Breast Surgery Program Abstracts

BS01
COLUMNAR CELL CHANGE WITH ATYPIA (FLAT EPITHELIAL ATYPIA) ON BREAST CORE BIOPSY – OUTCOMES FOLLOWING OPEN EXCISION

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Purpose: Columnar cell change with atypia (CCCA) is a relatively recently recognised pathological breast entity considered to be a risk factor for breast carcinoma. The aim of this study was to investigate the significance of finding CCCA on breast core biopsy, by establishing the frequency of other breast pathology on subsequently performed surgical excision specimens.
Methodology: All cases with CCCA as the most advanced lesion ("pure CCCA") on core biopsy at a large breast clinic in metropolitan Australia were reviewed and data collected regarding the outcome of subsequent excision as well as any concurrent investigations.
Results: 51 cases met inclusion criteria. After excision, another advanced proliferative lesion was identified in 17 (33%) patients, including three patients (6%) with in-situ or invasive carcinoma. An additional five patients (10%) were concurrently diagnosed with primary breast carcinoma at other sites.
Conclusions: When CCCA is found on core biopsy, open surgical biopsy of the relevant area should be performed and work-up of both breasts should be undertaken to exclude co-existent breast carcinoma at alternative sites.

BS03
LYMPH NODE INVOLVEMENT DOES NOT PREDICT TIME TO BREAST CANCER RELAPSE

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Purpose: Breast cancer recurrence may be predicted by tumour size, grade, oestrogen receptor (ER) status and degree of lymph node (LN) involvement. However, less is known on how these factors influence the pattern of recurrence, in particular timing and site. The study aimed to identify patient and tumour characteristics that predict risk periods for breast cancer relapse within our institution.
Methodology: We studied a cohort of 473 patients who presented to our institution with recurrent breast cancer between 1968 and 2008. Patient and primary tumour characteristics were collected including age, menopausal status, tumour grade, size (<2 or =2 cm), ER and progesterone receptor (PR) status and LN involvement and modelled against time to breast cancer relapse using Kaplan-Meier survival curves.
Results: High tumour grade, size = 2 cm, ER negativity and PR negativity were all shown to significantly correlate with higher incidence of earlier recurrence ($P < 0.0001$, $P = 0.0012$, $P = 0.0006$ and $P = 0.006$ respectively). Patients with ER negative disease who relapsed were almost twice as likely to present within 2 years of diagnosis than those with ER positive disease. LN involvement did not significantly correlate with time to relapse, but was shown to predict site of recurrence. Distant recurrences were found to be higher in node positive patients who relapsed (62%) compared to node negative patients (38%).
Conclusion: High grade, size = 2 cm and ER/PR negativity were shown to predict earlier breast cancer relapse. Interestingly, LN involvement did not predict time to relapse but correlated with recurrence site. Using these predictors will enable tailored surveillance strategies with more appropriate discharge to primary care.

BS04
MEASURING COMPLIANCE WITH BREAST CANCER TREATMENT WAITING TIMES: THE MEDIAN MAY BE THE BEST MEASURE

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Purpose: Following the lead from the UK, the NZ cancer working group are recommending 14 calendar days to first specialist appointment, 31 days to diagnosis and 62 days to treatment (1). In each category 90% is the target. This study aims to quantify current waiting times and identify barriers to efficient management of patients with breast cancer.
Methods: Data on all breast cancer patients referred from July 2011 to July 2012 were collected. The three primary indicators were recorded. Barriers to access were identified.
Results: In 2011 and 2012 the CMDHB breast clinic diagnosed and treated 677 new cases of breast cancer. A total of 267 patients were eligible for analysis in the study period. Fifty nine percent of patients received their first service appointment within 14 days of referral (median 10.5 days), 80% received a diagnosis within 31 days (median 12 days) and 78% of patients received definitive treatment within 62 days (median 43 days). Barriers to timely care included additional imaging, comorbidities, immediate reconstructive choices and patient preference
Conclusion: Current breast cancer treatment waiting times are not meeting the proposed guidelines in a high volume, well resourced tertiary centre. A median waiting time may be of more relevance when assessing the performance of an institution.

Reference

1. *The NHS Cancer plan: a plan for investment, a plan for reform* (2000). London, UK: Department of Health.

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BS05
UNCOVERING THE SUB-CELLULAR MOLECULAR EFFECTS OF RADIOTHERAPY IN BREAST SURGERY

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Introduction: Radiotherapy has become an integral component in the treatment of breast malignancy. Surgeons frequently encounter reconstructive challenges post-mastectomy in tissue fields subjected to radiotherapy injury resulting in poor wound healing, limited tissue expansion, extrusion and capsular contraction of implants. However, the exact nature and functional significance of sub-lethal radiotherapy tissue injury on the sub-cellular components of soft tissue remain poorly understood.
Methods: A pilot study was conducted to compare irradiated clinical tissue samples (n = 11) and non-irradiated control tissues (n = 11) from the same patients. In-vitro cellular cultures were irradiated using a gamma camera to replicate the equivalent of these clinical doses, before functional assays were performed and mRNA extracted for micro-array analysis.
Results: Quantitative analysis of blood vessel density in clinical tissue samples were found to be indistinguishable ($p > 0.1$). In contrast, analysis of lymphatics found a significant reduction of the vessel density in irradiated tissues ($p < 0.01$). Early data is presented in conjunction with alterations in candidate genes identified using bio-informatic analysis for different subcomponents of the skin subunit.
Conclusions: Radiotherapy forms an increasingly utilized oncological treatment tool, however it entails several drawbacks. The authors present a systematic approach to analyzing the sub-cellular effects of radiotherapy. It is hoped that gene candidates identified may form the basis of treatments that may be clinically useful in augmenting onclogical therapies, and also provide avenues for reversing unwanted tissue effects of radiotherapy in the future.

BS06
CO-OPERATIVE ACTIONS OF TRASTUZUMAB AND THE HISTONE DEACETYLASE INHIBITOR PANOBINOSTAT CAN INDUCE THE REJECTION OF HER2 OVER-EXPRESSING BREAST CANCER

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Purpose: Trastuzumab, an antibody targeted to the human epidermal growth factor receptor-2 (HER2), is a mainstay therapy for HER2+ breast cancer. However, there are a group of patients that do not respond or develop resistance to Trastuzumab and thus there remains an unmet medical need for new treatment strategies. Histone deacetylase inhibitors (HDACi) are a promising class of anti-cancer agents that have the potential to synergistically augment the anti-tumour activity of Trastuzumab. In this study we examined the therapeutic benefit of combining Trastuzumab, with the HDACi Panobinostat for the treatment of HER2+ breast cancer.
Methodology: The combined effects of Trastuzumab and Panobinostat were assessed against the BT474 and AU565 HER2+ human breast tumour lines.
Results: In vitro, both tumour lines were sensitive to Panobinostat-induced cell death, however only the BT474 line was responsive to the effects of Trastuzumab and demonstrated increased sensitivity to Panobinostat post Trastuzumab therapy. In this Trastuzumab responsive line, the co-operative effects of Trastuzumab and Panobinostat were associated with decreased pAKT, Bcl-2 and HSP90 expression. In SCID mice bearing BT474 tumours, only the combination treatment induced complete tumour eradication in all mice. Surprisingly, a similar outcome was also observed in 100% of mice bearing Trastuzumab non-responsive AU565 tumours despite the absence of a combined effect in vitro, suggesting that immunological mechanisms contribute to the combinations effects in vivo.
Conclusion: Our results demonstrate that this therapeutic combination is highly efficacious in HER2+ breast tumours and can induce tumour rejection in vivo independent of a functional HER2 signalling pathway.

