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SURGICAL ONCOLOGY

SO001
WHO NEEDS CANCER SCREENING? (GENETIC RISK OF CANCER)

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Approximately 5 to 10% of most of the common cancers (breast/colorectal/melanoma etc) may be attributed to a germline mutation in a cancer-susceptibility gene. Generic features of a heritable predisposition to cancer include: the presence of a number of family members in different generations on one side of the family affected by the same (or a related) cancer, early age at onset and the occurrence of multiple primary cancers in some individuals. At a practical level, risk of cancer based on family history of cancer can be assessed according to NHMRC guidelines. Within such families a genetic approach can now be applied to identify high-risk individuals so that screening and prevention can be applied appropriately. In addition, family members identified not to be at high risk can avoid unnecessary cancer screening and concern.

The management of familial colorectal cancer relies upon making a working diagnosis of the underlying syndrome, made after consideration of the cancer family history, review of the clinical and morphological features, molecular pathology and sometimes DNA mutation analysis. Individuals with familial adenomatous polyposis (FAP) develop hundreds or thousands of colonic adenomas, often by the early adult years. Left untreated, cancer will occur in one or more polyps, so colectomy is the appropriate prophylactic intervention. The site of the germline mutation in the APC gene influences the phenotype and extra-colonic manifestations. Hereditary non-polyposis colon cancer (HNPCC) relates to a syndrome due to a germline mutation in one of the DNA mismatch repair genes that predisposes to early onset colorectal cancer as well as gynaecological and other cancers. HNPCC diagnostic accuracy has been improved by careful pathological examination, incorporating testing for DNA microsatellite instability (MSI), immunohistochemistry for gene expression and germline DNA mutation analysis.

There are some families who carry a heritable (germline) mutation in genes such as BRCA1, BRCA2, p53, PTEN, ATM and others (known and as yet unknown) that predispose to breast and other cancer. If a breast/ovarian cancer susceptibility gene mutation can be identified in an affected family member, then other ‘at risk’ adult individuals may be tested to clarify their risk status. Other rare cancer family syndromes such as Von Hippel-Lindau disease (VHL), Multiple Endocrine Neoplasia (MEN) and hereditary retinoblastoma can also now be investigated using molecular techniques, with the aim of accurately identifying those at high risk in order to target cancer screening and prevention to those who may most benefit.

SO002
WHAT CAN MRI DETECT IN THE BREAST?

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MRI Breast is increasingly important as an imaging test in evaluating some breast problems. The basis of the diagnostic test is to use an injected contrast agent (Gadolinium containing) to demonstrate in a time related manner a map of the vascular permeability – indicating the region of (tumour) neovascularity. There are several technical challenges in performing this imaging test.

Indications:

- Pre-operative staging of percutaneously diagnosed breast cancer where the information would modify therapy
- Assessment of tumour resection margins soon after lumpectomy
- Assessment in advanced breast cancer (particularly the response to neo-adjuvant therapy)
- Assessment of the post-therapy breast when clinical and traditional imaging doubt persists regarding scar versus recurrence
- Aiding the quest for occult breast cancer (particularly axillary secondaries thought to be from an occult breast primary cancer)
- Screening in very high risk women (particularly genetically predisposed women)
- The use of Breast MRI to help in problematic cases (including the quest for cancer when there are prostheses in place) where there is a high index of suspicion but clinical and traditional imaging means are indeterminate is a further possible indication.

Because on occasion suspicious abnormalities demonstrated by MRI cannot be demonstrated, even in retrospect by other means there is also the need to perform MRI guidance of certain interventive procedures such as localisation and percutaneous biopsy.

Breast MRI is a useful adjunctive test but, in view of its limited availability and high cost careful consideration is required in its us.

SO003
THE ROLE OF THE SURGEON IN THE MULTIDISCIPLINARY CANCER TEAM: ARAGORN OR BOROMIR?

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The Pam McLean Cancer Communications Centre (PMCCC) at the University of Sydney (www.mcleancentre.org) was commissioned by the National Breast Cancer Centre (NBCC) in 2003 to review the evidence concerning communication in cancer teams (Boyle *et al*., JCO, 2005). This review led to the development of guidelines for multidisciplinary meetings for cancer teams (www.nbcc.org.au/resources) and a series of training workshops which are available in Australia and New Zealand currently.

JRR Tolkien’s Lord of the Rings epics, recently filmed by Peter Jackson, provide a backdrop against which we can consider the various roles surgeons might play in a team drawn together to manage a complex and dangerous task, supporting the patient Frodo through his journey to destroy the ring. Just as in the Lord of the Rings, key factors affecting the performance of cancer teams (Hayward *et al*., BJC, 2003) include:

a) Articulated and shared goals, and orientation of the patient
b) A mix of ages, skills and experiences
c) Defining the role of each position, and the inter-relationships between them, to allow us to play to one another’s strengths
d) The development of trust and respect, which takes time
e) Efficient communication and shared language
f) Leadership characterised by both learning and experience, listening, strategic planning, and empathic engagement with both the patient and team members
g) Proactive management of conflict
h) Appropriate facilities for meetings, including arrangement of the space to maximise interaction
i) Backroom support
j) Feedback about outcomes and celebration of achievement.

SO004
CYTOREDUCTIVE SURGERY AND PERIOPERATIVE INTRAPERITONEAL CHEMOTHERAPY FOR PSEUDOMYXOMA PERITONEI FROM APPENDICEAL MUCINOUS NEOPLASMS – A PROSPECTIVE STUDY OF 50 CONSECUTIVE PATIENTS

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Purpose Cytoreductive surgery combined with perioperative intraperitoneal chemotherapy has been used as a treatment alternative for patients with pseudomyxoma peritonei from appendiceal mucinous neoplasms. This prospective study critically evaluated 12 clinicopathologic and treatment-related prognostic parameters for survival in 50 consecutive patients who underwent this combined treatment.

