order to know the actual role of this procedure in diagnosis and treatment of non palpable breast lesions.

Material and Methods: We retrospectively analysed 745 consecutive MWGB (years 2003–2008) at the Gynaecology Department of the Universitary Hospital "12 de Octubre" in Madrid.

Results: 18.5% of MWGB had previous core biopsy diagnosis, 81.5% had diagnostic intention (without previous core-biopsy), 2.4% confirmation of previous stereotactic diagnosis (8.7% benign, 8.7% atypical hyperplasia (AH), 1.4% in situ lobular carcinoma (ISLC)) and 16.1% excised carcinomas previously diagnosed by previous core biopsy.

39.5% of MWGB were invasive carcinomas, 13.6% in situ ductal carcinomas (ISDC), 1.2% microinvasive carcinomas, 2.3% ISLC, 7.5% AH and 35.6% had benign histology.

Of our MWGB we had 44.6% during years 2003–2004, 33.3% in 2005–2006 and 26.1% in 2007–2008 of benign results (p = 0.0001). Inversely, diagnosis of malignancy increased (benign lesions not excised with MWGB after diagnostic core biopsy): 2003–2004: 44.6%, 2005–2006: 54.6%, 2007–2008: 65.9%.

Without previous core biopsy in carcinomas (ISDC or invasive carcinomas) we found 51.9% affected margins, with previous core biopsy 19.5% (p = 0.0001). In 2003–2004 (no core biopsias yet) 53.6% of margins in carcinomas were affected; in 2005–2006 (beginning of core biopsies) 51.7%, and in 2007–2008 (progressive implantation of core biopsies) 28.8% (p = 0.001). Because of this, se ampliaron un 66.4% of biopsies had to be re-excised in 2003–2004, 58.35% in 2005–2006, and only 32.7% in 2007–2008 (p = 0.0001).

Conclusions: MWGB is an efficient management of non palpable breast lesions preferably after histological confirmation of malignant or premalignant breast disease. During last years diagnosis of non palpable lesions has been optimized. Core biopsies has permitted the avoidance of unnecessary surgeries (benign histologies) and the necessity of re-excisions for affected margins or planning a second surgery for sentinel node in case of invasive carcinomas.

582   Poster

Comparisons between core needle biopsy and definite surgery in estrogen receptor, progesterone receptor and human epidermal growth factor receptor 2 expressions in breast carcinoma

Y. Hsiao[1], J. Chen[2], S. Kuo[3], D. Chen[3], M. Chou[4], S. Chen[3]. [1]Institute of Medicine Chung Shan Medical University, Departments of Obstetrics and Gynecology Changhua Christian Hospital, Changhua, Taiwan; [2]University of California, Department of Biostatistics, Los Angeles, USA; [3]Changhua Christian Hospital, Comprehensive Breast Cancer Center, Changhua, Taiwan; [4]Chung Shan Medical University, Institute of Medicine, Taichung, Taiwan

Background: To evaluate immunohistochemical detection of estrogen receptor (ER), progesterone receptors (PR) and human epidermal growth factor receptor 2 (HER2) expressions in core needle biopsy and definite surgery in breast carcinoma

Material and Methods: This series is a retrospective review of 310 invasive breast cancer patients who have received core needle biopsy and definite sugery at Chnaghua Christian Hospital between January 2006 and October 2007. We compare immunohistochemical detection of ER, PR and HER2 expressions in breast carcinoma using formalin fixed resection tissue. ER, PR and HER2 expressions were scored 0, 1+, 2+, and 3+ by immunohistochemical detection. The consistency of core needle biopsy and definite surgery were compared by stratifying pathology results with the Wilcoxon Signed Ranks test.

Results: The nonparametric test (2-tailed) for comparison of core needle biopsy and definite surgery in ER, PR and HER2 expressions showed no statistically difference (p = 0.572, 0.246, 0.198). However, discrepancies of core needle biopsy and definite surgery in ER expression 0, 1+, 3+, PR expression 0, 1+, 2+, 3+ and HER2 expression 0, 2+, 3+ were shown in stratifying pathology results by the Wilcoxon Signed Ranks test (p < 0.001). HER2 expression 1+ and ER expression 2+ in core needle biopsy is consistent to definite surgery (p = 0.994, 0.808 respectively).

Conclusions: Immunohistochemical detection of estrogen receptor (ER), progesterone receptors (PR) and human epidermal growth factor receptor 2 (HER2) expressions in core needle biopsy is not strongly concordant with definite surgery in breast carcinoma.