BS07
CLAUDIN1 IS A NOVEL TRANSCRIPTIONAL TARGET OF HEDGEHOG SIGNALING AND PREDICTS FOR POOR OUTCOME IN BREAST CANCER

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Background: We have recently shown that the Hedgehog (Hh) signalling pathway is associated with a poor outcome and is a novel therapeutic target in breast cancer. Gene expression profiling of a mouse model of hedgehog overexpression revealed a series of genes potentially regulated by Hh in breast cancer. We explored the expression patterns of one such candidate Claudin1, an adhesion molecule, and its association with Hh pathway proteins and outcome in a cohort of 292 invasive ductal carcinomas (IDC).
Methods: Immunohistochemistry for Claudin1 was performed and its associations with outcome were assessed using Kaplan Meier and Cox Proportional hazard model analyses. Correlations with clinic-pathological features and Hh pathway protein expression was undertaken using chi squared analysis.
Results: Claudin1 was observed in both a cytoplasmic and membranous location. Cytoplasmic expression of Claudin1 was associated with a favourable prognosis (HR 0.59 (95% CI: 0.36, 0.97), $p = 0.039$).In contrast membranous expression was associated with larger tumours, histological grade 3 and a poor outcome (HR 1.66 (95% CI: 1.064, 2.60), $p = 0.026$). Importantly, membranous claudin1 directly correlated with Hh ligand ($p < 0.0001$) confirming our in vivo findings.
Conclusion: We have shown, for the first time that claudin1, an important cell adhesion protein, is a direct target of Hh pathway activation. Furthermore we report that the subcellular localization of Claudin1 shows distinct associations with outcome in breast cancer. These findings may provide insight into potential mechanisms of metastatic spread of breast cancer.

BS08
THERAPEUTIC MAMMOPLASTY: SURGICAL AND ONCOLOGIC SAFETY AND PATIENT SATISFACTION

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Purpose: To evaluate the surgical and oncologic safety of therapeutic mammoplasty and to assess patient satisfaction with this procedure.
Methodology: We conducted a review of all therapeutic mammoplasties offered to women with larger breasts and performed from 2010 to 2012 by surgeons at the Westmead Breast Cancer Institute. Data was obtained from consenting patients' records, satisfaction questionnaires and digital images. We assessed the adequacy of resection margins and postoperative complications. Patient satisfaction was assessed with a surgery specific questionnaire.
Results: Twenty six patients who underwent therapeutic mammoplasty consented to take part in the study. Their mean age was 57 and 23 patients had invasive breast cancer, 2 DCIS and 1 benign disease. The average resection weight was 584 g. Three patients (11%) required re-excision and 2 (7.7%) required completion mastectomy for close or involved margins. Post-operative wound infection, wound breakdown, breast infection, and significant seroma formation occurred in 3.8%, 9.6%, 5.7% and 7.6% respectively. Patients were satisfied or highly satisfied with the cosmetic result in 94% of cases. There was a 15% reduction of patients reporting back or neck pain after surgery (Chi square, $p = 0.035$).
Conclusions: Our rate of involved or close margins requiring further surgery and complication rates were comparable and equivalent to rates reported after conventional breast conserving surgery. Therapeutic mammoplasty is an oncologically safe technique with high patient satisfaction and no increase in morbidity. The technique should be considered for women with larger breasts requiring surgery.

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BS09
QUALITY OF LIFE OUTCOMES AFTER BREAST ONCOLOGIC SURGERY

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Purpose: The importance and impact of psychosocial outcomes in the management of breast cancer has been increasingly acknowledged. Kissane et al 1 retrospectively observed a high prevalence of short-term psychological morbidity in Melbourne women with early breast cancer, particularly in their functional outcomes and body image perception. The purpose of this study is to prospectively examine quality of life outcomes in the early post-operative period in patients who had breast oncologic surgery.
Methodology: 75 patients who underwent oncologic surgery for early breast cancer at The Northern Hospital from Mar 2009–Jan 2010 were surveyed pre-operatively, 3 and 6 months post-operatively using validated questionnaires (EORTC QLQ-C30, BR23). Functional and symptom-based outcomes were assessed using t-test and multivariate analysis with Stata.
Results: At baseline, poorer scores in emotional function, sexual enjoyment and future perspective were observed compared with other domains. Significant psychosocial disturbances occurred post-operatively. At 3 months, body image function was adversely affected, and fatigue, pain, and systemic symptoms increased. However, by 6 months, all but body image and fatigue symptoms returned to baseline. A limitation of this study is that the small sample size that may not be powered to detect subtler differences.
Conclusion: Significant short-term disturbances in functional outcomes, fatigue and pain were observed. Emotional function improved over time, though body image function remained affected at the 6 month mark.

Reference

1. Kissane DW, Clarke DM *et al*. Psychological morbidity and quality of life in Australian women with early-stage breast cancer: a cross-sectional survey. *Med. J. Aust.* 1998; **169**: 192–6.

BS10
PROFILE AND PREDICTORS OF LONG-TERM MORBIDITY IN BREAST CANCER SURVIVORS

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Purpose: A sound understanding of the benefits of different treatment options and their health-related quality of life (HRQoL) impacts is required for optimal breast cancer care.
Methodology: A cross-sectional cohort study was conducted to determine the prevalence and severity of persistent functional decrements and symptoms and identify demographic, clinical and treatment variables associated with poorer outcomes. 400 English-speaking women treated for DCIS or Stage I-III breast cancer between 1999 and 2009, at least 12 months after surgery and currently disease free, were randomly selected and invited to complete (1) the Breast Cancer Treatment Outcome Scale (BCTOS) and (2) the EORTC core Quality of Life Questionnaire (QLQ-C30).
Results: The response rate was 85.60%. Many participants reported moderate to severe decrements in a number of HRQoL domains including functional wellbeing (15%), cosmetic status (32%) and overall quality of life (21%). There were strong associations ($p < 0.05$) between younger age and poorer HRQoL but non between time since surgery and morbidity ($p > 0.05$). Different treatments were associated with different HRQoL impacts. Poorer functional status was predicted by axillary dissection ($p = 0.011$) and adjuvant radiotherapy was a significant predictor of breast specific pain ($p < 0.05$).
Conclusion: Many breast cancer survivors report long-term morbidity which is unaffected by time since surgery. The significant associations between the extent of loco-regional therapies and poorer HRQoL outcomes stress the importance of the safe tailoring of these treatments.

BS11
DIFFERENTIAL EXPRESSION OF SERUM MICRORNAS IN BREAST CANCER PATIENTS

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Purpose: Early detection of breast cancer is important for improved patient prognosis. Currently, mammography is the most widely used screening tool for early detection of breast cancer in patients over the age of 50. There are however limitations associated with mammography.

MicroRNAs (miRNAs) are small non-coding RNAs which have been implicated in tumour genesis. MiRNAs have also been identified in serum where they have been found to be stable and therefore useful as potential serum biomarkers.

