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Can touch imprint cytology replace fine needle aspiration within current clinical practice?

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Introduction To investigate whether touch imprint cytology (TIC) of needle core biopsy (NCB) is as effective as fine needle aspiration cytology (FNAC) for providing same-day diagnosis of benign and malignant breast lesions at our one-stop symptomatic breast clinic.
Methods We prospectively studied 426 women with image-detected breast lesions who underwent FNAC and NCB with subsequent TIC. All of the FNAC and TIC samples were sent for immediate reporting. These were read by one of five consultant cytopathologists. The TIC results were subsequently compared with the definitive histopathology from either the core biopsy or the final surgical specimen.
Results Complete data were present for all patients. TIC was compared with FNAC in providing an accurate and definitive same-day diagnosis in lesions graded C2 (benign) and C5 (malignant). For FNAC, C2 = 75/426 and C5 = 210/426 allowing 66.8% of women a definite same-day diagnosis. For TIC, C2 = 92/426 and C5 = 223/426 allowing 73.8% of women a definite same-day diagnosis. There were no false positive results.
Conclusions The accuracy of TIC is at least equivalent to FNAC when used as a stand-alone technique for definitive same-day diagnosis from a single biopsy. We therefore conclude that FNAC is no longer necessary, thus saving a second invasive procedure.

P15

A novel threshold-independent computer-aided detection algorithm for breast MRI

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Introduction Image degradation due to motion artefact in breast MRI represents a diagnostic challenge. Tumours are often detected manually by a radiologist or with computer-aided detection (CAD) systems, which utilise areas of enhancement that meet a predefined threshold. The aim of this study was to test a new threshold-independent CAD algorithm and to correlate its findings to the conventional manual analysis.
Methods CAD was tested on retrospectively acquired MRIs of 14 patients with pathologically proven carcinomas. CAD results were obtained in a fully automated manner and the expert was blinded to the CAD findings. Noise artefacts were eliminated with the patient motion reduction algorithm and suspicious tissues were delineated using a novel all-timepoint-based, threshold-independent parametric map approach. The algorithm evaluates the shape of the curve as a whole and uses the noise integral to the image to discriminate malignant from benign tissues.
Results All CAD-identified tumours and generated kinetic curves were comparable with those of the manual analysis. In particular, tumour conspicuity was enhanced in two cases where image degradation by motion artefacts made data interpretation challenging to conventional analysis. See Figure 1.
Conclusions CAD results were favourably viewed by experts and 100% correlated to conventional manual tumour detection. In particular, CAD appears to increase tumour conspicuity in cases with motion artefacts. Prospective analysis is required to test this model further.

P16

Educational abstract

Educational abstract not submitted for online publication.

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P17

Clinical value of hybrid imaging for staging breast cancer in a district general hospital

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Introduction Hybrid imaging, integrating anatomical computed tomography (CT) with functional single-photon emission computed tomography (SPECT), has emerged as a powerful diagnostic tool in breast cancer imaging. This dual modality increases the specificity of skeletal scintigraphy in detecting bony metastases and achieves accurate sentinal lymph node mapping, directly influencing the surgical approach. For patients with high-grade breast cancer, hybrid SPECT/CT provides the opportunity for a 'one-stop shop' with important implications for patient care, cost-effectiveness and follow-up.
Methods We included 50 women with >15 mm grade 2 or grade 3 invasive breast cancer attending our imaging department over 6 months. Each underwent SPECT/CT imaging protocol using a 16-slice Phillips Precedence. A questionnaire assessed type/number of imaging visits and perceived anxiety levels. Change to patient management, radiation dose and estimated costs were also collected from the trust patient and imaging information systems and multidisciplinary notes, to assess overall value.
Results One-third of patients underwent significant change in medical or surgical management based on hybrid imaging. Overall, >90% of patients surveyed reported higher satisfaction following a 'one-stop' visit. Cost and total radiation dose of combined imaging were more favourable than for single visits.
Conclusions Whilst hybrid SPECT/CT in breast imaging remains in its infancy, its potential to add value for the clinician and patient is clear. The positive advantages for patient management and convenience/cost suggested in our pilot study suggest it is likely to influence future breast cancer management protocols.

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Comparison of 1.5T and 3T in assessment of suspicious breast lesions

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Introduction MRI at 3T has advantages of increased spatial and temporal resolution but with known transmit field inhomogeneity problems. The objective of this study is to compare the confidence in characterising the breast lesions in 1.5T and 3T MRI examinations performed and to compare the conspicuity of the lesions.
Materials and methods Patients referred for a diagnostic MRI examination as part of their clinical work-up for a suspicious lesion or for preoperative

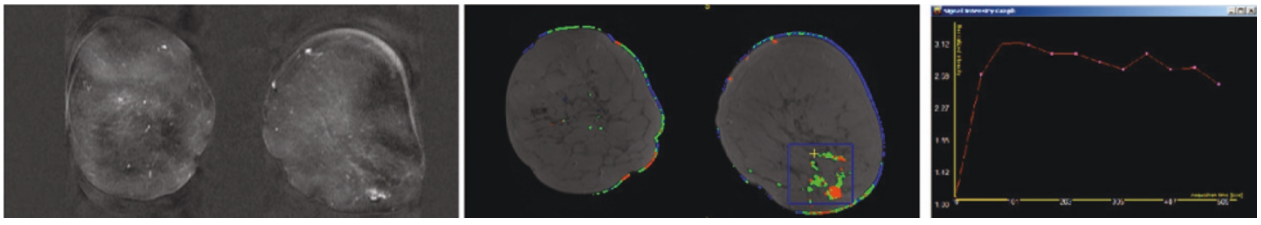

Figure 1 (abstract P15). Left: tumour visualisation with conventional analysis DCE-MRI. Middle: CAD curve shape map (red, wash-out; green, plateau; blue, persistent). Right: kinetic curve.