

development of BM, overall survival (OS) and survival from diagnosis of BM (post-BM-OS).

Results: Overall, 4 patients presented brain lesions before starting treatment, while 42 pts (39%) developed BM during trastuzumab therapy, for an overall incidence of 43%. In about 78% of cases BM were multiple, with 18% of patients having at least one cerebellar lesion at the time of CT and/or MNR diagnosis; brain was the first site of progression for 24 patients (52%). The median time to BM was 34.2 months from the diagnosis of metastatic disease and 29.6 months from the start of trastuzumab therapy. In patients developing BM median OS was significantly lower than in those without brain lesions (40.2 months versus 65 months, $p = 0.004$). Median post-BM-OS was 23.5 months. Statistical analysis showed that neither tumor grade nor ER-negative status or adjuvant anthracycline- and/or taxane-based chemotherapy were significantly correlated with the risk of developing BM. In the multivariate analysis only younger age at diagnosis (<50 versus >50) was significantly associated with increased risk of BM ($p < 0.005$).

Conclusions: Our results confirm that BM are a common event in patients with HER2-overexpressed MBC treated with trastuzumab, even if survival after diagnosis of BM this patient population is longer than historical reports. Further investigation of risk factors for BM may help identify subgroups of patients for whom CNS imaging screening and/or prophylactic strategies should be warranted.

5110 POSTER
Triple negative breast cancer with "basal-like" phenotype: clinical features and characteristics – a retrospective analysis of cases from a tertiary center

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Background: The aim of our research was to explore the clinical features and characteristics of triple negative breast cancer with "basal-like phenotype", in order to assess the behaviour of these tumours characterised by poor prognosis, affecting young women and lacking effective hormonal or targeted therapy.

Material and Methods: We studied retrospectively 1200 tissue specimens from women with breast cancer, who were diagnosed, operated, histologically examined and treated in our hospital between 2003–2008 (6 years). Median follow up, disease free survival, overall survival, clinical and histological characteristics were recorded. Hormone receptors and Her2(n) gene expression were blindly checked twice by the same pathologist. Regression analysis and chi-square test were mainly used for statistical evaluation of the results.

Results: 113 cases were identified as triple negative breast cancers with "basal-like phenotype". These women were divided to two age groups, 19.3% <40 years old and 80.7% >40 years old, respectively. Tumor size was described >2 cm in 53.2%, <2 cm in 46.8%. Lymph nodes were positive in 32.2% and negative in 67.8%. Nuclear grade was 1 in 6.4%, 2 in 8% and 3 in 85.6%, respectively. Overall 6 year survival rate was 95.1%, 6 year disease free survival rate was 85%.

Conclusions: Triple negative breast cancers with "basal-like phenotype" are often presented as poorly differentiated tumors and are reported to appear in the younger population. Pathological identification of this specific histology needs training and diagnostic experience in order to minimize false further therapeutic interventions.

Poster presentations (Wed, 23 Sep, 14:00–17:00)

Breast cancer – Clinical early disease

5111 POSTER
Surgical treatment of Paget's disease of the breast

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Background: We evaluated clinical presentation, surgical treatment and loco-regional recurrences in patients with Paget's disease of the breast, with a special emphasis on the role of magnetic resonance imaging (MRI) and sentinel node biopsy (SNB).

Methods: The records of 58 consecutive patients with Paget's disease treated between 1995 and 2006 were reviewed.

Results: MRI was performed in 14 patients revealing ductal carcinoma in situ (DCIS) or invasive cancer in seven patients. Five of these patients were negative in conventional imaging.

Altogether 44 patients underwent mastectomy either as primary or second operation. Eighteen patients underwent SNB, 26 patients underwent axillary clearance without preceding SNB, while 14 patients had no axillary surgery.

Altogether 56 patients had underlying DCIS or invasive carcinoma. Sixteen patients had peripherally located tumours. Twenty-three patients had multifocal or multicentric tumours. Nineteen patients had axillary lymph node metastases.

Local recurrence was detected in one patient after breast conservation. One patient had axillary recurrence after negative SNB. Six patients had distant metastases, two with a concomitant recurrence in the subclavicular lymph nodes. Four patients died in breast cancer.

Conclusions: Paget's disease is frequently associated with peripheral or multicentric cancer. Mastectomy is the best treatment option for the majority of patients. MRI may be helpful when considering breast conservation or omitting axillary nodal staging, especially in patients with negative findings in conventional imaging.

5112 POSTER
Use of local anaesthetics in breast cancer surgery

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Introduction: Surgery is usually the first line of treatment in Breast Cancer. Postoperative pain is a significant factor in postoperative morbidity. Infiltration with local anaesthetics (LA) is known to reduce pain and analgesic requirement. Little evidence exists of use of LA in patients undergoing breast surgery. LAs do have uncommon but significant adverse effects. Our aim was to assess the evidence for the use of LA, optimal timing and complications of LA in breast cancer surgery.

