogram. Cavity shaves were taken from around the main specimen.

**Results:** Preoperative mammogram detected 142 cancers (95.3%), ultrasonogram detected 135 cancers (90.6%) and combined detection rate was 99% (148/149). Intra-operative x-ray found 147 cancers (98.7%) whereas in the remaining 2 patients specimen ultrasonogram confirmed the cancer, hence achieving 100% intra-operative cancer detection. Cavity shaves were positive in 17 patients (11.4%), needing re-excision. 13 opted for wider excision and 4 decided to have mastectomy at this stage. Histological analysis confirmed that only 4 had residual cancer, 1 had carcinoma-in-situ and 12 did not have any residual malignancy. A third operation was required in one patient (0.67%).

**Conclusions:** We conclude that intra-operative specimen imaging combined with the systematic cavity shaves during breast conserving surgery helps achieving complete cancer excision, thereby significantly reducing the re-excision rate.

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Poster

#### Ambulatory Breast Cancer Surgery is Safe and Feasible in an Asian Population

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**Background:** Breast cancer surgery done in the ambulatory setting has been shown to be safe, feasible and more cost effective. Although this is widely practiced in the West, it is less popular in Asia. Many in Asia believe that a patient receives ideal care and recovers best in hospital, and are thus hesitant and apprehensive about being discharged so soon after surgery. Since 2004, our Service has moved towards ambulatory breast cancer surgery as routine standard of care. In this study, we review the results and outcomes of this practice.

**Methods:** A retrospective review was conducted on 1858 breast cancer surgeries performed in 1742 patients from 1<sup>st</sup> March 2004 to 31<sup>st</sup> December 2010. Ambulatory surgery was performed either as a day procedure (with patients being discharged on the day of surgery) or as an AS23 procedure (whereby the patient remains in hospital and is discharged the following morning). All patients are reviewed by the surgical team, including a specialist breast care nurse, prior to discharge. Patients are then reviewed in the outpatient clinic by the breast care nurse 3 to 4 days later and by the surgeon about 1 week after surgery.

**Results:** The proportion of breast cancer surgeries performed in the ambulatory setting increased significantly from 48% in 2004 to 72.3% in 2010. Elderly patients, those with significant co-morbidities, and those with poor family support continued to be managed as inpatients, as were those who underwent immediate breast reconstruction following mastectomy. Seventy-four patients (5.7%) who were planned as ambulatory procedures were managed inpatient post-operatively instead. Closer monitoring because of intra-operative events (such as cardiac arrhythmias), wound bleeding and pain, giddiness and nausea were among the more common reasons for a change to inpatient management. Median length of inpatient stay was 2.0 days (1–22). In the initial 30-day period following discharge, 33 patients (2.5%) who had undergone ambulatory surgery were re-admitted through Emergency Services because of post-complications, compared to 20 patients (3.6%) from the planned inpatient admission group. Common reasons for readmission included wound hematoma, persistent bleeding and wound infection. These patients were typically discharged within 1 or 2 days of readmission.

**Discussions and Conclusions:** Our study has shown that close to three quarters of our patients now undergo ambulatory breast cancer surgery. A change to inpatient management because of intra-operative or post-operative problems is uncommon, as is the readmission rate within the initial 30 days following surgery. Careful patient selection, and a comprehensive set-up combining clinicians, specialist breast care nurses and coordinators, have been instrumental in making ambulatory surgery with early postoperative discharge from the hospital a feasible and well accepted concept among our local patients.

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Poster

#### An Assessment of the Impact of OSNA (One Step Nuclear Acid Amplification) Analysis On the Rates of Axillary Clearance in Breast Cancer Patients

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**Background:** The introduction of OSNA (one step nuclear acid amplification) in breast cancer patients allows rapid and accurate intra-operative

analysis of the sentinel lymph node (SLN) thereby avoiding a second operation and reducing patient anxiety. It is not clear how the sensitivity of OSNA will affect the rates of axillary clearance.

