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The incidence of pseudotumour in metal on metal hip resurfacing and the results of a screening tool for patient recall

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Aim: To assess our department's incidence and prevalence of pseudotumours in metal on metal (MoM) hip resurfacing and explore the efficacy of a simple screening tool in recalling patients for further investigation and diagnosis.

Method: 1102 patients have undergone a MoM resurfacing at our institute over a 9-year period; all were sent a postal screening questionnaire that was designed with recall triggers.

Results: 719 of 1102 replied (65% responders)82 of 719 fitted criteria for recall to clinic (11% recall rate)70 of 82 attended clinic (85% attendance) with 11 failing to attend and 1 declining to do so. 25 of the 70 had pseudotumour confirmed radiographically (36%).A total 22 of 70 hips (31%) in the recall group have been revised. Out of the 719 patients 38 had revision surgery (5%). The ages at surgery and time to follow-up for those diagnosed with a pseudotumour were similar for both sexes, median age: 44 years (range 32 to 54) and median follow-up time post-surgery of just over 5 years (63 months, range 22 to 110). Of those recalled, there was no significant difference in the hip scores between those who were then diagnosed with a pseudotumour and those who were not. Blood ion levels of chromium and cobalt were not sensitive or specific markers for pseudotumour (64% and 67% respectively). We did not observe a significant correlation between radiographically measured tumour volume and blood ion level. Nor was there a significant correlation between hip score and blood ion level in either the positive tumour group or those with either normal radiological appearances or an effusion.

Conclusion: The issue of pseudotumour development post-MoM resurfacing and its sequelae are proving to be significant with a revision rate of 5% at present. Our basic screening test demonstrated that a third of those patients recalled had already developed a tumour and almost a quarter of the group may be at high risk of doing so based on radiographic and blood markers.

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Placement of sternal wires in median sternotomy closure

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Introduction: Dehiscence of median sternotomy wounds remains a clinical problem. Sternal forces can be calculated by thin shell theory and this data may be used to guide optimal wire placement in the sternum during median sternotomy wiring.

Aim: An ellipsoid pressure vessel model of sternal forces is presented together with high resolution CT mapping of the sternum in order to allow location of optimal wire placement in the sternum.

Methodology: Sternal forces were calculated by computational simulation using an ellipsoid chest wall model. Sternal forces were correlated with different sternal thicknesses and radio-density as measured by computerized tomography (CT) scans of the sternum. A comparison of alternative placement of sternal wires, located either at the levels of the costal cartilages or the intercostal spaces, was made.

Results: The sternum is thickened where the costal cartilages attach to the sternum. CT data showed that the thickness of the sternal body was on average 30% thicker ($p<0.001$) and 50% more radiodense ($p<0.001$) at the costal cartilage levels when compared with intercostal space levels. There is a gradual increase in calculated bone stress levels with lower rib level ($p<0.001$). However localized bone stress levels show a 23% decrease of average sternal stress ($p=0.003$) between the level of the costal cartilages and their adjacent intercostal spaces.

Conclusion: Biomechanical modelling suggests that sternal wires should be located at the thicker, more radiodense bone present at the level of the costal cartilages instead of at the level of the intercostal spaces.

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Referrals form to the Surgical Outpatient Department – an audit

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Objective: Patients are referred to the Surgical Outpatients (SOP) Department from different specialities. The aim of the audit was to audit the quality of the referral forms sent to the SOP Department and to compare the waiting time for patients with alarm colorectal symptoms.

Methods: Referral forms sent to the breast unit, urology unit and referral forms vetted by surgical consultants were excluded. All referrals to the Surgical Outpatients Department were prospectively collected between 19th September 2011 and 19th October 2011. The set time limit for a patient to be given an appointment date was 26th October 2011. Patient demographics, referral department, reason for referrals, missing data and waiting time for SOP appointment were audited.

Results: 262 referrals to the SOP department were collected. 129 patients (49.24%) were females and 133 patients (50.76%) were males. General Practitioners (GP) referred the most patients to the SOP department (168 patients (64.12%). Illegible details/missing details about the referring department occurred in 19 patients (7.25%). Inguinal hernias (24 patients (9.16%)) and sebaceous cysts (24 patients (9.16%)) were the most common referrals. 107 patients (40.84%) had no appointment date by the end of the set time period. 9 patients (3.44%) were seen during the 4 weeks during the audit whilst 56 patients (21.37%) were given an appointment date at 271 – 300 days after being referred and 53 patients (20.23%) at 301 – 330 days after being referred. There were 21 patients with alarm symptoms of colorectal malignancy. 1 patient (4.74%) was seen in the 4 weeks of the audit. 13 patients (61.90%) had no appointment date given. 7 patients (33%) were given an appointment between 270 and 330 days from referral. 9.54% of the referral forms were deemed to be illegible. No signatures were found in 6 referral forms (2.29%). 35 referrals (13.36%) had no doctor's name written/printed and 33 referrals (14.54%) had an illegible doctor's name. The doctor's medical council number was 98 referrals (37.40%).

Conclusions: The audit showed that there is missing data on the referral forms sent to the SOP Department. There is a prolonged length of time to see patients with alarm colorectal symptoms at the SOP Department when compared to international recommendations. To improve the referral system, the referral form may need to be changed and all SOP referrals need to be vetted by medical personnel.