Methods & Materials: A literature search was conducted with the words 'breast surgery', 'local anaesthetic' and several related keywords using pubmed, MESH, Cochrane database & Cochrane Review. Cosmetic breast surgery was excluded.

Results: Eight RCTs were found: 6 were carried out in mastectomy patients, 1 in patients undergoing lumpectomy and 1 for breast biopsies under GA. Two studies used topical LA while the remainder used infiltration of either bupivacaine or ropivacaine alone. The mean number of patients in each study was 71 (range 30–120). Three studied pre-incision LA Vs pre-closure, 3 looked at pre-closure Vs placebo and 2 studied pre-incision Vs placebo. No difference was found in pain scores and analgesic requirements between pre-incision and pre-closure LA. Four studies showed a reduction in pain with LA which was usually early (<6 hours post op) while one study also found a significant reduction in pain at 3 months. Two studies showed no difference between placebo and LA. There was no difference in post-operative complications. No study documented at mortality.

Conclusion: The use of LA in patients undergoing breast cancer surgery can reduce pain in the early postoperative period however the evidence to support this is not overwhelming. There is no difference between giving LA pre-incision or pre-closure. Only one study has studied the effect of LA on long term pain. More studies are needed to assess the usefulness (and safety) of using LA to control postoperative pain in breast surgery as well as to identify the optimal drug and method of administration.

5113 POSTER
Role of lymph-nodes scintigraphy in planning of radiotherapy for patients with breast cancer

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Background: to compare standard irradiation volume with radiotherapy portals designed according to results of sentinel lymph-nodes (SLN) scintigraphy.

Materials & Methods: SLN was performed in 49 primary patients with breast cancer and histological evidence of axillary SLN involvement. Instrumental examinations of nonaxillary LN ruled out macroscopic invasion. SLN visualisation was performed 0.5, 2 and 12 hours after intra-, peritumoral injection of 75–150 MBq (0.5–1 ml) of 99 mTc-nanocolloid. Standard irradiation volume in patients with tumours in external quadrants encompassed axillary (Ax) + sub-supraclavicular (SSCL) regions; in internal quadrants – Ax+SSCL+internal mammary nodes (IM).

Image guided radiotherapy of breast cancer is based on the assumption that we must irradiate only region with lymph flow from the tumour-regions containing SLN.

Results: axillar region contained SLN in all 49 patients, in 24 of them it was only region with visualised SLN. In another 26 patients we detected additional regions containing SLN: 11 (22%) tumours drained to Ax+SSCL, 8 (16%) – Ax+IM, 7 (14%) – Ax+SSCL+IM lymph-nodes.

In 13 patients with "internal tumours" 5 (38%) had SLN in the Ax region only, 5 (38%) – Ax+IM, 2 (16%) – Ax+SSCL, 1 (8%) – Ax+IM+ISSCL. After SLN visualization standard radiotherapy portals were reduced in 12/13 (92%) cases.

In 36 patients with "external tumours" 18 (50%) had SLN in the Ax region only, 3 (8%) – Ax+IM, 9 (25%) – Ax+SSCL, 6 (17%) – Ax+IM+ISSCL. After SLN visualization standard radiotherapy portals were changed in 27/36 cases (75%): in 50% – reduced, in 25% – enlarged.

Conclusion: Visualization of SLN help to optimized extent of radiation fields in 75% of patients with external and 92% – with internal tumour localization.

5114 POSTER
Is fine needle aspiration cytology useful in male breast lesions?

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Background: The purpose of this retrospective study was to determine the value of fine needle aspiration (FNA) cytology in the work-up of male breast lesions. A malignancy in the male breast is a rare pathologic finding and a challenge for the pathologist with limited cytopathologic experience. Focussed was on items as atypia and inadequacy. The results of the study were compared with the recent literature on male breast tumors since 2001.

Materials and Methods: From 1993 to 2008 8,484 FNAs of the breast were examined in our institute, 147 FNAs were from unilateral lesions of the male breast. The FNAs were classified in the categories proposed by the 1996 National Cancer Institute-sponsored conference approach: malignant, suspicious for malignancy, atypical, benign and unsatisfactory. Cytohistologic correlation was done with the data from the available histopathology records. Sensitivity, specificity, accuracy, positive and negative predictive values were calculated.