**Materials and Methods:** OSNA analysis was introduced at our institute in February 2011. We assessed consecutive patients over a 6 month period (February 2011 – July 2011) who underwent OSNA analysis of the sentinel lymph node and compared this to the immediate 6 months period prior to the introduction of OSNA where the SLN was assessed using standard histopathological methods. Data was recorded on OSNA results, histopathology of the SLNB, subsequent axillary surgery and primary tumour characteristics. Of the three possible outcomes following OSNA analysis of specimens, we performed axillary clearance if the OSNA result revealed micrometastasis (+) or macrometastasis (++) in the pre-OSNA group, axillary clearance was also performed if the sentinel lymph node biopsy revealed micrometastasis or macrometastasis. Patients found to have isolated tumour cells on histopathological examination were not offered further axillary surgery.

**Results:** Fifty-two patients underwent OSNA analysis during this period (n = 52), mean age 61.6 years (range 34–84 years) and primary tumour size varied from 6–53 mm (mean 27.6 mm). OSNA result was positive in 22 patients resulting in an axillary clearance rate of 42.3%. In contrast, in the pre-OSNA group (n = 55), mean age was 58.0 years (range 32–78 years) and primary tumour size varied from 3–55 mm (mean 24.4 mm). Axillary clearance rate in this group was less than half compared to the OSNA group at 18.2%. The number of patients with micrometastasis was similar in either group.

**Conclusions:** The introduction of OSNA analysis in our institute has enabled rapid intra-operative assessment of the SLN. Our axillary clearance rates have more than doubled during this period despite detecting similar numbers of patients with micrometastasis. The results of this study are in keeping with the recent concerns regarding the overtreatment of the axilla in breast cancer patients. This has a significant bearing on management of the axilla as well as logistical planning of theatre sessions to accommodate longer operating sessions.

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Poster

#### **A Comparative Study of One-step Nucleic Acid Amplification (OSNA), Frozen Section and Touch Imprint Cytology for Intra-operative Assessment of Breast Cancer Sentinel Lymph Node – China Multicenter Study CBCSG-001c**

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**Background:** Sentinel lymph node biopsy has become the standard staging technique for clinically node-negative breast cancer and there is a demand of more sensitive and accurate assessment of sentinel lymph nodes (SLNs). The conventional procedures for intraoperative assessments of SLNs were frozen section (FS) and touch imprint cytology (TIC). They both require experienced pathologists and are not standardized, and they also exhibit low sensitivity in SLN micro-metastases. The China Breast Cancer Clinical Study Group (CBCSG)-001c multicenter study is to evaluate the optimal intra-operative assessment of breast cancer SLNs by a comparative study of one-step nucleic acid amplification (OSNA) assay with FS and TIC.

**Materials and Methods:** From Feb. to Dec. 2010, 552 consecutive prospective patients were enrolled from five centers across China. The study was approved by the ethics committee of each center and each patient provided informed consent. SLNs were cut into alternating ~2 mm blocks. The odd blocks were tested by the OSNA assay intraoperatively, and the even ones were assessed by postoperative histology. Four 4–6 µm thick sections were taken every 200 µm per block. Metastases were classified according to the 6<sup>th</sup> criterion of American Joint Cancer Committee, and isolated tumor cells [≤0.2 mm, pT0(i+)] were considered node negative in this study. In addition, intraoperative histological assessments were performed on the even blocks of 211 patients by FS and all blocks of 552 patients by TIC.

**Results:** A total of 1188 SLNs were excised from 552 patients. Overall performance of the OSNA assay compared to postoperative histology was

accuracy 91.4%, sensitivity 83.7%, specificity 92.9%, positive predictive value 69.1%, and negative predictive value 96.8%. The assay could be performed in a mean time of 37.3 min. The sensitivity of the OSNA assay was higher than FS (211 patients, 77.6% vs. 69.7%, not significant, P = 0.286) and was significantly higher than the TIC (552 patients, 83.6% vs. 76.2%, P = 0.044). When assessing nodes with macro-metastases, the sensitivity of the OSNA assay was similar to FS (59 nodes, 86.4% vs. 83.1%, P = 0.791) and TIC (141 nodes, 90.8% vs. 90.1%, P = 1.00). However, when assessing nodes with micro-metastases, the sensitivity of the OSNA assay was higher than FS (17 nodes, 47.1% vs. 23.5%, not significant, P = 0.289) and was significantly higher than TIC (48 nodes, 62.5% vs. 35.4%, P = 0.007). After discordant case investigation, the sensitivity of the OSNA assay was significantly higher than both FS and TIC (both P < 0.05). The PPV value of the OSNA assay result [++] and [+] on macro-metastases was 83.2% and 19.0%, and on the nSLN metastases was 42.2% and 12.2%, respectively.