The aim of this study was to compare miRNA profiles in serum of breast cancer patients and normal healthy volunteers in order to identify potential serum miRNAs which are able to differentiate breast cancer patients from healthy volunteers.
Methodology: MiRNA profiling was performed on RNA extracted from serum of 44 breast cancer patients and 10 healthy volunteers and validated on serum from 157 breast cancer patients and 25 healthy volunteers.
Results: In the discovery cohort, six miRNAs were significantly up-regulated while ten were significantly down-regulated between breast cancer and normal serum. MiR-186 and miR-484 were the most highly up-regulated in breast cancer compared to normal serum with fold change of 4.6 and 4.2 respectively. These findings were confirmed in the validation cohort.
Conclusions: In this study, we found miRNAs which were significantly differentially expressed between serum from breast cancer patients and healthy volunteers. These findings were confirmed in a larger validation cohort, implying that miRNAs in serum have the potential to serve as biomarkers for breast cancer patients.

BS12
CAN MRI ACCURATELY IDENTIFY WHICH PATIENTS WITH OPERABLE BREAST CANCER WILL HAVE A PATHOLOGIC COMPLETE RESPONSE AFTER NEOADJUVANT THERAPY?

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Purpose: Previous studies have shown that the accuracy of MRI is poor at predicting the response to neoadjuvant chemotherapy (NAC) in locally advanced breast cancers. The purpose of this study is to evaluate MRI's ability to predict a pathologic complete response (pCR) in operable breast cancers after NAC.
Methodology: Patients enrolled in 4 NSABP protocols in a single tertiary care centre, that had an MRI before and after NAC, were reviewed. A radiologist, blinded to the pathology results, interpreted the pre- and post-treatment MRI's and made a prediction as to whether or not patients would have a pCR. pCR was defined as having no residual invasive or in situ disease in the breast.
Results: Among 129 women, 16% had a pCR. 58% were ER+, 21% were triple negative and 21% were Her2+, with a pCR rate of 5%, 37% and 26%, respectively. The sensitivity and specificity of MRI for predicting residual disease were 88% and 52% respectively. The positive predictive value was 90% and the negative predictive value was 46% with an accuracy of 82%.
Conclusion: MRI was limited in determining which patients had a pCR after NAC, even in operable breast cancers. When residual disease is suspected on MRI, it is unlikely that a pCR has been achieved. Surgical excision following NAC remains the gold standard to identify patients having achieved a pCR. Other modalities will need to be used in order to accurately determine which patients would be eligible for studies evaluating non-operative management following NAC.

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BS13P
"DOES IMMEDIATE BREAST RECONSTRUCTION IN INVASIVE BREAST CANCER DELAY THE COMMENCEMENT OF ADJUVANT CHEMOTHERAPY?"

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Background: Immediate breast reconstruction (IBR) is advocated in the management of breast cancer due to the psychological advantages for the patient over mastectomy alone and better cosmetic outcomes when compared to delayed reconstruction. Concerns regarding IBR delaying adjuvant chemotherapy have been investigated internationally with mixed results but these concerns have not been investigated in the New Zealand setting.
Purpose: The primary aim of this retrospective cohort study was to evaluate the time between surgery and commencement of adjuvant chemotherapy in patients undergoing total mastectomy versus those undergoing total mastectomy with immediate breast reconstruction.
Methodology: The Bay of Plenty District Health Board database "PLATO" and the Grace Hospital operation records were used to identify 59 people who underwent total mastectomy with immediate reconstruction between June 2006 and June 2012. 24 of these received adjuvant chemotherapy. 27 people during this same time period underwent total mastectomy with subsequent adjuvant chemotherapy.
Results: The mean interval between surgery and commencement of chemotherapy in the reconstructed group was 56.7 days and that of the mastectomy without reconstruction 55.5 days.
Conclusion: Immediate breast reconstruction can be performed safely in people with invasive breast cancer requiring adjuvant chemotherapy and does not delay the commencement of adjuvant chemotherapy. There was a trend toward a longer period prior to commencement of chemotherapy secondary to wound complications in those who received a TRAM flap. This needs to be investigated further.

BS14P
A MULTIDISCIPLINARY APPROACH TO IMMEDIATE BREAST RECONSTRUCTION

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Purpose: Immediate breast reconstruction (IBR) post mastectomy provides earlier psychological benefits and allows for better adjustment compared with delayed procedures. Despite this it is only chosen by 6% of Australian women. This study provides information about outcome measures and satisfaction for patients who underwent IBR post mastectomy and proposes a multidisciplinary clinical pathway for their comprehensive management.
Methodology: A retrospective cohort 'pilot study' was conducted at a single institution. The inclusion criteria comprised patients who underwent IBR following a mastectomy for breast cancer. There were no exclusions. The type of IBR (tissue expanders vs. autologous flap) was recommended following assessment by a multidisciplinary team. A telephone interview was conducted five months following each participant's last surgery. Participants were asked to complete a modified questionnaire validated by the University of Michigan. Responses were analyzed.
Results: There were 46 patients included. All patients had a minimum follow up period of five months. Nine patients could not be contacted and one patient died of recurrent disease. A total of 37 patients were interviewed, 23 with tissue expanders and 14 with flap reconstruction. Of the 37 patients interviewed post IBR 89% felt that they had adequate information, 92% felt that there was adequate time to make an informed choice and in retrospect 94% would still choose to have IBR done.
Conclusion: The availability of IBR is a positive development for patients with breast cancer. Centres providing breast cancer treatment may consider offering IBR routinely with a dedicated surgeon as part of the multidisciplinary team.

BS15P
A TRIANGULAR ADVANCEMENT TECHNIQUE TO AVOID THE DOG-EAR DEFORMITY FOLLOWING MASTECTOMY IN LARGE BREASTED WOMEN

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Purpose: Redundant excess skin at the lateral end of a mastectomy scar, resulting in the so called 'dog-ear' deformity, can be unsightly and uncomfortable for patients particularly in the obese. Inadequate attention is often paid to optimal closure of the mastectomy wound to avoid this lateral skin fold deformity in patients not desirous of breast reconstruction. We aim to present a technique to avoid this deformity.
Methodology and Results: We present our technique to avoid this deformity in the performance of a mastectomy. This involves the creation of a D-shaped skin paddle excision over the central aspect of the breast in conjunction with a modified Burow's triangular skin excision to advance the lateral aspect of the upper skin flap medially. Alternative approaches are also discussed.
Conclusion: The triangular advancement technique is a useful solution to the problem of avoiding 'dog-ear' deformity after mastectomy and is recommended.

BS16P
ACCURACY OF DRAIN OUTPUT READING BY HEALTH PROFESSIONALS IN A MAJOR TERTIARY HOSPITAL

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Background: Wound drainage is an integral part of modern surgical practice and widely used throughout all surgical specialties. The decision to remove a drain is multifactorial but is strongly associated with the drain output over a 24-hour period. Therefore, having an accurate reading is important for making the clinical decision. The aim of this study is to assess whether the commonly used drains could be read accurately by both nursing and medical staff.
Method: Three commonly used drainage systems, UnoVac®, RedonVac® and Jackson-Pratt® were filled with 10, 25, 40 and 90 mL of black tea respectively to represent serous bodily fluid. 38 nurses and 38 doctors were asked to estimate the drain volume with the result being documented by a blinded observer.
Results: Setting the margin of error at ±25%, the statistical analysis showed that at a level of 25 and 40 mL, 98% of participants are within the margin using Jackson-Pratt® and the accuracy dropped down to 58.6% and 53.3% using UnoVac® and RedonVac® respectively. A Similar result was shown with 10 and 90 mL. Generally, nurses are more accurate than doctors in their reading of drainage output across all drain types (70% vs 60%, within ±25% margin of error).
Discussion: The accurate reading of drain tube output is essential for good clinical decision making. The Jackson-Pratt® allowed the most accurate reading of drain output and clinicians might consider favouring this system when precise drainage output reading is important.