Methodology The inclusion criteria of this study consisted of patients who had a diagnosis of appendiceal mucinous neoplasm with peritoneal dissemination. The exclusion criteria consisted of poor performance status and bleeding diathesis, not responding to medical treatments. All patients signed informed consent and underwent cytoreductive surgery and perioperative intraperitoneal chemotherapy according to Sugarbaker’s protocol. Ronnett histopathologic classification included disseminated peritoneal adenomucinosis (DPAM), peritoneal mucinous carcinomatosis with intermediate features (PMCA-I) and peritoneal mucinous carcinomatosis (PMCA). All clinicopathologic

and treatment-related data were obtained prospectively and computed in univariate analysis to determine their prognostic significance for overall survival.
Results The actuarial 5-year survival was 69%. Extent of prior surgery ($P = 0.045$) and Ronnett histopathologic classification ($P < 0.001$) were significant for overall survival. The 5-year survival rates of patients with DPAM and PMCA-I were 100% and 69%, respectively. In contrast, no patients with PMCA survived for more than 3 years.
Conclusions Cytoreductive surgery combined with perioperative intraperitoneal chemotherapy demonstrated an improved survival in patients with DPAM.

SO005
CYTOREDUCTIVE SURGERY AND PERIOPERATIVE INTRAPERITONEAL CHEMOTHERAPY FOR COLORECTAL PERITONEAL CARCINOMATOSIS

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Purpose This study was to critically evaluate prognostic indicators for overall survival of patients who underwent cytoreductive surgery combined with perioperative intraperitoneal chemotherapy for colorectal peritoneal carcinomatosis.
Methodology The inclusion criteria were patients who had a diagnosis of colorectal carcinoma with peritoneal dissemination. The exclusion criteria consisted of poor performance status, bleeding diathesis, extraperitoneal disease and high volume of peritoneal carcinomatosis. All patients signed informed consent and underwent cytoreductive surgery and perioperative intraperitoneal chemotherapy according to Sugarbaker's protocol. All clinicopathologic and treatment-related data were obtained prospectively and computed in univariate analysis to determine their prognostic significance for overall survival.
Results Thirty patients underwent this combined treatment. The median follow-up was 12 months. The overall median survival was 30 months (range 2 to 38 months), with 1-, 2- and 3-year survival of 71%, 62% and 21%, respectively. Patients with Peritoneal Cancer Index ≤15 ($P = 0.014$) and complete cytoreduction ($P = 0.035$) had a favorable prognosis. Twenty-one patients who received a complete cytoreduction had a 3-year survival of 66%.
Conclusions Cytoreductive surgery and perioperative intraperitoneal chemotherapy demonstrated an improved survival in patients with colorectal peritoneal carcinomatosis, as compared to historical controls.

SO006
THE ROLE OF PREOPERATIVE ULTRASOUND EXAMINATION OF SENTINEL LYMPH NODES IN PATIENTS WITH PRIMARY CUTANEOUS MELANOMA

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Purpose To determine the sensitivity and specificity of high-resolution ultrasound (US) in the detection of melanoma metastases within sentinel lymph nodes (SLNs) identified by lymphoscintigraphy prior to initial melanoma surgery, and to verify the threshold size of metastatic melanoma deposits able to be identified by US.
Methodology US was performed on SLNs identified in 882 lymph node fields (731 patients) immediately following identification by lymphoscintigraphy. SLN biopsy was performed within 24 hours of lymphoscintigraphy and US examination. The size of each SLN metastatic deposit was histologically determined. The sensitivity and specificity of US was compared to histological examination for each SLN.
Results The sensitivity and specificity of targeted US in the detection of positive or suspicious SLNs were 21.7% and 94.8% respectively. The sensitivity was highest for cervical SLNs (45.5%) followed by axillary (23.9%) and groin (15.9%) SLNs, and was lowest for interval, popliteal and epitrochlear SLNs. The sensitivity of US was greater for thicker primary lesions, but showed lower specificity. The median Breslow thicknesses of the US false negatives and true positives were 0.5 mm and 3.5 mm respectively. The sensitivity of US correlated with the size of SLN metastases, and approached 80% for lesions over 7 mm.
Conclusions Targeted ultrasound of SLNs can detect metastatic melanoma deposits down to approximately 3.5 mm diameter. Smaller studies have reported higher US sensitivities but their patient cohorts had fewer SLN micrometastases. US is not an appropriate substitute for SLN biopsy, but has an important role in SLN localisation and post-operative monitoring.

SO007
SURGERY FOR MELANOMA METASTASES OF THE GASTROINTESTINAL TRACT: INDICATIONS AND RESULTS

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Purpose To assess survival, morbidity and mortality following therapeutic or palliative resection of gastrointestinal tract (GIT) melanoma metastases.
Methodology A retrospective case series of 117 patients who underwent surgical resection of GIT melanoma metastases between 1981 and 2005.
Results The 117 patients underwent 142 operations for acute and subacute symptoms or for imminently symptomatic GIT metastases detected on routine radiological screening. The intent of the surgery was palliative in 53 (37.3%) and therapeutic in 89 (62.7%) operations. Most common symptoms were due to anaemia (40.8%) or bowel obstruction (32.4%). The most frequently performed operation was small bowel resection (76.8%). Preoperative imaging and/or endoscopy were used in 83 cases, with computerised tomography (CT) being most frequent (85.5%). CT had a sensitivity of 68.75% when used alone to detect the presence of GIT metastases. The mortality rate following GIT resection was 1.4%, and 2.5% of patients had post-operative complications. Overall 5-year survival was 27%. On multivariate analysis, the presence of residual intraabdominal disease and the presence of non-gastrointestinal metastases at the time of surgery or after surgery were the most significant prognostic indicators of survival.
Conclusions GIT metastases are common in melanoma but infrequently cause symptoms. Resection of GIT metastases is safe, relieves symptoms and can achieve prolonged remission. In a select subgroup of patients, an aggressive surgical approach to symptomatic or imminently symptomatic GIT metastases is warranted.

SO008
IMPACT OF PRE-OPERATIVE PET SCANS ON SURVIVAL AFTER LIVER RESECTION FOR METASTATIC COLORECTAL CANCER

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Purpose Positron Emission Tomography has been used to detect extrahepatic disease in patients to determine their suitability for liver resection from colorectal metastases.