583   Poster

Safety and accuracy of MR-guided vacuum biopsy of breast lesions visible by breast MRI alone

B. Roth[1], S. Schrading[1], A. Kowal[1], C. Kuhl[1]. [1]Radiologische Universitätsklinik Bonn, MRT, Bonn, Germany

Background: To investigate the diagnostic accuracy and safety of MR-guided vacuum biopsy in routine clinical practice.

Material and Methods: Over a 3-year-period (07–2006 through 07–2009) MR-guided vacuum assisted biopsy (VAB) was performed according to a standardized clinical protocol. The interventions were done on a 1.5 T closed bore magnet using an ATEC-system (Suros) with 9G needles. Validation of VAB results of each lesion was obtained by a careful radiological-pathological correlation; in addition, VAB histology results categorized as B3−5 underwent subsequent surgical resection, and VAB results categorized as B2 underwent follow-up MRI after 6 months. In cases of uncertain radiological-pathological concordance control MRI was done within one week after VAB. All patients were followed clinically to document local complications.

Results: 491 MR-guided vacuum biopsies were performed in 321 patients, with 170 women undergoing VAB of more than one target lesion uni- or bilaterally within one session. Age range of patients was 30−77 years (mean 53/±11). VAB histology was malignant in 185/491 (38%) cases: 55/185 invasive cancers (29.7%), 93/185 pure DCIS (50.3%), 33/185 both invasive cancer and DCIS (17.8%) and 4/185 LCIS (2.2%). In 307/491 cases (62%) benign changes were found including radial scar and ADH. Average size of target lesion was 10.4 mm with a minimal size of 3 mm. Over the entire study no false-negative VAB results were observed, i.e. no malignant lesion identified at follow up after benign VAB. In patients undergoing surgical biopsy or treatment after MR-guided VAB, the final surgical pathology result was concordant with the VAB histology in all cases. One patient (0.3%) developed a hematoma requiring surgical evacuation, no other serious adverse events were observed.

Conclusions: MR-guided VAB is an extremely accurate and safe method to biopsy even very small breast lesions visible by MRI alone. The accuracy and reliability of target tissue sampling offered by MR-guided VAB appears to be higher than that achieved by MR-guided needle localization and surgical biopsy. Accordingly, MR-guided VAB can safely replace open biopsy, thereby avoiding unnecessary surgery. This is especially important for women in BIRADS 6 situation, who require histological verification of additional lesions identified at pre-operative MRI.

584   Poster

New approach for histological diagnosis of additional breast lesions using ultrasound with magnetic resonance volume navigation and fusion imaging as reference: initial results

A. Fausto[1], G. Rizzatto[1]. [1]San Giovanni di Dio General Hospital, Diagnostic Imaging, Gorizia, Italy

Background: High percentage of benignancy of incidental and additional lesions at breast magnetic resonance (MR) guided biopsy are widely reported as well as low cost-effectiveness compared to ultrasound guided (US). Second look US seems to solve this clinical problem only in one-third of cases. Nowadays is possible to use MR volume for navigation and fusion during US exam (VNav). Purpose of this study was to evaluate this new approach to obtain lesion correlation and histology.

Materials and Methods: Fifteen consecutive patients (53±14 years, range 35−75) with additional only MR-detected lesions underwent bilateral contrast-enhanced breast MR in supine position using inflatable surface body coil. Three vitamin E pills and the corresponding drawing pen signs were used as skin reference for final alignment. Breast US and MR co-registration was manually obtained and maintained by means of a dual electromagnetic systems consisting of a magnetic transmitter positioned close to the patient and two small magnetic receivers positioned on a linear probe's bracket. Large core US guided biopsy with VNav was used for lesion sampling and carbon clip positioning. Clip-to-lesion distance at surgical pathologic examination was used as standard of reference.

Results: All twenty-two additional lesions had a correlation during US with VNav. No additional MR-guided biopsy was needed. At pathologic examination clip position distance from the lesion was reported 0.7±0.4 cm (mean±SD). Seventy-three percent of lesions (16/22) were malignant and 26% (6/22) were benign. Three out of 6 benign lesions were classified as high-risk lesions.

Conclusions: Breast US guided biopsy with VNav for only MR-detected lesions is feasible and seems to allow an accurate tool for sampling breast lesions with a strong reduction of MR guided procedures.