**Conclusion:** The OSNA assay is an accurate and rapid intraoperative assay for assessing breast SLNs and superior to FS and TIC, especially for micro-metastases. The quantitative molecular assessment of the OSNA assay [++] could predict SLN macro-metastases and nSLN metastases. The OSNA assay is objective, standardized and reproducible, and suitable for daily medical practice.

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#### **Partial Breast Reconstruction Using Intercostal Artery Perforator Flap (ICAP) in Breast Cancer Patients**

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**Background:** Oncoplastic breast surgery has been used widely as a treatment protocol for breast cancer. One of them, intercostal artery perforator (ICAP) flap can provide adequate cover without sacrificing any muscle and allow closing of the donor sites in inconspicuous sites. Therefore, the oncoplastic volume replacement techniques using local flap which can cover the volume of breast enough were indicated, especially ICAP was suggested. This study describes the use of intercostal artery perforator flap techniques in partial breast reconstruction.

**Patients and Methods:** From March of 2010 to September of 2011, 17 patients with breast cancers received the breast reconstruction using ICAP flap. All patients which were selected had small to moderate sized defect on breasts, middle aged, not having sharp sense to scar. The technique was to make an incision through skin and fatty tissue, find the perforator using doppler, dissect from both margin of the flap. The raised flap was taken to transposition at defect site through the tunnel and inframammary fold was reinforced with nonabsorbable suture.

Table 1. Characteristics of 17 Patients Treated for Breast Cancer using ICAP

Patient	Age (yr)	Type of Tumor	Location of Tumor	Weight of Tumor (g)	Tumor Stage	SLN Status	Complication	Adjuvant Therapy
1	60	IDC	LIQ	70	I	Negative		CT, RT
2	47	IDC	LOQ	95	I	Negative	venous congestion	CT, RT
3	46	IDC	LOQ	71	I	Negative		CT, RT
4	39	IDC	LOQ	81	IIA	Negative		CT, RT
5	45	IDC	LOQ	88	IIB	Positive		CT, RT
6	50	IDC	UOQ	82.5	IIA	Negative	venous congestion	CT, RT
7	56	IDC	LOQ	77	I	Negative		CT, RT
8	38	IDC	LOQ	162	IIa	Positive		CT, RT
9	58	DCIS	LOQ	42.5	I	Negative		RT
10	56	DCIS	UOQ	65	I	Negative		RT
11	53	IDC	LOQ	150	I	Negative		CT, RT
12	42	IDC	LIQ	98	IIB	Negative		CT, RT
13	51	IDC	LOQ	83.5	I	Negative		CT, RT
14	44	IDC	UOQ	137.5	IIB	Negative	wound disruption	CT, RT
15	46	IDC	UOQ	112	I	Negative		RT
16	38	IDC	LOQ	77	I	Negative	venous congestion	CT, RT
17	58	IDC	UOQ	132	IIa	Positive		CT, RT

DCIS, ductal carcinoma in situ; IDC, invasive ductal carcinoma; ILC, invasive lobular carcinoma. There were no tumor recurrences.

**Results:** The mean age was 48.6 years and the average follow-up interval was 6 months. Patients were divided into five groups according to location of tumor (5 UOQ, 0 UIQ, 9 LOQ, 2 LIQ, 1 central). The average specimen weight was 93g. Complication was developed in 4 cases including 3 cases of venous congestion, but self limited, and 1 case of wound disruption on inframammary fold suture area. The majority of patients were satisfied with the cosmetic result.

**Conclusions:** Intercostal artery perforator flap (ICAP) technique can be reliable and useful technique in correcting breast deformity after breast