We reviewed our prospective data for patients undergoing liver resection with and without preoperative PET scanning with the hypothesis that it would result in better 5 year survival after liver resection due to better patient selection by downstaging disease.
Methodology Between 1990 and 2005 there were 467 patients undergoing potentially curative liver resections. PET Scanning was available to our patients from 2002. Our patients were divided into 3 cohorts with 215 patients in the pre-PET era (Group 1), 188 in the PET era where a PET scan was not performed (Group 2) and 64 patients with preoperative PET scanning(Group 3). The 3 cohorts were followed up at 1, 3, 6 and 12 months post-operatively with a median follow up of 24, 21 and 20 months respectively.
Results The five year survival rate for patients with preoperative PET scanning was 68%, for patients without preoperative PET scanning was 40% in the PET era and 30% in the pre-PET era ($P = 0.0113$). There were no other statistically significant differences between the cohorts on 8 other prognostic variables.
Conclusion The usage of preoperative PET scanning has led to a greatly improved overall survival because of better patient selection by detecting occult extrahepatic disease missed with traditional staging techniques. It has reduced the number of futile laparotomies and allowed better treatment strategies to be planned for patients with extrahepatic disease.

SO009
FROM MOLE TO MELANOMA: REDUCED EXPRESSION OF THE CYCLIN-DEPENDENT KINASE INHIBITORS P16 AND P27 CORRELATES WITH TUMOUR PROGRESSION

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Purpose To determine if the cyclin-dependent kinase inhibitors (CDKIs) p16 and p27 show reduced expression in the progression from benign melanocytic naevi to malignant tumours, and to correlate these findings with patient prognosis.
Methodology 92 melanocytic lesions were examined immunohistochemically for the presence of p16 and p27. These specimens included 9 compound naevi, 10 dysplastic naevi, 17 thin (<1 mm) melanomas, 22 thick (>1 mm) melanomas, 9 in-transit metastases, 13 lymph node metastases and 12 distant metastases. Clinicopathological information on the 39 patients with melanoma primaries was obtained from the Sydney Melanoma Unit database. The median follow-up period was 43.3 months.
Results A significant loss of expression of p16 and p27 was found with tumour progression from benign naevus to melanoma primary to melanoma metastasis. Positive expression of p27 was found in all compound and dysplastic naevi and only 43.6% of melanoma primaries. Expression of p27 was greater in lymph node and in-transit metastases (63.6%), but lower in distant metastases (36.4%). Positive expression of nuclear p16 was evident in 73.7% of benign naevi, 28.2% of primary melanomas and 14.7% of melanoma metastases. Neither p16 nor p27 expression correlated with overall survival, disease-free survival or any clinicopathological markers.
Conclusions The CDKIs p16 and p27 are associated with tumour progression in melanoma, but do not reliably predict recurrence or survival.

SO010
IS THE NUMBER OF HEPATIC COLORECTAL METASTASES A PROGNOSTIC FACTOR AFTER RESECTION: RESULTS OF MATURE DATA

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Purpose Hepatic resection is both potentially curative and the most effective therapy for liver metastasis of colorectal carcinoma. The aim of this retrospective study was to determine whether the number of hepatic lesions has any prognostic significance on survival in patients treated with hepatectomy for colorectal metastases.
Methodology From Jan 1990 to Dec 2005, 596 patients who underwent curative liver resection for colorectal metastases were identified from a prospective database. Number of metastases was determined by serial sectioning of gross specimens by a pathologist and this information was obtained from post-operative histopathology reports. Patients were categorized into group one, group two and group three if they had 1–4, 5–7 and >8 liver metastases respectively. Date of the first metastasectomy and time of death or last follow-up were collected and Kaplan-Meyer survival analysis was performed for all three groups.
Results A total of 498 candidates were identified for analysis with zero peri-operative mortality. The median follow-up of 498 patients was 60 months. There were 411 patients in group one, 56 patients in group two and 31 patients in group three. The median survival times were 35, 29 and 23 months respectively. The 5 year survival rates were 33%, 31% and 18% for group 1, 2 and 3 respectively ($P = 0.06$).
Conclusion There was no significant difference in survival rates for patients with seven lesions or less.

SO011P
PERCUTANEOUS RADIOFREQUENCY ABLATION OF PULMONARY METASTASES FROM COLORECTAL CARCINOMA: PROGNOSTIC FEATURES FOR SURVIVAL

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Purpose Preliminary results have shown that percutaneous radiofrequency ablation (RFA) may have a useful role in patients with inoperable lung tumors. This series was to evaluate the prognostic features for survival in patients who underwent percutaneous RFA of inoperable colorectal pulmonary metastases.
Methodology Fifty-five patients underwent percutaneous RFA for inoperable colorectal pulmonary metastases. All clinical and treatment-related data were collected prospectively. Univariate and multivariate analyses were performed to identify significant prognostic factors for overall survival.
Results The overall median survival was 33 months (range from 4 to 40 months), with 1-, 2-, and 3-year survival of 85%, 64% and 46%, respectively. In univariate analysis, interval between the diagnoses of colorectal cancer and pulmonary metastasis; largest size of pulmonary metastasis; location of lung metastases; and pneumothorax requiring a chest drain were statistically significant for overall survival. In multivariate analysis, only size of pulmonary metastasis of ≤3 cm was independently associated with an improved survival.
Conclusions Percutaneous RFA of inoperable colorectal pulmonary metastases may have a useful role in patients with a pulmonary metastasis of ≤3 cm.

SO012P
SIX YEAR EXPERIENCE OF EXTERNAL BEAM RADIOTHERAPY, BRACHYTHERAPY BOOST WITH A 1MCI 192IR SOURCE AND NEOADJUVANT HORMONAL MANIPULATION FOR PROSTATE CANCER

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Purpose To present preliminary outcomes and toxicity of pulsed dose rate brachytherapy (PDR-BT), external beam radiotherapy (EBRT), and temporary hormonal manipulation, for prostate cancer.
Methods Between 1999–2005, 222 consecutive patients with Stage T1–T3, N0, M0 prostate cancer were treated. Hormones were used in every patient. Median follow-up was 36 months. Risk groups were; low (Stage T2a or less, Gleason score ≤ 6, and Prostate-Specific Antigen [PSA] level ≤ 10 ng/mL), intermediate (Stage T2b,c, Gleason score 7, and PSA 10–20 ng/mL), and high (Stage T3, Gleason score 8–10, and PSA >20 ng/mL).
Results Overall survival was 95% (211 of 222) and cause-specific survival was 98.6% (219 of 222). The general clinical control (GCC) rate was 93% (153 of 165). The GCC rate for low-, intermediate-, and high-risk groups was 100%, 97%, and 81%, respectively ($\chi^2 = 6.02$, $P = 0.0003$). The nadir plus 2 ng/mL ($\chi^2 = 4.49$, $P = 0.0007$) and two rises >0.5 ng/mL ($\chi^2 = 5.54$, $P = 0.06$) definitions were better predictors of general clinical failure (GCF) than ASTRO. The nadir plus 2 ng/mL PSA – progression-free survival (PSA-PFS) rate was 100%, 95%, and 87% for the low-, intermediate-, and high-risk groups, respectively. Overall ASTRO PSA-PFS rate was 88%. RTOG Grade 3 and 4 genito-urinary toxicity was 4% and 1.4%, respectively. RTOG Grade 3 and 4 gastro-intestinal toxicity was 2.6% and 0%, respectively. Erectile preservation was 63%.
Conclusion PDR-BT plus EBRT is effective in treating localised prostate cancer, with acceptable toxicity. The nadir plus 2 ng/mL and two rises ≥0.5 ng/mL definitions of PSA-PFS correlated better with GCF than ASTRO.

