changed to IDC after surgery, the pre-operative core biopsy specimens were reviewed.

Results: Of 160 pre-operative core biopsies, 17 (10.6%) showed DCIS, 110 IDC, 20 lobular invasive carcinoma and 16 had other cancers. The final pathological diagnoses were: DCIS 13 (8.1%), IDC 107 (66.9%), invasive lobular carcinoma 19 (11.9%), others 21 (13.1%). Four (23.5%) of those diagnosed as DCIS on core biopsy turned out to contain IDC. In all four cases the tumors were palpable, with a diameter of 10 mm or more. In 56 (52%) cases with IDC grade was not determined on the core biopsy specimen. Of those 51 (48%) in which grade was determined, there was a discrepancy of up to 2 grades between pre-operative and surgical pathology reports in 5 (9.8%) of the cases. In only 1 of the 5 tumors with vascular or lymphatic invasion was the information available from the core biopsy.

Conclusions: Information obtained from core biopsies regarding tumor type and grade is often incomplete. One quarter of tumors diagnosed as DCIS are subsequently found to include an invasive component (all palpable in our series). Even when the diagnosis of IDC is made on core biopsy, there is frequently a discrepancy in assessment of tumor grade or lymphovascular invasion. Since information from diagnostic core biopsies is crucial in decision-making for sentinel lymph node biopsy and the emerging technology of tumor ablation, the possibility of a discrepancy between findings in core biopsies and surgical specimens should be taken into account in patient selection and efforts should be made to reach a more accurate pre-operative diagnosis.

124 POSTER

Histological core needle biopsy of palpable breast lesions: image guided or palpation guided

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Purpose: Histological core needle biopsy of palpable breast lesions can be performed either by image guidance (stereotactic or ultrasonographic) or by palpation guidance. The purpose of this study is to determine differences in diagnostic performance of the histological core needle biopsy obtained by different kinds of guidance techniques.

Patients and methods: Retrospectively a group of patients with a palpable breast lesion who underwent a histological core needle biopsy was studied. Between January 1999 and July 2002 239 women with 267 palpable breast lesions (mean age of 53.0 years) underwent a histological core needle biopsy, because of non-conclusive triple diagnostic tests. The choice for a free hand or an image-guided technique was mainly influenced by logistic reasons such as a long waiting list for a radiological appointment. The histology of the core needle biopsy was compared with the findings at excision (216), or follow-up (51).

Results: The histological core needle biopsy was performed on palpation in 58 cases and by image guidance in 209 cases (ultrasonography in 167 cases and stereotactic in 42 cases). The mean size of the palpable breast lesions biopted by palpation was significant larger. Seven times the result of the histological core needle biopsy was inconclusive (twice at palpation, five times by imaging). Histological core needle biopsy by palpation showed a sensitivity of 0.71 and a specificity of 0.93. Biopsy by image guidance (although smaller in size) showed a better sensitivity (0.93, $p<0.001$) and specificity (0.99, $p=0.057$).

Conclusion: Free-handed histological core needle biopsy of a palpable breast lesion has an insufficient diagnostic performance compared to an image guided technique. Size seems a pitfall for physicians to perform a histological core needle biopsy free-handed and not by image guidance. Once a histological core needle biopsy is indicated it should be performed by image guidance. The organisation of diagnostic procedures should be adjusted to this accordingly.

125 POSTER

Clinically and mammographically occult breast lesions at MR Imaging: potential impact of computerized assessment on clinical reading

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Purpose: To investigate whether computerized analysis of clinically and mammographically occult breast lesions at MR imaging complements clinical reading, how it complements clinical reading, and to assess the potential impact of the system.

Material and methods: An existing computerized analysis system was enhanced by training on 100 breast lesions and validating on 136 independent lesions. Seventy-five lesions in the training were also graded in daily clinical practice. These grades (5-point scale: benign, probably benign, indeterminate, suspicious, highly suggestive of malignancy) and the probability of malignancy calculated by computerized analysis were entered as covariates in logistic regression analysis to obtain a combined model. The performance of the model was compared with that of clinical reading alone in order to provide guidelines when and by how much computerized analysis is able to complement clinical reading. For this purpose, an independent set of 72 clinically and mammographically occult lesions was read in clinical setting, and assessed by the combined model.

Results: The performance of reading in clinical setting (A_Z=0.86) was similar to that of the computerized analysis (A_Z=0.85; p=0.99). A significant improvement was obtained by the combined model (A_Z=0.91; p=0.03). Improvement was mostly accomplished for lesions graded indeterminate and suspicious by the radiologists. In the combined model, an increase in specificity of approximately 20% was observed without reduction of sensitivity.

Conclusions: Computerized analysis complements clinical reading, making computer-aided diagnosis feasible. The complementary information has the potential to increase the specificity for clinically and mammographically occult lesions without reducing sensitivity.

126 POSTER

The 2001/02 ABS at BASO Audit – repeat therapeutic operations and pre-operative history

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The 2001/02 ABS at BASO audit included 10,191 cancers detected by the UK NHSBSP between 1 April 2001 and 31 March 2002. 93% of invasive cancers and 73% of non-invasive cancers had a pre-operative diagnosis. 98% of B5b (Invasive) cancers and 92% of C5 cancers had surgical confirmation of invasive cancer. 470 (25%) B5a (Non-invasive) cancers were found to be invasive following surgery. 97% of B5b (Invasive) and C5 cancers had known nodal status whereas only 84% of B5a (Non-invasive) cancers had known nodal status.

Overall, 14% of invasive cancers and 20% of non-invasive cancers underwent more than one surgical operation. 41% of the B5a (Non-invasive) cancers had repeat operations; 34% involving axillary procedures. In one UK region, 97% of B5a (Non-invasive) cancers had known nodal status, 54% being determined on the basis of repeat operations involving the axilla. Screening units within this region thus have a policy of returning to obtain nodes following the unexpected discovery of invasive disease following surgery. In two UK regions, where the proportion of B5a cancers with nodal status was between 70% and 71%, repeat operation rates were lower than in other regions (27% and 30% respectively). It would therefore appear that there is an unwillingness in these regions to carry out a repeat operation to determine the nodal status and that as a result, a proportion of women may have been under diagnosed.

Overall, 7.1% of invasive cancers with a C5 pre-operative diagnosis had their nodal status determined as a result of axillary procedures undertaken as repeat operations. In one UK region, without these additional axillary procedures, the proportion of cancers in this group with known nodal status would have been 66% rather than 87%. It would thus appear that in this UK region there is a reluctance to carry out an axillary nodal procedure at the first operation for cancers diagnosed pre-operatively by cytology alone, and that repeat operations are subsequently undertaken for a high proportion of invasive C5 cancers in order to determine the nodal status.

The 2001/02 ABS at BASO audit data thus demonstrate clear differences in the treatment protocols followed within the UK NHSBSP.

127 POSTER

Impact of random variations in the measurements of tumor extent on the WHO and the RECIST guidelines for solid breast tumors

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Purpose: To quantify the fraction of false-positive calls on tumor regression and tumor progression using the WHO and the RECIST guidelines for solid