

and ki67 vs. Ck5/6). Results were confirmed by triple immunofluorescence and Western blotting experiments.

Results: See the table. FEA, ADH, DCIS, LN, tubular carcinoma disclosed a purely glandular phenotype, with ki67 proliferation rates ranging from 1.5% to 13%, ER+ cells 95% to 98%.

	% Cells staining	
	Ck 8/18+	Ck 5/6/+
Normal Epithelium		
Lobules	88	8
Ducts	44	93
ER neg		
Lobules	94	13
Ducts	79	79
Ck 5/6+, ER+	100	
UDH		
All	87	57
ER+	97	10

Conclusions:

1. Oestrogen receptor-alpha is a surrogate marker of glandular differentiation of normal and benign and malignant proliferative. Ck8/18-positive subpopulation divides to ER+ and neg. The luminal epithelium of lobules and ducts of the resting breast is distinct with a higher glandular differentiation within the lobules.
2. UDH shows a higher percentage of ER+ cells but lower ki67+ cells and that dissociation of ER and ki67 is similar to normal breast epithelium.
3. All types of CIS and tubular carcinoma disclose a glandular phenotype with a high percentage of ER+ cells, as do FEA and ADH. Our data supports the hypothesis that these lesions are derived from glandular cells of normal epithelium, rather than "stem" cells.

O-14 The use of MRI in the management of patients with invasive lobular carcinoma of breast

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Invasive lobular carcinoma (ILC) accounts for 10% of all breast cancers. The use of conventional radiology for the selection of patients with (ILC) for breast-conserving therapy remains controversial.

The aim of this study is to examine the accuracy of MRI in prediction of tumour size and to compare this with other radiological modalities. And also to determine whether a policy of pre-operative MRI affects the relative number of patients undergoing breast-conserving surgery, mastectomy and re-operation for ILC of the breast. Demographic data, radiology results, operative findings and histopathology results were collected prospectively for all patients diagnosed with ILC between Jan 2000 and Jan 2006. 101 female patients underwent mammographic and ultrasonographic assessment of their tumours. Thirty-seven (37%) of these patients underwent further assessment by MRI.

Results: See the table.

Tumour size as determined by MRI correlated most accurately to histopathological size ($r=0.588$, $P=0.001$) when compared to mammography ($r=0.318$, $P=0.099$) and ultrasound ($r=0.119$, $P=0.353$).

MRI is more accurate than conventional radiology at pre-operatively determining tumour extent. MRI significantly decreases the chance of re-operation by two-thirds

without significantly increasing the radicality of surgery for invasive lobular carcinoma of the breast.

	No MRI	MRI	P
N	64	37	
Median age in years (range)	64 (39–86)	60 (47–85)	0.117
Conventional radiology – median tumour size in mm (range)	14.5 (4–80)	13 (4–74)	0.891
Histopathology – median tumour size in mm (range)	18 (1–85)	20.5 (1–90)	0.329
Breast-conserving surgery n (%)	39 (61)	19 (51)	0.348
Mastectomy n (%)	25 (39)	18 (49)	0.348
Re-operation n (%)	17 (44)	3 (16)	0.037

O-15 Re-excision surgery following breast conservation: what margin is adequate?

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Introduction: The definition of adequate margins following wide local excision (WLE) for breast cancer remains contentious with practices varying depending upon disease process and local policies. We aimed to measure re-excision rates, investigate relationship of margin width and histology and generate information to allow clinical decisions to be made.

Methods: We identified all patients who had re-excision surgery following WLE for invasive & in-situ disease. In all patients we recorded margin status (involved, very close [0.1–2 mm], or close [2.1–5 mm]), primary tumour type (invasive or ductal-carcinoma-in-situ [DCIS]), grade and subsequent re-excision(s) histology. We compared re-excision histology with primary margin status.

Results: Between 2001 and 2006 (60 months), 137 of 1450 patients (9.8%) were re-excised following WLE. Of 56 patients with involved margins with invasive tumour, residual disease was identified in 36/56 (64.3%) and in 7/28 (25%) with very close or close invasive margins (0.1–5 mm). Residual disease was seen in 34/44 (77.27%) and 13/33 (39.3%) with involved or very close or close DCIS margins respectively. When margins exceeded 2 mm, residual invasive and in-situ disease was identified in 18% and 33% of patients respectively.

Conclusion: This study demonstrates that failure to re-excite 2–5 mm margins may leave residual disease in a proportion of patients. Residual disease is more likely to be identified in patients diagnosed with in-situ disease with involved or close margins.

O-16 Wide local excision with resection of cavity margins: is it really necessary?

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Introduction: Residual disease at excision margins after breast conservation surgery for cancer necessitates further surgery. Primary resection of cavity margins ensures completeness of excision, but is associated with greater disfigurement. This study evaluates re-operation rates for margin positivity after wide local excision (WLE) with and without cavity margin resection.

Methods: Data were collected retrospectively from 01/06/01 to 31/04/06 on patients undergoing WLE with or without cavity margin resection. Histological results were examined for all patients with details of all further surgical procedures and histopathology of further resections.

Results: 598 patients (mean age-56 years) underwent WLE with axillary surgery as clinically indicated with

68 patients having benign disease. Of these 530 patients, 281 underwent WLE/ cavity margins resection with 39 requiring re-operation for positive cavity margins. 13/39 had re-excision of margins with 10 having no residual disease.