SO013P
RNA LOADING OF BDCA-1+ BLOOD DENDRITIC CELLS FOR FUTURE APPLICATION IN CLINICAL IMMUNOTHERAPY

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Purpose Current tumour immunotherapy regimens utilising blood dendritic cells (BDC) have been based upon loading the BDC with tumour associated lysates or peptides based upon the HLA-A*0201 subtype. Use of peptides limits the application to patients who are HLA-A*0201 positive, who comprise only 40% of the Australian population. Use of RNA loading as the moiety of tumour antigen delivery bypasses this limitation, enabling the therapy to be available to potentially 100% of the population.
Methodology Parameters for RNA loading of the BDCA-1+, immunomagnetically selected, blood dendritic cell via electroporation were optimised. Optimum voltage and capacitance settings, temperature of cell recovery, RNA concentration, timing of electroporation following BDC isolation and the effect of electroporation on the maturation of BDC were assessed via overall cell viability and success of RNA transfection.
Results Optimum electroporation settings of 250V and 100% at room temperature demonstrated superior RNA transfection and survival of the BDC. Electroporation facilitated enhanced maturation of the BDC, an important requirement for stimulation of cytotoxic immune responses toward tumour cells.
Conclusions Successful RNA transfection of the BDCA-1+ blood dendritic cell has been optimised via the process of electroporation. This process additionally facilitates BDC maturation, enhancing their potent immunogenic properties. These findings form the basis for further investigation into RNA-based BDC immunotherapy, with likely future clinical applications in tumour therapy.

SO014P
BCG THERAPY FOR BLADDER CARCINOMA: SYMPTOM SEVERITY IS NOT PREDICTIVE OF SUCCESS

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Introduction The severity of symptoms experienced during intravesical BCG treatment for transitional cell carcinoma of the bladder has been believed to be a predictor of treatment success. This is based on the theory that as intravesical BCG is a form of immunotherapy, a greater host response to the BCG organism reflects greater T-lymphocyte mediated destruction of cancer cells. Previous smaller studies have shown some correlation between symptoms and effect; others have not addressed the shorter 6-week regime that is commonly employed as standard therapy.
Methods 93 patients were identified as having commenced the 6-week regime of intravesical BCG treatment for bladder cancer. Individual symptoms experienced by patients during treatment were identified and scored according to the National Cancer Institute toxicity grading system. Outcome measures included time to first recurrence, average recurrence interval, recurrence free survival and overall survival. Correlation was sought between symptom severity and all outcome measures.
Results No significant correlation was found between any outcome measure and symptom severity (Pearson's correlation, P values ranged from 0.2 to 0.5). There was no trend towards a positive correlation with either combined symptom scores or by analysis of individual symptoms.
Conclusion Symptom severity is not a useful predictor of success of BCG therapy. Clinicians should not rely on this factor to guide management, nor to identify those patients who would benefit from immediate radical surgery rather than persevering with BCG treatment.

SO015P
LIVER RESECTION IN OCTOGENARIANS

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Purpose Liver resections are increasingly being performed safely in elderly patients. There are no present reports of the operative safety of liver resection in octogenarians who represent a rapidly increasing segment of the population. The purpose of this study was to analyse the results of liver resection in octogenarians over a 5 year period within a tertiary referral liver surgery unit.
Methodology Prospective data collection and analysis of octogenarians having liver resection between 1999 and 2004. Retrospective detailed case note analysis was performed to determine peri-operative mortality and morbidity. Comparisons were made to other large series of liver resection in younger patient cohorts. The primary outcome measure was 30 day mortality and secondarily a detailed analysis of post-operative complications was performed.
Results A total of 15 octogenarians (median age 82) were identified from the database. There was 1 peri-operative mortality. The remaining patients were all alive at 1, 3 and 6 month follow-ups. The commonest indication for liver resection was metastatic colorectal cancer (n = 11). The median operating time was 142.5 minutes and 67% of patients (n = 10) had portal clamping for a median of 21.5 minutes. The median length of hospitalisation was 12 days with an ICU stay of 1 day. 27% (n = 4) had major surgical complications. A further 20% (n = 3) had exacerbations of pre-existing comorbidities.
Conclusion Liver resection can be performed safely in octogenarians within a tertiary referral unit. It has a low mortality and an acceptable level of morbidity in carefully selected octogenarians.

SO016P
THE EFFECTS OF SURGICAL MARGIN AND EDGE CRYOTHERAPY AFTER LIVER RESECTION FOR COLORECTAL LIVER METASTASES

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Introduction Surgical dogma dictates that a 1 cm margin is the minimally acceptable margin for liver resections. Involved surgical marginal has been stated as an adverse prognostic factor after resection of hepatic colorectal metastases. A recent paper has shown that the width of a negative surgical margin has no influence on survival or recurrence risk. We also believe that liver parenchymal transection technique is important as the ultrasonic surgical aspirator (CUSA) leads to a 1 cm destruction along the transection plane. We would like to assess the benefit of edge ablation on survival in patients with macroscopically involved surgical margins.
Method Between Jan 1990 to Dec 2005, 605 patients underwent liver resections and or ablations for colorectal cancer liver metastases. All liver resection were performed using the CUSA transection method. Marginal status data was available for 394 patients. Patient demographics, pathological margins, number of lesions recurrence and survival data were collected and analysed.
Results 174 patients had clear margins (>1 mm R0), 100 patients had mircroscopically involved (<1 mm R1) margins but were macroscopically clear, 120 had involved margins diagnosed at time of surgery (R2) and had the resection edge ablated with cryotherapy. After a median follow-up of 60 months, the 5-year survival rates were 40% for R0, 30% for R1 and 30% for R2.
Conclusion Even in the presence of a macroscopically involved margin, edge ablation can results in the same 5-year survival as a microscopically involved margin. However, a negative surgical margin, whatever the width, should be aimed for.

