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Abstracts for oral presentation at the Association of Breast Surgery Conference & AGM, 21st & 22nd May 2013, Manchester Central

Session 1 – BJS Prize Papers Tuesday 21st May 2013, 09:00 to 10:30

1. The sensitivity of pre-operative axillary staging in breast cancer: Comparison of invasive lobular carcinoma and invasive ductal carcinoma

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Introduction: Axillary ultrasound (AUS) with fine needle aspiration (FNA) biopsy of abnormal lymph nodes is crucial for pre-operative staging and planning the surgical management of the axilla. In a primary population of invasive ductal carcinoma (IDC) there is a 60–65% sensitivity for this technique[1]. Invasive lobular carcinoma (ILC) nodal metastases are thought to be more difficult to detect because the cells are small and on cytology resemble lymphocytes[2]. We investigated the sensitivity of pre-operative axillary staging in ILC patients to allow comparison with IDC patients from a single unit.

Methods: A retrospective review of 139 patients (142 axillae) diagnosed with pure ILC between 2008 and 2012 was conducted. AUS was completed on all patients. Any abnormal AUS (radiologically indeterminate or suspicious lymph nodes) was followed by ultrasound-guided FNA biopsy. The pre-operative axillary staging was compared to post-operative histopathology and directly contrasted to data from ductal cancers. The Chi-square test was used for statistical analysis.

Results:

	ILC (n = 142)	IDC[1] (n = 365)	P value
Node positive	53	128	0.634
AUS abnormal	28/53	78/128	0.314
AUS abnormal and FNA suspicious/ malignant	15/53 (Sensitivity = 28.3%)	77/128 (Sensitivity = 60.2%)	<0.001

Conclusions: AUS has comparative sensitivities between ILC and IDC populations. In contrast, FNA biopsy of abnormal axillary nodes is clearly less sensitive in the ILC group. In these patients, who have abnormal AUS, we suggest that a core biopsy is required to improve the pre-operative staging and prevent unnecessary surgical procedures.

References

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2. Cserni G, Bianchi S, Vezzosi V, et al. The value of cytokeratin immunohistochemistry in the evaluation of axillary sentinel lymph nodes in patients with lobular breast carcinoma. J Clin Pathol 2006;59(5):518–522.

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2. Epidermal growth factor receptor (EGFR) expression confers poor prognosis in HER2 positive breast cancers

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Introduction: HER2 over-expressing breast cancers have a poorer prognosis than matched HER2 negative cancers. HER2 is an orphan receptor with no direct ligand. It is activated by binding to one of the other growth factor receptors including HER1 (EGFR). This study aims to explore the prognosis of HER2 positive breast cancers depending on the expression of EGFR.

Methods: 54 sequential HER2 positive breast cancers from a single screening unit were analysed. Using immunohistochemistry the EGFR expression status was ascertained. The patients were followed up for 10 years. The demographics, pathological type, disease free and overall survival of the patient group were recorded.

Results: 54 patients were followed up for a mean 99.8 months, none of which received adjuvant Trastuzumab. Of the group 7 (13%) were EGFR positive. EGFR positive cancers had a mean disease free survival of 21.8 months (95% CI 10.9–32.7) compared to 108.7 months (95% CI 93–123.2) in the EGFR negative cancers (Kaplan Meier, p = <0.001.). The poorer survival in the EGFR positive groups remains significant when grade, size and lymph node status are controlled for.

Conclusion: This study has showed that in HER2 positive breast cancers EGRF expression is significantly associated with poorer disease outcome. All of the EGFR positive cancers had relapsed by 4 years compared with only 35% of the EGFR negative cancer relapsing at 10 years. Trials of dual inhibition of HER2 and EGRF have been disappointing but this study does demonstrate this import group of very poor prognosis tumours.

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0748-7983/$ - see front matter
http://dx.doi.org/10.1016/j.ejso.2013.01.010

3. Overall size of metastases (OSM) in tumour positive sentinel nodes; an important predictor of the burden of residual axillary disease

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Introduction: Overall Size of Metastases (OSM) is the most important factor in predicting the probability of further non-SLNs metastases and ≥4 total number of tumour positive nodes without ALND and is an independent predictor of the locoregional recurrence. We have analysed various variables that can predict further axillary metastasis and highlight the importance of OSM as the single most important predictive factor.

Methods: 138 patients with tumour positive SLNs who underwent cALND were identified. Multiple tumour and nodal-related pathological variables including the OSM in the SLNs were analysed. Factors predictive of metastases in non-SLNs after tumour positive SLNs were evaluated by logistic regression. Data were then used to calculate the predicted probability of further metastases in non-SLNs by Cambridge, Turkish, MOU, Tenon, Stanford, MDACC and MSKCC models by AUC values.

