positive predictive value, negative predictive value and accuracy were 88.6%, 94.12%, 93.21%, 88.12%, 91.12% respectively. On patient basis, the positive and negative predictive values for the presence of axillary metastasis were 94.12% and 89.45%.

Conclusion: Gray scale and Doppler US is a succesful and reliable in the evaluation of nonpalpable axillary metastatic lymph nodes. Sentinel nodes biopsy is the standard procedure for determining lymph nodes status in these patients. Inclusion of axillary US in the diagnostic evaluation, would be complimentary to and would also eliminate the need for sentinel node biopsy in those patient with positive US results.

56   Poster
Incidence and imaging features of stromal fibrosis of the breast

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Aims: To determine the incidence and range of imaging features in biopsy-proven stromal fibrosis of the breast in our institution, and the incidence of subsequent cancers in this diagnostic group.

Introduction: Stromal fibrosis is a benign fibrotic proliferation of breast stroma. It may present as a symptomatic mass or focal imaging abnormality. This was a retrospective review from our institution.

Methods: 2377 women underwent either surgical excision biopsy or core needle biopsy of the breast in National University Hospital from January 2002 to December 2004. Of these, 108 patients (4.5%) had an initial image-guided needle-biopsy diagnosis of stromal fibrosis. Imaging features on mammography and/or ultrasound for each case were analysed (VK & VR) and compared in detail with the histopathology (TP).
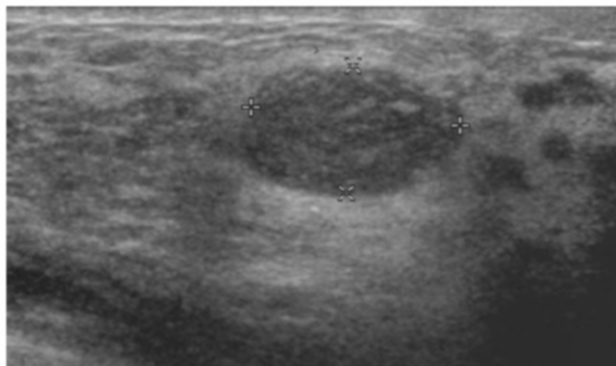

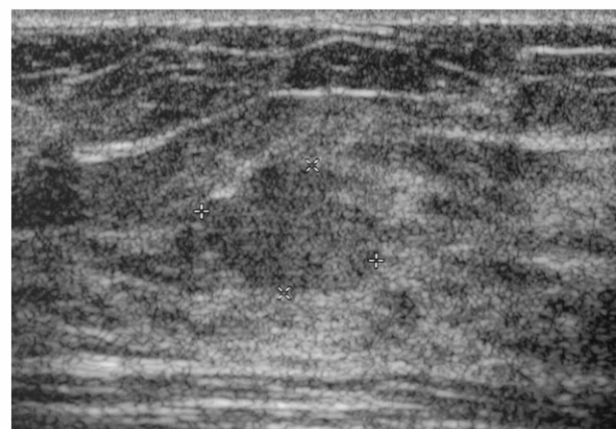Fig 1. 33 y.o. woman with a palpable nodule. US suggested fibroadenoma. Stromal fibrosis on core biopsy.

Fig. 2. 24 y.o. woman with a palpable lump and an isoechoic indeterminate mass. Stromal fibrosis on biopsy.

Results: Of our 108 cases:
* 61 (56%) had a discrete mass on ultrasound
* 41 (37%) had a cluster of microcalcifications
* 1 (1%) had a mass with associated microcalcifications

* 1 (1%) had stromal distortion only on mammography
  Of the 61 cases with a mass on ultrasound:
* 28 had no microcalcifications on mammogram
* 18 had no mammography performed
* 7 had normal mammograms
* 1 had a spiculated mass on mammography
* 1 had both microcalcifications and distortion on a mammogram
  Posterior shadowing or enhancement was variable. Masses were mostly hypoechoic, but some were isoechoic or heterogeneous in echogenicity.

Importantly, 5 cases (5%) went on to a subsequent diagnosis of malignancy made by repeat or excision biopsy because of suspicious imaging features and radiology-pathology mismatch at review.

Conclusions: Screening mammography and image-guided needle biopsy have made the diagnosis of focal stromal fibrosis more common. More than half of our cases had a visible mass on ultrasound, and 40% had microcalcifications only. Although sonographic appearances were variable, close radiology-pathology correlation ensured that a small proportion of malignancies with this initial diagnosis were correctly diagnosed at further biopsy or excision. Radiologists, surgeons and pathologists involved in screening programmes should be aware of this entity and its potential to mimic malignancy on imaging.

57   Poster
Impact of computer-aided diagnosis on the characterization of breast lesions in MRI of women at increased lifetime risk of breast cancer

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Purpose: Contrast-enhanced magnetic resonance imaging (MRI) of the breast is currently evaluated to screen women at increased lifetime risk of developing breast cancer. The moderate ability to discriminate between benign and malignant lesions at MRI leads, however, to biopsies on benign lesions (over-classification) or delayed diagnosis of malignancy (under-classification). The aim of this study was to assess the benefit of computer-aided diagnosis (CAD) – implemented as a second-opinion tool – to reduce under-classification and over-classification of breast lesions in MRI of women at increased lifetime risk.

Methods: An observer study was performed using 42 pathology-proven lesions detected at MRI in women at increased lifetime risk, screened in various institutions in the Netherlands. Nineteen lesions were benign, 23 were malignant.

A previously developed system was used for the CAD. The system automatically separates the lesion from the background in 3 dimensions and calculates a probability of malignancy from a combination of temporal and morphological features.

Two breast-MR radiologists (1 experienced, and 1 less experienced) independently rated the probability of malignancy and provided the BI-RADS score, without and with CAD. Receiver-operating characteristic (ROC) analysis was used to compare the performance of the radiologists without and with CAD. The number of benign lesions that were over-classified and the number of malignant lesions that were under-classified were compared without and with CAD.

Results: Both readers showed increased performance to classify lesions according to BI-RADS using CAD (A_z increased from 0.83 to 0.87, and 0.77 to 0.84, respectively). For the less experienced reader delayed diagnosis of malignancy was prevented in 3 of 10 cases (30%) and biopsy on benign lesions in 2 of 6 (33%) cases (p = 0.04). For the experienced radiologist these numbers were 1 of 6 (17%), and 4 of 12 (33%), respectively. In cases originally scored BI-RADS 2 or 3, the computer resulted in positive effects only. In cases originally scored BI-RADS 4 or 5 positive as well as negative effects were observed.

Conclusion: CAD has the potential to improve the performance of breast-MR radiologists to characterize lesions detected at MRI of the breast in women at increased lifetime risk in BI-RADS categories 2 and 3. In these categories, the incidence of over-classification of benign lesions and under-classification of malignant lesions was reduced.