BS17P
BILATERAL BREAST REDUCTION: A RETROSPECTIVE STUDY IN OVER ALL SATISFACTION AND POST-OPERATIVE COMPLICATIONS-UK EXPERIENCE

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Introduction: Bilateral Breast Reduction (BBR) or reduction mammoplasty is a procedure performed on women suffering from macromastia. It is a frequent reconstructive surgical procedure performed on benign breast tissue, with consistent and reliable data for long-term reduction in breast tissue mass. We aim to study factors associated with post-operative BBR complica-

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tions and to evaluate patient satisfaction rate following bilateral breast reduction surgery.
Methods: Two year retrospective study was undertaken from Oct 2008–Oct 2010 Post-operative complications and telephone questionnaire post discharge to assess overall satisfaction.
Results: The majoritiy of the patients had symptomatic and psychological improvement following BBR. Smokers (66.67%) are more likely to incur post-operative complications as opposed to non-smokers (18.4%). Furthermore, obese patients (BMI ≥30), are at greater risk of complications (71.4%) as opposed to patients who are overweight or of normal with reduced risk of complications (20%).
Conclusion: Patient should be forewarned that although aesthetically acceptable results are probable, they have as much as a one in four chances of complication. Furthermore, majority of patients from this cohort were extremely satisfied by the outcome of their surgery and inpatient experience, however, improvements can be made with improved communication and mutual understanding of "realistic" outcome.

(This is one of the few studies using British data assessing patient motivation and satisfaction post BBR using this sample size.)

BS18P
BLOOD TRANSFUSION REQUIREMENTS IN ELECTIVE PLASTIC SURGERY

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Purpose: Blood transfusion can have a critical impact on surgical outcomes. However it is not without risk, consequence or cost. Accurate assessment of blood transfusion requirements in elective surgery has important clinical and financial implications. Clinical observations suggest that blood transfusion requirements in elective surgery are over estimated. The purpose of this study is to determine the blood transfusion requirements of patients undergoing elective plastic surgery.
Methodology: Data covering the period January 1, 2009 to December 31, 2010 was obtained from Hutt Hospital's computer records. Records of all patients who underwent elective surgery in the Plastic & Reconstructive Surgery Department were analysed. Data was collected on surgical information, haematological indices, and transfusion data.
Results: A total of 320 elective breast, head and neck and craniofacial operations were undertaken during the study period. The transfusion indices are presented and recommendations made. The potential financial savings from our recommendations are also presented.
Conclusion: Overall we have been able to demonstrate that our current MSBOS over prescribes group and screen and cross matching. Rising health care costs are an important issue facing society today. As such, it is important to be aware of the clinical and economic value of all elements of the surgical admission including blood transfusion.

BS19P
BREAST CANCER AND HORMONES: WHAT'S THE LINK?

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Introduction: This study was conducted to determine the association between serum sex hormone levels and breast cancer.
Methods: The study was conducted on newly-diagnosed breast cancer patients who had not received any treatment. Controls were women not known to have any breast disease or hormone-related tumours. Serum hormones were divided into quartiles. Logistic regression adjusting for age and race were done to calculate the odds ratio (OR) and 95 percent confidence interval (CI).
Results: A total of 207 subjects were recruited; 73 premenopausal (37 cases, 36 controls) and 134 postmenopausal (68 cases and 66 controls) women. In the premenopausal women, only serum testosterone was positively associated with breast cancer (OR 1.72, 95 percent CI 0.40–7.40), but this was not a significant finding (p-value is 0.468). In the postmenopausal women, oestradiol, progesterone and testosterone were positively associated with breast cancer with a highest to lowest quartile OR of 1.48, 2.35 and 4.23 (95 percent CI 0.59–3.69, 1.11–4.95 and 1.52–11.78, respectively). The OR was significant for both progesterone and testosterone (p-values of 0.025 and 0.006, respectively.
Conclusion: There were no statistically significant findings among the premenopausal cases. In postmenopausal women, serum progesterone and testosterone levels were significantly associated positively with the odds of having breast cancer

BS20P
BREAST CANCER SURGERY IS SAFE IN THE ELDERLY POPULATION

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Purpose: To assess the safety of surgical resection of breast cancer in patients over 70 years.
Methodology: A retrospective study of 188 consecutive patients diagnosed with breast cancer at the age of 70 or older (2004–2008) was conducted. Notes were examined for demographics, treatment, complications and final outcome. Patients received surgery with intent to cure (SC) or conservative treatment (C).
Results: 68 patients received C and 120 patients underwent SC. SC was performed in 63.8% (120 of 188), of whom 93.3% had a general anaesthetic. Mastectomy (M) was performed in 51.6%, M following a wide local excision (WLE) in 4.2% and WLE in 44.2%. Axillary surgery (n = 93) was either an axillary sampling (AS) in 5%, AS and clearance (AC) in 1%, primary AC in 87.1%, sentinel node biopsy (SNB) in 3.2% and SNB followed by AC in 3.2% (3 of 93). 30 day mortality was 0.008% (1 of 120) following a myocardial infarction. 10 patients had minor complications. Median follow up (SC) was 24 months versus 20 months (C). Overall survival was 89% (SC) versus 50% the.
Conclusion: Elderly patients with breast cancer can be treated surgically with intent to cure, safely and this has an impact on survival.

BS21P
PREVALENCE AND OUTCOMES OF BREAST SARCOMA AND MALIGNANT PHYLLODES IN ASIAN WOMEN

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Purpose: There is scarcity in knowledge on the prevalence and outcomes of breast sarcoma and malignant phyllodes tumours in the Asian population. We studied the prevalence, prognostic factors and treatment outcomes of breast sarcoma and malignant phyllodes in a tertiary centre in a multi-ethnic population in Malaysia.
Methodology: A retrospective review of the University of Malaya Medical Centre Breast Cancer Registry from 2000 to 2011 was performed. Data collected included age at diagnosis, tumour histology, size, margins, mitosis per 10 high power field (hpf), microscopic necrosis, pleomorphism, presence of metastases at presentation and follow up information. Survival analysis was derived from Kaplan Meier curves.
Results: 29 out of 4360 breast cancer cases in the study period were mesenchymal or malignant fibroepithelial tumours giving a prevalence of 0.007%. Median age at diagnosis and tumor size was 48 years (range 22–83) and 11.8 cm (range 2.5–37.0cm) respectively. The distribution of subtypes was malignant phyllodes (n = 14), pleomorphic sarcoma (n = 3), liposarcoma (n = 2), osteosarcoma (n = 2), stromal sarcoma (n = 2), malignant fibrous histiocytoma (n = 1) and others (5). Four patients had distant metastases at diagnosis. Tumor size above 10 cm was associated with surgical margins measuring less than 10 mm (p = 0.008); mitotic rate above 10 per 10 hpf (p = 0.031) were associated with local recurrence. Disease free survival at 6 months was 26.9%. Overall survival at 6 months was 58% and at 10 months was 23.1%, no one survived beyond 12 months.
Conclusion: Breast sarcomas and malignant phyllodes are confirmed to be very rare in the Asian population and are associated with advanced disease

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and poor prognosis. The reason could be due to the rapid growth of these tumours but also due to delays in obtaining diagnosis, which could be due to patient or health system factors that need further investigation.