SO017P
LIPIODOL I131 AFTER SURGERY FOR HEPATOCELLULAR CARCINOMA: EARLY ADMINISTRATION IMPROVES SURVIVAL

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Introduction The usage of lipiodol I131 in an adjuvant setting was first published in a small randomised controlled trial in 1999. We have previously used lipiodol I131 in the treatment setting, with patients given radioactive iodine when tumours recurred within the remnant liver after curative resection that were not amenable to re-section or ablation.
Methods Thirty four patients (19 in the adjuvant group and 15 in the treatment group) were identified to have had lipiodol I131 after potentially curative surgical resection. There were eleven (58%) recurrences in the adjuvant group and as expected all patients had recurrence in the treatment group.

Results The overall median survival was 41.1 months with a 5-year survival of 38%. The median disease free survival was 12 months, with a 5-year disease free survival of 25%.

The median survival for the adjuvant group was 71.8 months and for the treatment group was 27.3 months ($P = 0.04$). The 5-year survival was 59% in the adjuvant group. The 5-year survival in the treatment group was 21%. The median disease free survival for the adjuvant group was 40.7 months and for the treatment group was 7.1 months ($P = 0.007$). The 5-year recurrence free survival was 48% in the adjuvant group. The 5-year recurrence free survival in the treatment group was 7%.

Conclusion Lipiodol I131 has been shown to be relatively safe with no significant toxic side effects. Our phase II data confirms the benefitical effects of Lipiodol I131.

SO018P
PORTAL CAVAL NODAL INVOLVEMENT MAY NOT BE A CONTRAINDICATION TO RESECTION OF COLORECTAL LIVER METASTASES

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Introduction The presence of extra hepatic disease has long been considered a contra-indication to liver resection for colorectal cancer metastases. This has recently been challenged by a French Unit, who reported on 5 year survival rates of 28% in patients with resectable extra hepatic disease. Importantly, there were 12 patients had involved portocaval node, with a 5-year survival of 33%. A question that has not been addressed is – is there a survival benefit in resecting patients with portocaval node involvement?

Method Between 1990 and 2004, 460 liver resections were performed for colorectal cancer liver metastases at the St George Hospital Liver Unit. Forty-nine patients had liver resection and ablation or resection of their extra hepatic disease. There were also 20 patients with potentially resectable liver metastases but were not resected because of portocaval node involvement. During the same period, 29 patients had liver and portocaval node resection for metastatic colorectal cancer.

The overall 5-year survival of patients with extra hepatic disease that have undergone a liver resection was 17%. The median survival for the resection group (in patients with involved portocaval lymph node) was 30 months, with a 3 year survival of 17%. The median survival for the non-resection group was 16 months, with a 3-year survival of 7%.

Conclusion Liver resection in the presence of portocaval nodal involvement shows a significant survival benefit over systemic and regional chemotherapy alone. Five year survival of 17% can be achieved in patients undergoing a liver resection with resectable or ablatable extra hepatic disease.

SO019P
CHANGE OF DIAMETER OF LIVER METASTASES FROM COLORECTAL CARCINOMA IN THE WAITING PERIOD

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Purpose We have experienced increased waiting times for surgery of liver metastases. We sought to determine if there were measurable changes in diameter between time of imaging and operation.

Methodology A retrospective analysis of our database showed a total of 80 operations were performed for colorectal liver metastases in 2004 and part of 2005. The pre-operative diameter of the largest tumour was determined by Angio-CT. Histology reports were then used to determine the corresponding tumour size at operation. We then calculated the difference and expressed it as a percentage growth. We determined the time interval between date of Angio-CT and operation date. Patients were then grouped into those who had waited less than two months and those who had waited greater than two months. A t-test was then performed to determine statistical significance.

Results From the database of 80 operations, 48 cases were eligible for the study. The percentage change in diameter in patients varied between −25 and +220%.

Our study found on average tumours operated on at a 2 months or more grew by an additional 15.14 %+/−16.57 (95% c.i. −18.23 to 48.52) as compared to those operated on under 2 months. However this result was not statistically significant ($P = 0.365$). Tumours initially less than 30 mm on Angio-CT grew significantly more than tumours initially greater than 30 mm ($P = 0.0174$).

Conclusions Our study shows that measurable changes occur in many patients between listing and surgery and the change of size is significantly greater in smaller lesions.

SO020P
THE DURABILITY OF TREATMENT MODALITIES IN THE PALLIATION OF MALIGNANT DYSPHAGIA

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Purpose Malignant dysphagia is a distressing symptom that significantly interferes with a patient's quality of life and nutritional status. It has been argued that oesophageal cancer is incurable at presentation in more than 90% of cases, and oesophagectomy can provide effective relief of dysphagia and prevent future symptoms of bleeding, obstruction or perforation. This retrospective study was undertaken to compare the durability of treatment modalities in the palliation of dysphagia secondary to oesophageal carcinoma.

Methodology Data was collected from medical records for 91 patients diagnosed with oesophageal carcinoma in the Royal Perth Hospital between 1996 and 2002. Variables included patient demographics, date of diagnosis, date, cancer type, cancer site, TNM stage, intervention type, intervention date and status at last follow-up. Four main treatment groups were identified: Group 1 (Ivor-Lewis operation with neoadjuvant chemoradiotherapy, $n = 26$), Group 2 (Ivor-Lewis alone, $n = 10$), Group 3 (chemoradiotherapy alone, $n = 32$) and Group 4 (metallic stent, $n = 6$). The variables were analysed using SPSS.

Results Fewer patients required subsequent intervention in the surgical versus non-operative group (27.8% vs 58.2%). When subsequent treatment was needed, the surgical group had a higher mean number of interventions (mainly dilatation of strictures) although this difference was not statistically significant (Z-score = −0.588).

Conclusion We conclude that surgery offers more durable palliation for malignant dysphagia than chemoradiotherapy or stenting. However, oesophagectomy is invasive and carries high initial morbidity and potential peri-operative mortality risk.