Results: 54 of 138 patients (41%) had further metastases in non-SLNs.OSM was 5.9 mm (5, 0.15−20). Univariate analysis showed OSM, LVI, multifocality, number of +ive SLNs, proportion of SLNs among all SLNs, extranodal spread were statistically significant. The OSM, multifocality, LVI remained significant after multivariate analysis. In bootstrap analysis, OSM was consistently the single most important variable in predicting non-SLN metastases, being retained 73% of the time. AUC values of nomograms depending on their utilisation of OSM are shown below.

Nomogram	Cambridge	Turkish	MOU	Stanford	Tenon	MDAC	MSKC
OSM	Continuous variable	Categorical	Not incorporated				
AUC value	0.68	0.70	0.74	0.69	0.63	0.56	0.68

Conclusion: OSM is an important and significant predictor of further metastases in non-SLNs. Predictive tools using OSM as continuous variable showed better AUC values, clinical utility and false −ive rate. We suggest that it should become a routine part of the histological analysis and to be routinely documented in the pathological datasets.

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4. The clinical incidence of cytokeratin-19 negative breast cancers

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Background: Sentinel Node Biopsy is standard practice for staging the axilla, with One-Step Nucleic Acid Amplification (OSNA) becoming more widely used in clinical practice. The vast majority of breast cancers express cytokeratin-19 (CK19). OSNA detects nodal metastasis by quantifying the levels of CK19 mRNA, which in theory is independent of mRNA translation.

There is limited data regarding the true incidence of CK19-negative tumours, and the suitability of OSNA in those cases has been challenged. Our aim was to investigate the incidence of CK19 expression in our practice.

Methods: All patients with a new diagnosis of invasive breast cancer in a single centre between May 2010 and May 2012 were identified retrospectively. The tumour details, including CK19 status, were retrieved by reviewing the pathology reports.

Results: 730 primary breast cancer patients were identified. 7 patients were excluded due to incomplete data. 97 did not have CK19 immunohistochemical (IHC) staining. 626 patients were included in the analysis. 16 tumours were CK19-negative (2.6%). The histological and hormone profiles of the tumours did not affect the CK19 status. The median age of CK19 negative patients was older than CK19-positive patients (76 vs 62 respectively).

Conclusions: This is one of the largest series looking at the incidence of CK19-negative tumours. As CK19-negative tumours are rare, routine testing prior to OSNA may not be necessary. However, the exact correlation between CK19 expression by IHC and the OSNA results remains uncertain. Studies investigating the presence or absence of CK19 mRNA may be more appropriate.

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5. Pre-operative MRI scanning changes surgical strategy in core-biopsy proven lobular breast cancer

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Introduction: Pre-operative MRI scanning is recommended for invasive lobular breast cancer if breast conserving surgery (BCS) is being considered.

Methods: A retrospective analysis of all patients undergoing pre-operative MRI following core biopsy showing either invasive lobular breast cancer or mixed invasive carcinoma with lobular features over a five year period.

Results: 84 patients were eligible for inclusion in the analysis.

At initial MDT discussion, 62 (73.8%) patients were potentially suitable for BCS; whilst in 22 (26.2%) mastectomy was considered necessary. Following MRI, 42 (50%) patients underwent BCS and 42 (50%) patients underwent mastectomy.

Pre-operative MRI detected additional lesions in 26 (31.0%) patients over conventional imaging. 16 of these required "second-look" ultrasound resulting in 9 additional core biopsies. MRI changed the surgical plan in 20 (32.3%) of the 62 potentially conservable breasts on conventional imaging to mastectomy. Despite this, after initial BCS, 7 patients required completion mastectomy. In 2 (2.4%) cases, MRI detected contralateral cancers (unsuspected on conventional imaging), both treated with BCS.

Final histology confirmed invasive carcinoma in all patients (78 lobular, 5 mixed lobular and ductal features, 1 ductal). Mean histological size was 22.6 mm and 44.9 mm in the BCS and mastectomy groups respectively. MRI measurement of the index lesion correlated closely with final histological measurement in all cases but was especially accurate in those patients where MRI changed management (2-tailed Pearson correlation coefficients 0.714 and 0.859 respectively).

Conclusion: MRI scanning is valuable as it correctly changes the surgical management plan in 32.3% of core biopsy-proven lobular breast cancers that otherwise would have undergone BCS.

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6. The prognostic significance of tumour-stromal ratio in oestrogen receptor-positive breast cancer

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Introduction: Tumour-stromal ratio (TSR) is emerging as an important prognostic indicator in cancer. Previous studies have shown a high percentage of stroma predicts poor survival in triple-negative breast cancers, but this prognostic value is diminished in studies of unselected cases. Here

we aimed to determine the prognostic significance of stromal density in oestrogen receptor-positive (ER+) male and female breast cancer.

Methods: TSR was measured by point counting virtual tissue sections using RandomSpot in a series of 171 ER+ breast cancers (118 female; 53 male). In the female cohort 2 areas were sampled: tumour leading and non-leading edge. A log-rank test was used to determine the optimum cut-off (49.3% stroma) that gave the most significant association with survival. The relationship of TSR to overall survival (OS) and relapse-free survival (RFS) was analysed.