Results: In 85 cases of the 147 FNAs on male breasts histologic correlation was available. Of FNA the 16 malignant cases were classified as positive (n = 12), suspicious for malignancy (n = 2) or atypical (n = 2). Of the 35 benign lesions on histology only 3 cases were classified as atypia and one as suspicious for malignancy on FNA. In the unsatisfactory FNAs (n = 64), no carcinomas were diagnosed. The sensitivity and specificity were 100 and 89.7%, respectively. The overall accuracy was 92.7% and the positive and negative predictive values were 75 and 100%, respectively. Our results confirm the outcomes of the studies on male breast lesions in the recent literature.

Conclusions: FNA on benign breast lesions yielded many unsatisfactory cases. However, due to the good cytohistologic correlations and favourable statistic figures, we can conclude that FNA cytology is an excellent diagnostic tool in the work-up of male breast carcinomas.

5115 POSTER
Value of sentinel lymph node biopsy in ductal carcinoma in situ of the breast

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Background: Though the role of axillary staging in invasive breast cancer has been established, the value of the sentinel lymph node biopsy (SLNB) in ductal carcinoma in situ (DCIS) of the breast remains controversial.

Material and Methods: A retrospective study of the medical records of all patients with DCIS diagnosed by core-needle biopsy during a 4 year period (2005–2008) was performed. Patients with an invasive component in histology were excluded.

Results: During the 4-year study period, 1013 patients were operated for breast cancer; 44 patients had a preoperative diagnosis of DCIS (without invasive components) on core-needle biopsy. The majority of these patients were referred through the national breast cancer screening program and had no palpable masses at physical examination; mammography mostly showed pathologic clusters of microcalcifications with no ultrasonographic substrate. Definitive preoperative diagnosis of DCIS was based on examination of core-needle biopsies, mostly performed stereotactically (vacuum-assisted biopsy). All patients underwent SNLB combined with either wide local excision (57%) of the primary tumor or mastectomy (43%). On definitive pathological examination, invasive growth was found in 10 patients (23%) (Table 1). Sentinel node (SN) positivity was found

in 4 patients (9%), 3 of whom demonstrated positivity at intraoperative frozen section examination. All but 1 of these 4 SN-positive patients were ultimately proven to have invasive breast cancer. All 4 patients underwent axillary lymph node dissection (ALND); in 1 patient further axillary metastases were found.

Conclusion: In patients with an initial diagnosis of DCIS on core-needle biopsy, SNLB should be performed routinely, as a substantial portion of these patients will be upstaged to invasive breast cancer based on definitive histological examination; moreover, the 9% SN-positivity rate found in this study exceeds the 5% threshold for SNLB performance maintained in most studies and guidelines.

Table 1

	N (%)
preoperative diagnosis DCIS	44 (100%)
postoperative diagnosis	
DCIS	34 (77%)
invasive breast cancer	10 (23%)
SNLB	
negative	41 (93%)
positive	4 (9%)
ALND	
further metastases (apart from SN)	4 (9%)
	1 (25%)

5116 POSTER
Treatment of small invasive breast cancer with ultrasound-guided radiofrequency ablation followed by immediate resection

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Background: The trend towards less invasive local treatment of breast cancer has led to studies evaluating minimally invasive techniques to locally eradicate tumors. Radiofrequency ablation (RFA) is a minimally invasive thermal ablation technique. After performing an ex vivo study which resulted in complete cell death in 17/20 breast cancer lesions, an in vivo study was initiated to determine the feasibility, safety and complications of this procedure.

Materials and Methods: Postmenopausal women with a small (≤ 1.5 cm) invasive ductal carcinoma – diagnosed by core needle biopsy – were considered eligible for this study. RFA was performed in the operating room, followed by immediate resection (lumpectomy or mastectomy). A needle electrode was placed in the centre of the tumor using ultrasound guidance. Subsequently, the tumor was ablated for a period of 12 minutes. Pathologic evaluation of the specimens was performed using conventional hematoxylin-eosin (HE) staining as well as cytokeratin 8 staining and NADH diaphorase to assess cell viability.

Results: Up to now, 8 patients with an average age of 67 years (range 58–72) have been included. The mean tumor size was 14 mm (range 8–24). Histopathological examination revealed complete cell death in all lesions. One patient suffered a burn wound due to heat conduction by a localization wire placed in the tumor before the procedure, which healed completely after conservative treatment.

Conclusions: In vivo ultrasound-guided radiofrequency ablation can result in complete cell death in invasive breast cancer. To avoid skin burns the distance of the tumor to the skin should be more than 1 cm and the placement of a localization wire before the procedure should be avoided.

5117 POSTER
Are lymphogenic micrometastases in breast cancer a prelude to macrometastases?

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Background: The increased observation of lymph node micrometastases in breast cancer patients since the introduction of the sentinel lymph node (SLN) procedure offers an opportunity to study the development of metastatic disease within a lymph node.