SO021P
EFFICACY OF 2-COMPONENT FIBRIN SEALANT SPRAY IN CONTROLLING FLUID-DRAINAGE FROM RAW LIVER RESECTION SURFACE AFTER ELECTIVE LIVER RESECTION – A RANDOMIZED STUDY

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Purpose RCT studying fibrin sealant spray control of post-operative fluid/bile drainage from CUSA liver resection surface post-liver resection vs untreated control patients.

Methodology This study has involved 47 liver-resection patients in total, 4 with benign and 43 with malignant lesions. Patients were randomized utilising a software assisted method at time of CUSA liver resection into treatment (1, $n = 28$) and non-treatment (2, $n = 19$) groups. 4–5 ml Tisseel Duo (Baxter) spray was applied after macroscopic hemostasis and biliostasis. Drain/s were inserted around resection margin. Primary outcome measures included fluid drainage (expressed in ml/cm2), colour of drainage fluid (bilous, hemoserous), abdominal complications, intervention and duration of abdominal drainage.

Results Drainage per unit area was 4.9 ± 4.2 ml/cm^2 for group 1 and 11.7 ± 5.7 ml/cm^2 for group 2 ($P = 0.02$). 3 patients in group 1 and 5 patients in group 2 developed clinically significant fluid collections requiring CT evaluation. Of these only 2 of 3 patients in group 1 but all 5 in group 2 required radiological drainage. 2 of 3 patients in group 1 and 3 of 5 patients in group 2 showed macroscopic bile-stained fluid, one of which developed infected loculations requiring an 18-day hospital stay. Mean duration of drainage was 5.5 ± 3.5 days (in group 1 and 7.5 ± 3.5 days in group 2 ($P = 0.07$).

Conclusions There is a significant decrease in post-operative fluid and bile drainage per unit area using fibrin-sealant spray in CUSA liver resections.

SO022P
THE ROLE OF ABDOMINAL RESECTIONAL SURGERY IN METASTATIC MELANOMA

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Purpose Melanoma is the commonest malignancy to metastasise to the gastrointestinal tract. With recent advances in radiological imaging, increasing numbers of asymptomatic patients with abdominal melanoma metastases are being seen. We reviewed our experience to determine the role of resectional surgery in metastatic melanoma to the abdomen.
Method An observational study of 25 patients at the Austin Hospital from 1997 to 2005.
Results The median survival after abdominal surgery was 8.3 (range 0.4–41.1) months. Eight of the 25 patients remain alive with three of these patients currently disease free. Fourteen patients who underwent resection with curative intent (extra-abdominal disease absent or controlled and complete macroscopic clearance of abdominal disease) had improved survival compared with 11 patients who underwent palliative resection (12 month survival 89% vs 10%, respectively, $P < 0.0001$). Survival was also superior in patients with up to two abdominal tumour deposits compared with more than two ($P < 0.0001$) and in patients with a serum albumin of at least 35 g/dl compared with less than 35 g/dl ($P = 0.0031$). Intent of surgery (curative vs palliative) was the only factor significant on multivariate analysis ($P = 0.001$, proportional hazards regression). Of patients with pre-operative symptoms, 87% had resolution of these symptoms. Overall operative morbidity was 12% and 30-day mortality was 4%.
Conclusions In a highly selected group of patients with intra-abdominal melanoma metastases, resection of intra-abdominal metastases resulted in prolonged survival compared with patients who underwent palliative resection. Those who underwent palliative resection had good relief of symptoms with minimal morbidity.

SO023P
MERKEL CELL CARCINOMA: A RETROSPECTIVE REVIEW

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Background Merkel Cell Carcinoma is a rare malignant neuroendocrine tumor of skin.
Objective To gain a better understanding of the clinical behaviour of this tumour including risk factors, current treatment modalities, recurrence and mortality rates.

Design and setting: Retrospective review of clinical notes of patients diagnosed with Merkel Cell Carcinoma within the Auckland region between 1992 and 2005.
Results 62 cases were identified and 93% of European descent. The median age was 77 years. The male to female ratio was 2:1. Forty-five percent had primary disease affecting the head and neck. Other skin cancers were documented in 50%. Twenty-six percent had documented distant metastases at the time of diagnosis. Twenty-three had excision only with half developing recurrence. Addition of radiotherapy to local excision reduced recurrence to 33% in 12 patients, while excision + node dissection and radiotherapy used in 7 patients, resulted in one recurrence only. A total of 60% patients have died but only a third of deaths were attributable to Merkel Cell Carcinoma with an average of 25 months from diagnosis to death. Those who had nodal disease 60% died due to metastasis, 20% died of other causes.
Conclusions Merkle cell tumour is an aggressive skin tumor mostly affecting the head and neck of elderly, with almost one third having metastatic disease at time of diagnosis. Local excision alone was complicated by high recurrence while nodal dissection with radiotherapy was associated with better results. Our results compare favourably with the literature.

SO024P
HOW MANY SOFT TISSUE SARCOMAS DO WE SEE? – AN EXPERIENCE IN A DISTRICT HOSPITAL

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Purpose To review the Soft tissue Sarcoma (STS) presentations between 1988 and 2003 in a district hospital and compare our experience with the overall experience in NSW and the literature thus far on the topic. We also aimed to consider treatment outcomes and whether it was necessary for all cases to be referred to a tertiary centre.
Methods The case records of all patients treated at the hospital for soft-tissue sarcomas for the past 15 years (1988–2003) were reviewed. The listings were derived using the systematized nomenclature of medicine (SNOMED).
Results There were 31 cases of soft tissue sarcoma treated in the hospital over the 15 year period.

Leiomyosarcomas were the most common (32.3%) of STS, followed by Liposarcomas (16.1%), Dermatofibrosarcomas (12.9%), Kaposis sarcoma (9.7%), Malignant cystosarcoma Phylloides tumor (6.5%) and the remaining 7 subtypes accounting for 3.2% each. The recurrence rate was 22.5%. There was 1 recorded death from STS in our experience for the period considered.

There was congruence between our experience and the expectations from the literature for, the relative prevalence of the subtypes of STS, the age of occurrence, recurrence rates, location and the predominant gender affected in all the subtypes of STS's treated.
Conclusion Soft tissue sarcomas are rare. The district hospital is a primary drainage centre for the surrounding area and may therefore reflect the prevalence of these tumors in the sample population served by the hospital. Selected cases of STS may be treated optimally at a district hospital level. Further follow up studies are however needed in a district hospital to better determine treatment outcomes in this setting.