249/530 patients underwent WLE without cavity margin excision. 64/249 underwent re-operation. 38/64 had re-excision of cavity margins of which 27 had no residual disease. The reduction in reoperation rates by taking cavity margins is significant ($p < 0.01$). Younger patients, axillary node positivity, tumour grade and multi-focal tumours are more likely to be associated with margin involvement and therefore subsequent re-operation.

Conclusion: WLE combined with cavity margins resection has a lower rate of reoperation due to positive cavity margins. Pre-operative anticipation of the factors identified, combined with radiographic confirmation of completeness of excision (for those having needle localisation procedures), should help the surgeon make an intra-operative decision for or against cavity margins resection.

O-17 Implanted gold seeds for tumour bed localisation and image-guided radiotherapy

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Introduction: The aim of this multicentre study is to assess feasibility of inserting gold markers into the surgical cavity wall for tumour bed (TB) localisation and image-guided radiotherapy (IGRT) for early breast cancer. The results will inform TB localisation and IGRT protocols in the NCRI IMPORT (Intensity Modulated Partial Organ Radiotherapy) Trials.

Methods: Six gold markers were implanted in the TB at surgery and subsequently localised on CT images collected in the RT treatment position. Patients were treated with standard tangential RT and a second CT scan was performed in the last week of treatment. Portal imaging (PI) during RT was carried out, and couch displacement in anterior-posterior, left-right, inferior-superior directions were generated for all imaged RT fractions. Target recruitment is 60.

Results: Data from the first 30 patients confirmed success rates for insertion, CT localisation and PI assessment of 90%, 92% and 100% respectively. The median times for surgical insertion, CT localisation and PI assessment were 8, 10 and 8 minutes respectively. Median change in TB volume between CTs was -7 ml (range: -52 to +30 ml), with the TB generally becoming less visible following RT. Standard deviation of the systematic and random setup errors in anterior-posterior, left-right, inferior-superior directions were 4.1, 2.7 and 3.9 mm and 2.9, 2.5 and 2.8 mm respectively.

Conclusion: Results demonstrate the feasibility gold markers for TB localisation and IGRT with minimal additional time required. TB delineation sub-study results will be used with these data to determine planning target volumes and for IMPORT HIGH.

O-18 Is face-view only enough for the aesthetic evaluation of breast cancer conservative treatment (BCCT)?

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Background: Trying to overcome the lack of reproducibility of the methods available for aesthetic evaluation of BCCT,

we developed a software for the objective evaluation called BCCT.core (Breast Cancer Conservative Treatment. cosmetic results). The BCCT.core software makes use of only a face-view photograph of the patient, considered by some to be insufficient for an accurate evaluation of aesthetic results. The purpose of this work is to compare the performance of BCCT.core with subjective expert analysis using a face-view and a four-view evaluation.

Material and Methods: The photographs in four positions of 150 patients, captured with a digital camera, were evaluated by a panel of experts and a consensus classification was obtained. The agreement with the consensus of the BCCT.core on the face-view evaluation was calculated using the kappa (k) and weighted kappa (wk) statistics. Afterwards, the 150 face-views were sorted and sent for additional evaluation by 3 of the panel experts. The agreement with the consensus of the face-view evaluation and the four-view evaluation of the 3 experts was calculated using the same methods.

Results: The software obtained a moderate agreement with the consensus ($k = 0.57$; $wk = 0.68$). The mean agreement between the four-view evaluation by the three experts with the consensus was identical to the software agreement ($k = 0.55$; $wk = 0.67$). In the face-view only experiment, the mean agreement between the three experts and the consensus was only fair ($k = 0.37$; $wk = 0.54$).

Conclusions: The software evaluation obtained a better agreement with the consensus than the expert evaluation with the face-view only. The agreement between the three experts using the four-view evaluation did not exceed the values obtained by the software. Although the software could be improved with additional views, as it is, the performance of BCCT.core equals the one obtained by experts using the four-view evaluation.

O-19 Post-operative radiotherapy (RT) in minimum-risk elderly (PRIME) – assessing the impact of breast radiotherapy on quality of life in low risk older patients

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Objectives: To assess the impact of post-operative breast radiotherapy (RT) on the quality of life (QoL) of low risk older women following breast conserving surgery (BCS).

Methods: After BCS with clear margins, 'low risk' women who were 65 years or older with histologically node negative unilateral breast cancer, treated by endocrine therapy, were randomised to receive or not receive whole breast RT. Primary endpoints were QoL, anxiety and depression and cost effectiveness. QoL was measured four times over 15 months by the EORTC QLQ C30 and BR23 modules, and EuroQol for the calculation of QALYs. Mental state was assessed by the HADS and Philadelphia Geriatric Center Morale Scale.

Results: 255 patients were entered in the trial. The expected improvements in QoL with the omission of RT were not seen in the EuroQol assessment or in the global domains of the EORTC scales. RT was, however, associated with increased breast symptoms, fatigue and a slower return to normal social functioning, but with less insomnia or endocrine side effects. Immediate costs to the NHS with post-operative RT were calculated to be of the order of £2000 per patient.

Conclusions: Although there are no differences in global QoL scores between patients treated with and without RT, there are several dimensions which exhibit advantage to the omission of RT. Extrapolations from these data suggest