BS22P
COMPLETION AXILLARY CLEARANCE CAN BE OMITTED IN SELECT BREAST CANCER PATIENTS WITH A POSITIVE SENTINEL NODE

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Purpose: The role of completion axillary clearance (AC) in breast cancer patients with a positive sentinel node has become controversial. The aim of this study was to evaluate our experience of patients with a positive sentinel node biopsy (SNB), comparing patients who underwent AC with those who did not.
Methods: A retrospective review was performed of all breast cancer patients at our centre who underwent SNB between 2006 and 2011. All patients had thorough pre-operative clinical and ultrasound assessment of the axilla. Where abnormal nodes were suspected fine needle biopsy was performed. Only patients with no evidence of nodal metastases underwent SNB.
Results: 518 patients underwent SNB over this 5-year period. Breast conservation rates were 33%. 121 (23%) patients had a positive SNB including 38 (31%) patients with micro-metastases only. 63 (52%) patients underwent completion AC and additional nodal disease was identified on histopathology in 21 (33%). Patients were more likely to undergo AC in the setting of nodal macro-metastases ($p < 0.01$), younger age ($p < 0.01$), and larger primary tumour ($p < 0.01$). Follow-up was available in 98% of patients and at a median of 36 months disease-free survival was 87%, 81% in the AC group and 90% in the SNB only group. There have been 3 (2%) axillary recurrences, 1 (2%) in the AC group and 2 (3%) in the SNB only group ($p = 0.6$).
Conclusion: The rate of axillary recurrence in patients with a positive SNB is low. Axillary clearance may be safely omitted in select patients with a positive sentinel node.

BS23P
DIFFERENCES IN LYMPH NODE YIELD FOLLOWING AXILLARY LYMPH NODE DISSECTION DEPENDING ON BREAST CANCER LATERALITY?

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Purpose: A recent large multicentre trial comparing morbidity of sentinel lymph biopsy and axillary lymph node dissection has demonstrated an increased rate of lymphoedema in patients with left sided breast cancer (1). This may suggest that mainly right handed surgeons are performing a more thorough dissection on the left side, with more side effects.

The lymph node yield between right and left axillary dissection at CMDHB was compared to look for a right handed surgeon bias.
Methodology: A retrospective review of lymph node yield from axillary lymph node dissections (level II) for breast cancer was performed. The study was powered to detect a two node difference between sides.
Results: All breast surgeons at CMDHB are right hand dominant. In 585 patients, the median total number of right sided nodes was 17 while the median on the left sided was 16 per patient ($p = 0.526$).
Conclusion: The lymph node yields from right and left axillary dissections were not statistically significant ($p = 0.526$).

This suggests that CMDHB surgeons are performing right and left axillary surgery to a similar level.

The SNAC Trial could be re-examined to look at whether uneven node harvest played a role in morbidity.

Reference

1. Gill and The SNAC Trial Group of the Royal Australasian College of Surgeons (RACS) and NHMRC Clinical Trials Centre. Sentinel-lymph-node-based management or routine axillary clearance? One-year outcomes of sentinel node biopsy versus axillary clearance (SNAC): a randomized controlled surgical trial. *Ann. Surg. Oncol.* 2009; **16**: 266–75.

BS24P
DOES BREAST SCREENING MAKE SYMPTOMATIC BREAST CLINICS MORE EFFICIENT?

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Purpose: The Cochrane review1 estimated a 15% reduction in mortality but a 30% rate of over-diagnosis/treatment with breast cancer screening. There may, however, be hidden benefits.

Breast Screening Counties Manukau (BSCM) was established at CMDHB in 2003 and by 2005 was offering full screening for women aged 45–69.

We propose that BSCM contributes to the efficient running of CMDHB symptomatic breast clinics.
Methodology: Data were collected prospectively on new cancer diagnoses and retrospectively for new patient referrals. The figures were compared for 2005 and 2010.
Results: All new patient referrals received an appointment for potential triple assessment.

In 2005, there were 207 (13%) new cancer diagnoses in 1576 new patients. In 2010, there were 328 (20%) new cancer diagnoses in 1660 new patients ($p < 0.0001$).

Therefore approximately 1 in 5 new patients at clinic had breast cancer in 2010 compared with 1 in 8 patients in 2005.
Conclusions:

- CMDHB breast clinic is seeing an increasing number of new breast cancer diagnoses per year
- New referrals have not significantly increased
- This may be explained by the community using normal screening mammography to reassure women about minor breast symptoms

Reference

1. Gøtzsche PC, Nielsen M. Screening for breast cancer with mammography. *Cochrane Database Syst. Rev.* 2011, Issue 1. Art. No.: CD001877. DOI: 10.1002/14651858.CD001877.pub4

BS25P
DOES SURGICAL RESECTION OF THE PRIMARY TUMOUR IN PATIENTS PRESENTING WITH SYSTEMIC METASTATIC BREAST CANCER IMPROVE OVERALL SURVIVAL – A SYSTEMATIC REVIEW AND META-ANALYSIS

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The University of Sydney, New South Wales

Purpose: Standard treatment in patients presenting with metastatic breast cancer (MBC) is systemic. Surgical resection in MBC to improve survival is controversial. This study systematically reviews the literature to compare the survival of patients who had primary resection and those who did not.
Methodology: A literature search was conducted of Pubmed, Medline, Pre-Medline and Embase using appropriate search terms. All comparative studies with internal control group, reporting survival were included.
Results: 22 studies with a total of 22970 patients were found. 8945 patients had surgery and 14025 had non-surgical therapy.

Mean follow up was 41.46 months. Mortality rate for surgical was 63% and non-surgical 72% ($p < 0.001$). Median survival of surgical patients was 2.91 and 2 years for non-surgical ($p < 0.001$). Multivariate analysis of survival was available for 14 of 22 studies, and the combined hazard ratio was 0.69 (95% CI 0.62–0.78, $I2 = 82.48$, $p < 0.001$).

Mean age for surgical was 55.09 years and no surgery 58.23 ($p < 0.001$). Analysis of ER status showed OR = 0.98 for surgery vs. no surgery ($p = 0.81$). HER2 OR = 0.92 ($p = 0.81$). Surgical patients had higher rates of chemotherapy (78% vs. 69%, $p < 0.001$) and radiotherapy (39% vs. 24%, $p < 0.001$). Surgical patients had lower rates of hormone therapy (45% vs. 51%, $p < 0.001$). There were no differences in the rate of HER 2 targeted therapy (32% vs. 32%, $p = 1.0$). Surgical patients had less metastatic sites than non-surgical, with the majority having only 1 metastatic site (69% vs. 38%, $p < 0.001$).
Conclusion: Surgical resection of the primary tumour independently increased overall survival. However, surgical patients were younger, had more chemotherapy and radiotherapy and had less metastatic sites.