SO025P
LONG TERM RESULTS OF HYPERTHERMIC ISOLATED LIMB PERFUSION FOR MELANOMA: A REFLECTION OF TUMOUR BIOLOGY

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Purpose To review the long-term duration of limb tumour complete remission (CR) and patient survival following therapeutic hyperthermic isolated limb perfusion (ILP) with cytotoxic drugs for melanoma.
Methodology A retrospective case series of 124 ILPs performed in 111 patients.
Results There were 120 assessable ILPs. Patient staging (MD Anderson system) was Stage II 11.7%, Stage IIIA 44.2%, Stage IIIAB 33.3% and Stage IV 10.8%. CR was initially attained after 83 ILPs (69.2%) and partial remission (PR) after 19 ILPs (15.8%). Limb CR was maintained in 28 (33.7%) of the 83 cases. Disease recurred in the perfused limb after an initial CR in the remaining 55 cases (median time to recurrence 11 months); in 19 of these cases, the limb was disease-free at last follow-up after further locoregional treatment. A long-term CR was achieved, with or without further treatment, in 47 (56.6%) of the 83 cases in which an initial CR had occurred (mean follow-up 97 months, median 65 months). There was no significant difference in long-term local remission for Stage IIIA and IIIAB patients. 5YS for those who had a partial or no response to ILP was 7%. 10YS for those who had a long-term CR was 49%.
Conclusions ILP, with or without further locoregional treatment, achieved long-term control of recurrent and metastatic limb disease in 56.6% of cases in which an initial CR was achieved. A complete response to ILP was a positive prognostic indicator for survival, probably reflecting more favorable tumour biology in this subset of patients.

SO026P
GASTRIC NEOPLASIA IN CDH-1 +/– MICE USING N-METHYL-N-NITROSOUREA CARCINOGENESIS: CLOSER TOWARDS A MURINE MODEL OF EARLY HEREDITARY DIFFUSE GASTRIC CANCER?

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Purpose Germline mutations in the CDH-1/E-cadherin gene cause Hereditary Diffuse Gastric Cancer (HDGC). There is no animal model of HDGC. Our pilot study (10 mice/group) showed CDH-1 +/– mice given the carcinogen N-methyl-N-nitrosourea (MNU) develop gastric lesions similar to early signet ring cell (SRC) carcinoma in HDGC (Gastroenterology 2004; 126:spp2:T989). Unexpected early deaths affected statistical significance; therefore we repeated the study with larger group sizes.
Methods Following ethical approval, 5-week-old CDH-1 +/– and wildtype +/+ mice were given drinking water alone or with MNU 120 ppm, for 5 alternate weeks, then standard feed/water until autopsy at 40 weeks. One group of +/– mice were autopsied at 80 weeks (no MNU). Stomachs were sliced into 6 sections for histology. Lesions were classified using consensus definitions for mouse intestinal tumours (Gastroenterology 2003; 124:762–77). Immunohistochemistry was performed using antigens to E-cadherin and intact Adherens Junctions (Lin-7).
Results Of the 20 CDH-1 +/– mice on water, one developed a SRC lesion (no early deaths); 11/25 +/– mice on MNU developed SRC lesions (excludes 5 early deaths) compared to 1/23 wildtype mice (excludes 1 early death) {$P < 0.05$}. In the mice autopsied at 80 weeks (no MNU), 3/13 (23%) developed SRC lesions. Immunohistochemistry revealed murine SRC lesions do not have intact adherens junctions.
Conclusions Significantly more SRC lesions were observed in CDH-1 +/– than +/+ mice using MNU carcinogenesis. Multifocal lesions were rare. Around 20% of CDH-1 +/– mice may develop SRC lesions spontaneously but only when relatively old (80 weeks). These factors confer practical limitations on the use of this model.

SO027P
PROGNOSTIC SIGNIFICANCE OF SENTINEL NODE BIOPSY IN MELANOMA FOR DIFFERENT NODE FIELDS

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Purpose To evaluate the prognostic significance of sentinel node biopsy (SNB) for different node fields in melanoma.
Methodology The Sydney Melanoma Unit (SMU) database was used to identify all patients undergoing SNB for melanoma between 1992 and 2004.
Inclusion criteria: single primary melanoma, single sentinel node field, pathology reviewed at the SMU and minimum 6 months follow up.
Results 11 784 primary melanomas were treated during the study period, including 2764 SNBs, of which 1289 (neck 203, axilla 592, groin 460) met the study criteria.
Median follow up was 33.6 months.
The 8% failure rate to identify SNs in the head and neck was significantly higher than other nodal fields.
There was no statistically significant difference in the SN status (positive or negative) for the three node fields.
On multivariate analysis, SN status was the single most important prognostic feature in melanoma.
Conclusions The prognosis of SNB status is the same for different node fields, despite the technical difficulties of SNB in the Head and Neck.

SO028P
DECOMPRESSION OF MALIGNANT URETERIC OBSTRUCTION: OUTCOME AFTER INTERVENTION

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Purpose To evaluate overall survival (OS), prognostic factors, technical failure, complication rate and time spent in hospital in patients who underwent decompression of malignant ureteric obstruction (MUO).
Methodology Case notes of 102 patients who underwent decompression for MUO over the period 1991–2003 from hospital case code data was retrospectively analyzed. Data on OS, prognostic factors, technical failure and complications and days of hospitalization post-decompression were examined.
Results The median age of patients was 62 years. Median OS was 6.8 months (95% CI 4.8–9.3 months) and the OS rate at 12 months was 29% (95% CI: 21–39%). Independent prognostic factors found for inferior OS were presence of metastases ($P = 0.029$), diagnosis of MUO in previously established malignancy ($P = 0.044$) and bilateral obstruction with Cr > 0.40 mmol/L ($P = 0.009$).
Initial decompression of MUO failed in 5% of patients (95% CI 2–12%). Complications, were experienced by 53% of patients (95% CI 43–63%) and were more likely to occur if associated with post procedure therapy ($P = 0.03$).
The median percentage of remaining lifetime spent in hospital was 17.4% (range 0.21–100%). Patients presenting with symptoms ($P = 0.012$), having PCN as their initial procedure ($P = 0.043$) and having no post procedure therapy ($P = 0.01$) spent more time in hospital.
Conclusions The OS of patients with MUO remains poor. Prognostic factors for decreased OS have been identified. Technical success of decompression has improved, however, the complication rate is still high. These issues should be incorporated into discussion of management plans with patients and their families.