585   Poster

A prospective study of breast trauma presenting to a rapid-access clinic

M.A. Parvaiz[1], V. Dewan[1], S. Jaleel[1], N. Abbott[1], B. Isgar[1]. [1]New Cross Hospital, General/Breast Surgery, Wolverhampton, United Kingdom

Background: Approximately 1% of all patients present to our rapid-access breast clinic with a history of trauma and a palpable lump. The aim of this study was to determine the frequency with which the lump was directly related to trauma or was an incidental finding by the patients examining themselves post-injury.

Materials and Methods: Data was collected prospectively of all patients who presented to the rapid-access clinic with a history of trauma over a 58-month period. This included mechanism of injury, any history of immediate bruising and when discovery of the lump was made. Information regarding anti-coagulation therapy was also collected. Appropriate imaging was performed and core biopsy was only taken to confirm malignancy, benign lesions unrelated to trauma or where there was diagnostic uncertainty. Lumps related to trauma were followed-up at 3 months to ensure resolution.

Results: A total of 63 patients were seen with a history of trauma, the cause of which were falls (40%), road traffic accidents (17%), miscellaneous (17%) and those of unknown origin (26%). Biopsies were performed in 22 (35%) patients. Of these, 14 proved to be incidental findings following trauma: 8 were malignant (36%) and 6 benign (27%). The remaining results of biopsies were trauma-related with 1 haematoma (5%) and 7 diagnoses of fat necrosis (32%). The table demonstrates our findings.

	Diagnosis	Number	Anticoagulant use	
			Yes	No
Incidental	Malignant	8 (13%)	5 (16%)	27 (84%)
	Benign	24 (38%)		
Trauma related	Fat necrosis	9 (14%)	12 (39%)	19 (61%)
	Haematoma	22 (35%)		

Conclusions: 51% of patients presenting to our breast clinic in this population were found to have incidental findings highlighted as a result of their trauma. The diagnosis of the remaining 49% was directly related to trauma. These patients often presented with an earlier history of bruising and their diagnosis was confirmed radiologically. Thereby avoiding the need for a biopsy and further trauma to the area.

Those presenting with a history of trauma but no bruise and the discovery of a lump are likely to have an incidental finding. In our series, 25% of the patients in the incidental group were found to have an underlying malignancy. Therefore, in this population a complete triple assessment is required.

586   Poster

Role of axillary ultrasound in staging breast cancer – a prospective study of 417 patients in a specialist breast unit

V.R. Velchuru[1], E. Clark[2], F. Holly-Archer[2]. [1]James Paget University Hospital NHS Trust, Department of General Surgery, Great Yarmouth, United Kingdom; [2]James Paget University Hospital NHS Trust, Department of Radiology, Great Yarmouth, United Kingdom

Background: In newly diagnosed breast cancer, assessment of the axillary lymph node status is the most important component of the initial staging process, because of its impact on subsequent management and prognosis. Aim of the study was to evaluate the efficacy of Axillary Ultrasound in predicting axillary lymph node metastases and to assist in pre-operative planning in newly diagnosed breast cancer patients.

Methods: All patients with suspected breast cancer from September 2005 to March 2009 underwent Axillary ultrasound evaluation by two experienced breast radiologists. Features of malignancy were systematically assessed in all sites of the axillary lymph node groups. Patients who did not have operative intervention and who had micro-metastases on final histology were excluded from the study. Lymph node positivity on ultrasound was correlated with final histology after surgery. Routine FNAC or core biopsy of abnormal lymph nodes was not undertaken. Patients with equivocal lymph nodes were subjected to ultrasound guided biopsy in the later half of the study.

Results: Sample population was 417(n). Nine patients had micro-metastasis and were excluded. Ultrasound was positive for metastases in 79 patients, out of which 63 (80%) were positive on histology. Ultrasound was negative in 338 patients, out of which 58 were node positive on histology. Overall accuracy was 86% with ultrasound, with a specificity of 95% and sensitivity of 57%. Positive predictive value for the test was 82%. In the second half of the study, ultrasound guided biopsy was performed on equivocal lymph nodes (n = 13) which improved the overall positive predictive value in this group to 97%.

Conclusions: Axillary ultrasound is highly specific in diagnosing lymph node metastases in breast cancer, however less sensitive. A selective approach of ultrasound guided biopsy in equivocal lymph nodes definitely improves positive predictive value of the test and hence should be utilised. Axillary ultrasound has a definite role as an adjunct in staging newly diagnosed breast cancer.