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BS26P
ENLARGED ILIOPSOAS BURSA MASQUERADING AS A SEROMA FOLLOWING TRAM FLAP RECONSTRUCTION

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The Transverse Rectus Abdominis Myocutaneous (TRAM) flap donor site morbidity is well represented in the literature. Anterior abdominal herniae occur in up to 5% of patients who have undergone TRAM flap reconstruction, while up to 10% of patients show anterior abdominal bulges without evidence of hernia. We present the case of a 64-year-old woman with an anterior abdominal wall bulge in the right iliac fossa four months after a muscle-sparing right free-TRAM flap breast reconstruction. The bulge developed insidiously, with the presenting complaint a "fullness" in the right iliac fossa. The differential diagnoses of hernia and seroma were considered, prompting radiological investigation. Post-operative computed tomography and magnetic resonance imaging reported a 7.7 cm×3 cm×3.3 cm collection representing a prominent iliopsoas bursa, with advanced osteoarthritis of the right hip joint and marked degeneration of the superior labrum of the acetabulum. The fine needle aspirate of this fluid showed macrophages accompanied by sparse lymphocytes and synoviocytes. The patient was referred to the orthopaedic surgeons for management of her osteoarthritis and subsequently underwent a right total hip replacement. Although there are several well-recognised complications of the TRAM flap donor site, this case highlights the value in broadening the differential diagnosis for abdominal wall bulges in this patient group.

BS27P
IDIOPATHIC GRANULOMATOUS MASTITIS

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Idiopathic granulomatous mastitis (IGM) is a rare inflammatory breast disorder, with varying clinical and radiological manifestations, that mimics breast cancer. This study aims to assess the efficacy of the diagnostic and management options for patients with IGM.

A retrospective study of all patients diagnosed with IGM at a single centre over thirteen years (1999–2012) was performed. The diagnosis was made by specialist assessment, breast imaging, biopsy and investigations to exclude non-idiopathic mastitis. Management was conducted in a multidisciplinary setting. Disease-free survival was assessed at 6 months.

Eight women were diagnosed with IGM in the study period, with a median age of 34 years. The main symptom (88%) was a breast lump, and all underwent mammography, ultrasound, core biopsy and tests to exclude carcinoma, infection, connective tissue disease or diabetic mastopathy. Three women required further surgical biopsy for diagnosis. Surgical excision and/or oral steroids resulted in 75% being disease-free at 6 months. Three patients also required antibiotic treatment for secondary infection. Despite long-term prednisolone, two patients developed recurrences.

The triple test with investigations to exclude other causes was effective in diagnosing IGM. Oral steroid therapy or surgical excision resulted in majority being disease-free at 6 months.

BS28P
IS PREOPERATIVE AXILLARY ULTRASOUND IN PRIMARY BREAST CANCER SUFFICIENTLY ACCURATE TO GUIDE SURGICAL MANAGEMENT?

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Purpose: Axillary Ultrasound in primary breast cancer has the potential to diagnose nodal disease prior to surgery. This will lead directly to axillary clearance rather than sentinel node biopsy (SNB), avoiding delays in subsequent adjuvant treatment. The practice however is not routine in many centres. We aim to determine whether axillary ultrasound has sufficient accuracy to guide surgical management.

Method: A retrospective analysis of 256 patients with breast cancer over a 3 year period. Axillary ultrasound was routinely utilized and fine needle aspiration (FNA) was performed on ultrasonically abnormal nodes except where there was obvious nodal disease seen. All patients with confirmed nodal disease proceeded directly to Axillary Clearance whereas SNB was performed on cases with normal ultrasound.

Results: Axillary ultrasound was abnormal in 43 and normal in 159 patients, giving a sensitivity of 46%, specificity of 93%, PPV of 81% and NPV of 74%. The addition of FNA resulted in a sensitivity of 57%, specificity of 100%, PPV of 100% and a NPV of 35%. Subgroup analysis showed that the sensitivity varied from 33% to as high as 85% depending on the ultrasound-operator involved. Amongst the histologically positive axillary cases (76), the preoperative diagnosis rate was 32%, thereby avoiding a second operation in 24 women.

Conclusion: In our experience, ultrasound assessment of the axilla is a valuable tool in guiding surgical management. We recommend the addition of FNA in cases of abnormal ultrasound to significantly improve the accuracy of the procedure. Given that it is an operator-dependant test, it's sensitivity can be improved on with proper technique and training. This will be discussed further in this paper.

BS29P
MERCEDES-BENZ CLOSURE OF THE SKIN SPARING MASTECTOMY: EVOLUTION OF A TECHNIQUE

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Purpose: Following skin-sparing mastectomy and implant/tissue-expander reconstruction wound closure is critical to cosmesis and minimizing infection. Despite this it is rarely discussed. Our technique for skin closure has evolved over time. Initially direct closure of the periareolar wound created two aesthetic issues. Firstly a scar that extended beyond the patient's areolar dimensions and secondly, excessive tension in the wound in the vertical plane, distorting the natural symmetry of the pendulous breast. Closure of the wound in 'X' fashion addressed both of these issues but was associated with undesirable rates of wound necrosis and dehiscence. Our current and preferred technique, a three-limbed 'Mercedes-Benz' like closure improves wound healing.

Methods: All patients who had a SSM closed by the senior author using the above technique were retrospectively reviewed for outcomes and complications. Additionally, wound comparisons between the techniques were mathematically analysed and the zones of tension in the breast envelope assessed.

Results: At the census date in excess of 40 patients satisfied the inclusion criteria. At the time of writing preliminary results were promising with wound complications uncommon and aesthetic results satisfactory. The need for revision surgery was rare.

Conclusion: This technique narrows the scar dimensions and distributes the tension of the wound closure more evenly around the whole breast envelope. We hypothesize that wound healing is improved with relatively wider based flaps that ensure a more reliable blood supply whilst distributing tension more evenly along the wound margins.

BS30P
MORBIDITY OF ADJUVANT RADIOTHERAPY AND IMMEDIATE BREAST RECONSTRUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Purpose: It is known that adjuvant radiotherapy post mastectomy and immediate breast reconstruction (IBR) is associated with increased morbidity. This may have potentially significant implications on oncologic and aesthetic outcomes. The aim of this study was to systematically review the literature comparing the morbidity and oncological outcomes of patients with adjuvant radiotherapy or no radiotherapy in the setting of IBR.

Methodology: A literature search was conducted using appropriate search terms. All comparative studies with an internal control group reporting morbidity were included.

Results: Eleven comparative studies (total of 1,352 patients) were included. The mean age was 47 years (radiotherapy) and 48 years (no

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radiotherapy). The median follow up was 33 months. Patients with adjuvant radiotherapy have statistically significant increased risk of overall complications (OR 6.97; 95% CI: 1.85–26.23), reconstruction failure (OR 4.48; 95% CI: 1.71–11.71) and capsular contracture (OR 14.23; 95% CI: 4.91–41.25). Only one study reported oncologic outcome with respect to delays in adjuvant therapy.
Conclusions: These results confirm that overall complications and particularly reconstruction failure and capsular contracture is a significant risk in patients with adjuvant radiotherapy. Due to the variation among studies in reporting aesthetic outcome and lack of reporting of oncologic outcomes, conclusions regarding these cannot be made. Further studies investigating oncologic outcome are needed.