SO029P
SO-CALLED MALIGNANT BLUE NAEVUS HAS A SIMILAR PROGNOSIS TO OTHER SUBTYPES OF MELANOMA. EXPERIENCE OF 21 PATIENTS FROM A SINGLE INSTITUTION

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Purpose Melanoma arising in association with a pre-existing blue naevus or melanoma resembling a blue naevus has been termed malignant blue naevus (MBN). MBN is a rare but aggressive cutaneous tumour that reportedly has a predilection to occur on the scalp. The objective of this study was to provide a detailed analysis of the clinical features, treatment outcomes, and prognosis of the largest series of patients reported to date.
Methodology Information was obtained from the records of 21 patients diagnosed with MBN at the Sydney Melanoma Unit (SMU) from 1978 to 2003. Their clinical and pathological features were reviewed.
Results Median follow up was 30 months (range 4 to 304).
The median patient age was 40 years (range 22–71) and 70% were male.
Median Breslow thickness was 5.2 mm (range 1.2–15), of which 95% were Clark 4/5. Ulceration was present in 14% of cases, and 24% were node positive.
The prognosis of MBN was the same as other subtypes of melanoma when compared in a matched pair analysis based on thickness, ulceration and nodal status.
Conclusions Although MBN has been reported to occur predominantly on the scalp, we found that it has an even body site distribution, and occurs more commonly in males.
MBN tends to present at a later stage (thicker primary) than other histological subtypes of melanoma but has a similar prognosis and comparable metastatic pattern.
MBN should be treated the same as any other melanoma variant based on primary tumour characteristics and sentinel node status.

SO030P
THE MANAGEMENT OF NECROTISING ENTEROCOLITIS FOLLOWING CHEMOTHERAPY: FIVE YEAR FOLLOW UP FROM A SINGLE INSTITUTION

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Purpose Neutropaenic enterocolitis (NEC) is a rare but life threatening complication occurring following chemotherapy for haematologic and solid malignancies. Most reports in the literature consist of single cases or small series. A retrospective review was performed to assess the management and outcome of patients with NEC.
Methods A retrospective review of the medical records database between January 1999 and March 2004 was performed for hospital admissions with a diagnosis of NEC or febrile neutropaenia. Patients were included if they had an episode of neutropaenia following a recent course of chemotherapy, had clinical symptoms and a CT confirming the diagnosis of NEC or had NEC confirmed operatively. Patients were followed until they recovered from their illness or died.
Results Over a 63 month period there were 48 cases of NEC in 46 patients (27 females & 19 males, mean age 53 years). 47 cases were managed conservatively with one case requiring a laparotomy. 81% had haematologic malignancies with ten patients having stem cell transplants. There were nine deaths, however none were due to a gastrointestinal complication. Overall 46% of patients had positive cultures however 78% of patients who died had positive cultures. Two patients had gastrointestinal perforations that were successfully managed conservatively. 59% had a subsequent course of chemotherapy with 4% having a second episode of NEC.
Conclusion Although NEC has a high mortality no case died as a result of their gastrointestinal disease. An aggressive conservative approach is possible however each case must be managed individually and surgery used when clinically indicated.

SO031P
ONCOLOGICAL OUTCOMES AFTER RESECTION AND ENDOPROSTHETIC RECONSTRUCTION FOR BONE AND SOFT TISSUE TUMOURS ABOUT THE KNEE: THE ST. VINCENT'S HOSPITAL EXPERIENCE

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Introduction Limb salvage surgery for bone and soft tissue tumours of the extremity has dramatically evolved over the last 2–3 decades. Since the advent of effective neo/adjuvant chemotherapy and improvements in surgical technique, the large majority of patients that present with tumours arising about the knee undergo successful resection and endoprosthetic reconstruction. This study reviews the oncological outcomes following such surgery.
Methods A retrospective analysis was conducted of all patients that presented to St. Vincent's Hospital, Melbourne between 1996 and 2005 that underwent resection and endoprosthetic reconstructions for tumours arising around the knee.
Results Thirty-two consecutive cases, consisting of seventeen males and fifteen females, were reviewed with a median follow-up of 14 months (range, 0–96). Median age was 33 years (range, 15–79). Tumour types included 25 primary malignancies (78%), 5 metastatic lesions (16%), and 2 benign lesions (6%). Resection margin were clear in 96.9% of cases. At latest follow up, two patients (6.3%) has died of metastatic disease. Five patients (5.6%) with initially non-metastatic disease went on to develop metastases. Fifteen patients (46.9%) had documented complications, with eight patients developing significant complications. There were three prosthetic revisions, two patients developed non-resolving nerve palsies, and there was one infection and one periprosthetic fracture. One patient subsequently had an amputation of disease recurrence.
Conclusion From this study we can conclude that resection and endoprosthetic reconstruction of the knee joint can be performed successfully with a relatively low incidence of disease recurrence and complication.

SO032P
WHO CARES IF IT'S HOT AND BLUE – SENTINEL LYMPH NODE CHARACTERISTICS IN MELANOMA STAGING

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Purpose To examine the characteristics of sentinel lymph nodes resected for staging of primary melanoma at Peter MacCallum Cancer Centre, and determine clinicopathologic characteristics that would predict the likelihood of metastatic involvement.
Methodology A retrospective review of all patients at Peter MacCallum Cancer Centre who underwent sentinel lymphadenectomy for melanoma from 1998–2005 was performed. Data on the characteristics of the patients, primary melanoma and all resected lymph nodes were analysed.
Results A total of 355 sentinel and 39 non-sentinel lymph nodes were resected from 137 patients. There were 24 sentinel nodes showing metastatic carcinoma in a total of 20 patients. Chi-squared & independent t-tests were used for univariate analysis. In those patients with nodal involvement, there was a significant association between absolute node size and the likelihood of a sentinel lymph node being positive. Being the node with the highest relative radioactivity was not a statistically significant variable. The relationship between the number of nodes resected and the likelihood of nodal involvement was not significant. The sensitivity for those nodes being classed as Hot, Blue, or Hot + Blue was 91.7%, 7.7% and 54.3% respectively for nodal involvement. Specificities of these characteristics were 10.9%, 95.8% and 32.2% respectively.
Conclusions There are several clinical characteristics of sentinel lymph nodes that predict their involvement with metastatic melanoma.