587   Poster

Diagnostic and prognostic value of 18F-fluorodeoxyglucose positron emission tomography/computed tomography fusion imaging (18F-FDG PET/CT) in detecting multifocality and axillary lymph node metastasis and correlation of clinicopathologic factors in primary breast cancer

B.S. Kwak[1]. [1]Dongguk University Ilsan Hospital, Surgery, Goyang Gyeonggi, South Korea

Background: The aims of this retrospective study were to evaluate the diagnostic value of 18F-fluorodeoxyglucose positron emission tomography/computed tomography fusion imaging (^{18}F-FDG PET/CT) for the detection of multifocality and axillary lymph node metastases and would be to determine the predictive value of poor prognosis in primary breast cancer.

Materials and Methods: Fifty female patients with invasive breast cancer were recruited. They underwent ^{18}F-FDG PET/CT before surgery. The sensitivity, specificity, positive and negative predictive value (PPV, NPV) were determined and compared with other image modalities (ultrasonography, USG and magnetic resonance imaging, MRI). Also, clinicophathological correlation with the level of maximum standardized uptake values (SUV) were examined.

Results: In the detection of multifocality, the sensitivity, specificity, PPV and NPV of ^{18}F-FDG PET/CT were 75.0, 95.7, 60.0 and 97.8% and those of USG were 100.0, 89.1, 44.4, and 93.2% and those of MRI were 100.0, 85.7, 50.0, 100.0%, respectively. In the detection of axillary lymph node metastases, the sensitivity, specificity, PPV and NPV of ^{18}F-FDG PET/CT were 57.9, 100.0, 100.0 and 79.5% and those of USG were 57.9, 87.1, 73.3 and 77.1% and those of MRI were 50.0, 100.0, 100.0 and 85.7%, respectively. High maximum SUV level of primary breast cancer was significantly correlated with tumor size ($p = 0.041$), lymph node metastasis ($p = 0.038$), stage ($p = 0.002$) and high histologic grade ($p = 0.023$). However, there were no significant correlation with age, obesity, hormone receptor status, c-erbB2 overexpression and lymphovascular invasion.

Conclusions: ^{18}F-FDG PET/CT showed relatively low sensitivity and high specificity in the detection of multifocality and axillary lymph node metastases of primary breast cancer. And High level of maximum SUV would be predictive of poor prognosis, however large prospective study will be needed that ^{18}F-FDG PET/CT could be a useful tool to determine the biological characteristics of preoperative primary breast cancer.

588   Poster

Ultrasound guided fine needle aspiration cytology for axillary staging in breast cancer patients – saving time and resources

S.K. Gupta[1], S. Srivastava[1], R.C. Shukla[2], M. Kumar[3]. [1]Institute of Medical Sciences, Department of General Surgery, Varanasi, India; [2]Institute of Medical Sciences, Department of Radiology, Varanasi, India; [3]Institute of Medical Sciences, Department of Pathology, Varanasi, India

Background: Axillary nodal metastasis is one of the most important prognostic factors for breast cancer patients. The methods for detection of nodal metastases include clinical examination, sentinel node biopsy (SNB) and finally axillary lymph node dissection (ALND), the current gold standard. Clinical examination of axilla is an unreliable method due to its subjectivity. ALND is associated with significant morbidity and may be unnecessary in a large number of cases. SNB has emerged as a standard of care in clinically node negative breast cancer patients but is a time and resource intensive procedure. Axillary Ultrasound (AUS) and guided fine needle aspiration cytology (FNAC) may help in identifying a subset of patients who can proceed directly for ALND without undergoing a SNB. The aim of our study was to study the feasibility and accuracy of AUS and FNAC for detecting axillary nodal metastases.

Material and Methods: 70 previously untreated patients with histologically proven breast breast cancer on core needle biopsy were studied. All patients underwent AUS and guided FNAC followed by definitive treatment of the breast cancer including ALND. The results of AUS guided FNAC were compared with final histopathological examination of the axillary nodes to determine sensitivity, specificity and positive and negative predictive values.

Results: AUS guided FNAC and final histopathology were both positive in 41 of 70 cases (58.6%). In 14 of the 70 cases (20%) both were negative. None of the patients had a false positive AUS guided FNAC. 15 patients (21.4%) who were considered node positive on AUS guided FNAC did not show any nodal metastases subsequently on histopathology. The sensitivity and specificity of AUS guided FNAC was 73.2% and 100% respectively with a negative predictive value of 48.3% and a positive predictive value of 100%.

Conclusion: AUS guided FNAC is accurate in predicting the axillary status in over 78% of patients with breast cancer. It is a minimally invasive