BS31P
MORBIDITY OF CHEMOTHERAPY AND IMMEDIATE BREAST RECONSTRUCTION IN BREAST CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Purpose: Immediate breast reconstruction (IBR) in patients receiving chemotherapy may lead to increased morbidity and delays and/or interruptions in adjuvant treatment. This may adversely affect oncologic and aesthetic outcomes. The aim of this study was to systematically review the literature to compare the morbidity and oncological outcomes of chemotherapy (neoadjuvant and adjuvant) or no chemotherapy in the setting of IBR.
Methodology: A literature search was conducted using appropriate search terms. All comparative studies with an internal control group reporting morbidity and/or oncologic outcomes were included.
Results: Nine comparative studies (total of 1,067 patients) were included. The mean age was 45 years (chemotherapy) and 49 years (no chemotherapy). The median follow up was 21 months. Statistically non-significant trends of increased risk in patients receiving chemotherapy were demonstrated for overall complications (OR 1.37; 95% CI 0.48–3.86), capsular contracture (OR 1.61; 95% CI 0.39–6.56), infection (OR 1.28; 95% CI 0.39–6.56), haematoma (OR 1.55; 95% CI 0.58–4.15) and implant loss (OR 1.14; 95% CI 0.57–2.28). Only two studies reported oncologic outcomes with respect to delays in adjuvant treatment and systemic cancer recurrence.
Conclusions: The findings suggest that IBR may be associated with increased risk of complications in patients receiving chemotherapy compared to no chemotherapy. Further comparative studies are needed to establish if these trends are statistically significant. Longer follow up is also needed in order to establish the effect of morbidity on oncologic outcome.

BS32P
OUTCOMES FOLLOWING BREAST IMPLANT SALVAGE USING NOVEL IRRIGATION SYSTEM: CASE SERIES AND REVIEW OF THE LITERATURE

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Background: The risk of periprosthetic infection in elective breast augmentation is reported to be 1.7–2.5%. The majority of infections are acute and occur early in the postoperative period. Subacute or chronic infections are rare. Infection often condemns an implant to explantation or capsular contracture. We describe a novel technique for salvage of subacute and chronic infections of breast implants.
Methodology: We report a series of four patients who have successfully been treated with an irrigation method for subacute and chronic infections. The technique involves removal of the affected implant and scrubbing to remove biofilm. The breast pocket is then irrigated and curettaged. The implant is replaced over two 19 gauge Blake drains which are used as a closed irrigation system. The irrigation system is used over a period of 72 hours, with a decreasing frequency of saline infusion, and is removed 24 hours after irrigation is ceased.
Results: Patients have a mean follow-up of 30 months. Salvage was successful in all cases. No explantations were required and there were no examples of capsular contracture.
Conclusion: This technique provides a useful method for the salvage of otherwise condemned breast implants. Such salvage prevents unnecessary operations and avoids the psychological and physical consequences of prosthesis removal.

BS33P
SALVAGE OF THE INFECTED BREAST PROSTHESIS WITH CONTINUOUS ANTIBIOTIC IRRIGATION

Iraj Ahmadi, Eric Sham and Mansoor Mirkazemi

Southern Health, Victoria

Purpose: Periprosthetic breast infection is an uncommon but serious complication following cosmetic augmentation and reconstruction post oncological resection.

Traditional methods of prosthesis removal delay the reconstructive process by months with a subsequent risk of poor aesthetic outcome.

We propose a technique of salvaging infected prostheses and potentially retaining the existing implant.
Method: All patients with infected breast expanders or implants were considered candidates for salvage with the exception of those requiring imminent chemotherapy.

Involved skin margins are debrided before performing total capsulectomy. The pocket is extensively irrigated with 4 litres of normal saline. Two drains are inserted, before reinserting the existing or new prosthesis. A continuous infusion containing a broad spectrum or targeted antibiotic is mixed with 1 litre of normal saline and run for 5 days through a drain. Patients are maintained on intravenous antibiotics concurrently and monitored for clinical signs of infection, resolving infective markers and drain output.
Results: This technique has been used in 7 patients presenting with 8 infected breast prosthesis (6 expander, 2 implants). The follow up period is ongoing and between 6–20 months. 6 out of 7 patients had successful salvage following periprosthetic infection. There was one case of recurrent mycobacterium infection which was not detected at the time of irrigation. There were no cases of contracture (Baker III or IV). Two patients had successful salvage of the existing implant.
Conclusion: Salvaging infected breast prosthesis is a viable option in most patients, allowing for quicker reconstruction with low risk for recurrent infection and capsular contracture.

BS34P
SUTURELESS DRAIN FIXATION – A UNIQUE, RELIABLE AND SECURE TECHNIQUE

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Introduction: Surgical drains are commonly in all types of surgeries. They serve to prevent fluid accumulation (blood, pus or infected fluid), dead air accumulation and allow for the identification of drained substance. It is important that the drain is fixed securely; prevent slippage or occlusion that may cause further morbidity or mortality. Although different techniques of drain fixation have been proposed, dislodgement is still common. In this article, we describe an better alternative to the suture.
Methods: A case study of an intra-operative patient with this new drain fixation technique. Schematic illustrations are used for step-by-step guidance.
Results: Post-operative and outpatient follow-up was performed at regular intervals up to 12 months with good cosmetic and functional results with this technique.
Conclusion: Traditional methods of drain fixation using sutures are highly irritant, prone to loosening, with risk of scarring, and also the risk of a retained drain suture when removed. Furthermore, the portion of the drain outside the skin is a potential route for infection during drain migration. Our method of fixation is applied in a sterile environment and provides an extra seal, distant from the skin entry point, thus decreasing the risk of infection. Furthermore when the drain moves in and out, this can cause a painful sensation for the patient due to the stitch pulling on the skin. This fixation technique prevents

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this unwelcome side-effect. The authors feel that this technique is a better alternative than sutures.

(This procedure of the technique has been described by photographic and diagrammatic illustrations for the proper understanding of the peers.)

BS35P
SYNCHRONOUS CARCINOMA AND LYMPHOMA OF THE BREAST

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Primary breast lymphoma is a rare and unusual clinical entity. The coexistence of an invasive ductal carcinoma on the contralateral breast is even rarer.

We report on the development of an uncommon association of pathologic processes, where a primary lymphoma of the right breast with developed concomitantly with an invasive ductal of the breast left breast.

Case Report: The patient, 73 year-old female, presented with progressively enlarged right breast mass for 2 months. She had an additional small lesion on the contralateral breast which was slow growing and painless. Otherwise she had no other significant symptoms.

Clinical examination revealed a large, rounded and hard mass on the right breast measuring 10×8 cm with a small right axillary lymph node. On the left side showed a small lump, 2×2 cm at the upper outer quadrant. No left axillary lymph node noted.

Core needle biopsies of the lesions demonstrated large B cell lymphoma on the right and invasive ductal carcinoma on the left breast. The mammogram, which also defined the lesions, illustrated BIRADS 5 on both sides.

The presence of both malignancies presents a challenge in treatment decisions.

BS36P
THE CHALLENGES OF DIAGNOSING AND TREATING RADIOTHERAPY INDUCED ANGIOSARCOMA FOLLOWING BREAST CONSERVING SURGERY: A CASE REPORT AND LITERATURE REVIEW

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Introduction: Radiation induced angiosarcoma of the breast following breast conserving surgery (BCS) is a rare but well described condition. As more women undergo BCS, there will be an expected increase in the incidence.

Case report: A 54 year-old woman underwent BCS for grade II lobular carcinoma with adjuvant radiotherapy and hormonal therapy. She presented 5 ½ years after surgery with an area of subcutaneous thickening in the right breast. Imaging and core biopsies showed only post radiation changes. Nine months later, she developed a nodular area with purpura and petechial changes. A MRI scan showed abnormal enhancement confined to the superficial skin layers and punch biopsy confirmed angiosarcoma. She underwent a salvage mastectomy and was referred for radiotherapy and systemic therapy.

Discussion: Angiosarcoma is a rare and highly malignant tumour of the vascular endothelium, typically presenting with skin changes over a period of time. It has a latency period of between 4–7 years post radiotherapy. It can be clinically difficult to distinguish from post radiation changes in the early stages, and diagnosis is established on punch biopsy. Angiosarcomas have poor prognosis and salvage mastectomy is the primary treatment. Wound closure may require the use of autologous skin flaps. Ironically, treatment with neoadjuvant or adjuvant radiotherapy has shown favourable results. Chemotherapy may have a role in selected cases.

Conclusion: This case report highlights the latency and progressive development of angiosarcomas. Surgeons need to have a high index of suspicion of changes in radiotherapy-exposed skin to aid early detection and timely surgical treatment. Photos and a review of the literature will be presented.

BS37P
THE INCREASING ACCESSIBILITY OF COSMETIC TOURISM PACKAGES TO AUSTRALIANS SEEKING CHEAPER ALTERNATIVES

Andrew Pastuszek, Carly Fox, Henry Beem, Michael Wagels and Paul Belt

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Background: Cosmetic tourism is a multimillion-dollar industry. Travel agents offer exotic destinations, affordable procedures, cheap flights, and poolside recovery as all-in-one packages to entice prospective patients. Of concern, the concept of these tours as "holidays" overlooks the requirement for thorough postoperative recovery and care. This industry is largely unregulated and presents a significant public health challenge.

Methods: An Internet search was conducted to find websites for all agents offering cosmetic travel packages to prospective patients in Australia. An audit of these offerings was conducted, addressing range of destinations, cost, available procedures, safety information, and testimonials. A comparison was made with advertising regulations for medical and cosmetic practitioners in Australia.

Results: Cosmetic travel agents are readily accessed through a simple Internet search, with over twenty websites offering cosmetic travel packages. Procedures on offer cover a wide-ranging spectrum from cosmetic dentistry to all non-invasive and invasive aesthetic surgery procedures, with variable provision of safety information. Advertising practices were at odds with Australian guidelines for medical advertising.

Conclusions: Cosmetic tourism is a burgeoning industry and is easily accessible to patients seeking cheap surgical procedures. These findings highlight the requirement for public health awareness campaigns addressing the risks of cosmetic tourism.

BS38P
USE OF THE VECTRA 3-D IMAGING DEVICE IN BREAST RECONSTRUCTION

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Purpose: The Vectra 3-D imaging device is a simulation device used mainly for cosmetic breast augmentation. It does however have many uses in breast reconstruction yet to be widely known and further developed.

Methodology: The device has 6 cameras that transfer images taken into a 3-D image of the patient that can be rotated in every direction to show with precision characteristics of the breasts including skin texture. It can then assess dimensions and take accurate measurements normally taken far more laboriously by surgeons. It can guide to appropriate breast implants range from where you can choose a particular one and simulate a result.

Results: In breast reconstruction it can help with pre-operative planning and through stages to guide changes required. We show a small cohort of patients where Vectra has helped with pre-operative education and planning. The most interesting patient is a 21 year old patient requesting bilateral prophylactic mastectomy for BRCA2 gene positivity. Pre-operatively we simulated cosmetic breast augmentation to her desired look and restricted her implants to achieve that look to low projection implants so to allow for additional projection required to be added after mastectomy. Intra-operatively the dimensions and volume/weight of her mastectomy specimens were documented. By combining measurements we predicted implants required to achieve her desired result.

Conclusion: The Vectra 3-D imaging device elucidates any asymmetries and helps with surgical planning. It helps with the decision making and gives the patient pre-operative information on the relative outcome.

BS39P
USE OF TISSUE EXPANSION TO AVOID SKIN PADDLES IN DELAYED TRAM/DIEP BREAST RECONSTRUCTION

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Abdominal flap free tissue breast reconstruction with TRAM/DIEP flaps has many advantages over other forms of breast reconstruction and is considered

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by many as the Gold Standard. The bonus abdominal contouring allows better appreciation of the torso as a whole. Autologous reconstruction avoids implant based complications. This tissue allows similar soft tissue characteristics to breast tissue that allows ptosis and mimics a normal contralateral breast in the unilateral mastectomy better than implant reconstruction. However, in delayed reconstruction the requisite skin paddle can be a poor colour and texture match to the native chest skin, especially if striae are transferred. Furthermore, the skin paddle of the flap remains relatively insensate and vulnerable to injury.

We present a small cohort of delayed breast reconstruction with first stage expansion followed by free TRAM/DIEP flap based reconstruction to avoid skin paddles outside the areolar area. Our aim is to avoid skin paddles and the typical "patchwork" appearance it creates to better camouflage these reconstructions. Expansion in the non-irradiated has proven straightforward. In the irradiated setting where you may avoid pure expander / implant based reconstruction for fear of poor soft tissue cover, you can still consider expansion in the setting of transferring autologous soft tissue behind it. Of course, expansion is less straightforward in these patients and we discuss the issues here within our cohort.

BS40P
VARIATIONS OF THE INTERCOSTOBRACHIAL NERVE: A LITERATURE REVIEW

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Purpose: Preservation of the intercostobrachial nerve (ICBN) during axillary dissection has been reported to decrease morbidity. However, the course of ICBN through the axilla can vary and it may be difficult to routinely identify and preserve the ICBN and its branches. A literature review is performed to identify the variations of ICBN.

Methods: Databases Pubmed, Medline and EMBASE were searched for term "intercostobrachial nerve". Abstracts were searched for relevance, focusing on anatomical studies of the ICBN.

Results: Three articles eligible for review were identified. In total, 318 ICBNs were analysed, 118 as in vivo studies during axillary dissection and 200 as cadaveric studies. The course of ICBN is classified into five major variants for surgical relevance with the final category (Other) encompassing a number of uncommon variants.

Type 1 ICBN traverses the axilla as a single nerve (51.3%, 163/318)

Type 2 ICBN enters the axilla as a single nerve and branches into 2 nerves (30.8%, 98/318)

Type 3 ICBN enters the axilla as 2 nerves and merges to form a single nerve (9.4%, 30/318)

Type 4 ICBN enters the axilla as a single nerve and branches into 3 or more nerves (3.5%, 11/318)

Other describes ICBN that enters the axilla as 2 or more nerves, merges to form a single nerve before branching into 2 or more nerves (5%, 16/318)

Conclusions: Only 51.3% of ICBN (Type 1) traverse the axilla in the form traditionally described by anatomical textbooks. Knowledge of the surgical anatomy of ICBN may aid in its identification and preservation during axillary dissection.

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