Results: Tumours with high stromal density were associated with better survival in both males (OS $p = 0.0035$, HR = 0.3−3.6; RFS $p = 0.0079$, HR = 0.3−3.2) and females, irrespective of area sampled (leading edge: OS $p = 0.0014$, HR = 0.3−2.9; RFS p-value = 0.0017, HR = 0.4−2.8; non-leading edge: OS $p = 0.0134$, HR = 0.2−4.1; RFS p-value = 0.0038, HR = 0.2−4.9) with no gender-specific differences.

Conclusions: In direct contrast to published data on triple-negative breast cancer this study shows that a low proportion of stroma is related to worse survival in ER+ breast cancers across both genders. This suggests differences in stromal biology may exist between tumour subtypes and highlights the importance of ER status when interpreting the prognostic value of TSR. Future studies may elucidate crucial stromal differences between tumour subtypes which could better predict survival.

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7. Changing trends in consultant practice and breast training in the United Kingdom

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Introduction: The practice of breast surgery in the UK has evolved considerably in recent years, with fewer breast surgeons offering general surgery (GS) on-call. The aim of this paper was to evaluate the degree of specialisation required by employers and the preferences of current and future surgeons.

Methods: Advertisements for breast and oncoplastic breast consultants published between January 2008 and July 2012 were examined for on-call requirements in GS. This was supplemented by two on-line surveys distributed to members of the Association of Breast Surgery. The first (aimed at consultant surgeons) examined GS on-call commitments and future career plans. The second (aimed trainees with a breast surgery interest) asked whether they wished to provide an on-call service for GS.

Results: Of 219 job advertisements, 0/52 oncoplastic positions and 4/81 (4.9%) adverts for a breast surgeon had an on-call commitment for GS. In contrast, 44/73 (60.3%) general surgical posts with an interest in breast surgery demanded GS on-call. Overall percentage of advertised positions for breast and oncoplastics increased from 52.2% in 2008 to 90.5% in 2012.

From the survey results, 100/151 (66.2%) consultants did not participate in GS on-calls, and of 82 who committed 80-100% of their professional activity (PA) to breast surgery, 71 (86.6%) did not participate in the on-call rota. Of 51 breast trainees, 49 (96.1%) did not intend to continue with GS on-call.

Conclusion: This study suggests that the traditional association of general surgery with breast surgery is changing. This has implications for future workforce planning and training.

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8. Molecular phenotypes of DCIS predict invasive and DCIS recurrence

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Introduction: Molecular phenotypes of invasive breast cancer predict early recurrence and survival. DCIS exhibits similar phenotypes but their frequency and clinical significance remain uncertain. To determine whether molecular phenotypes of DCIS predict recurrence, 314 women (median age 57 years) with primary DCIS who were screened or entered DCIS trials (Iressa/Lapatinib/ERISAC) in one unit from 1990−2010 were studied.

Methods: Human epidermal receptor 2 (HER2), oestrogen receptor (ER) and progesterone receptor (PR) expression within primary DCIS were established using immunohistochemistry. HER2 was scored 0 (absent) to 3 (maximum). Scores $\geq$2 were taken as positive if amplified on FISH testing. ER and PR scored positive if $\geq$5% of cells stained. 70.7% patients were ER positive, 43.9% were HER2 positive and 64% were high-grade lesions. 207 patients (65.9%) were treated with breast conserving surgery and 107 (34.1%) with mastectomy.

Results: There was an overall recurrence rate of 18.2% after a median follow-up period of 74 months (range 12−240). Of these recurrences, 38.6% were invasive. On multivariate COX regression analysis, significant predictors of overall disease recurrence included HER2 over-expression (HR 2.75, CI 1.49−5.1, $p < 0.0001$), high-grade (HR 2.82, CI 1.39−5.72, $p = 0.004$) and molecular phenotype (HR 2.39−3.95, CI 0.86−9.37, $p = 0.002$). Molecular phenotype was the only independent predictor of invasive recurrence (HR 14.4−17.7, CI 1.8−113.6, $p < 0.01$).

Discussion: Determination of molecular phenotypes of DCIS aids identification of women at high-risk of recurrence. Lower-risk ER+HER2- (Luminal A) patients might avoid adjuvant radiotherapy.

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Session 3 − Submitted Papers Tuesday 21st May 2013, 09:00 to 10:30

9. 232 Sheets of acellular dermal matrix, or, how we spent £500,000 on pigskin

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Introduction: The use of acellular dermal matrix (ADM) to augment implant-based breast reconstruction has revolutionised this technique. It offers the option of a one-stage procedure and is felt to have benefits in cosmetic outcome. However, medium and long-term outcome is unknown.

Methods: All cases where ADM was used in a breast reconstructive procedure in the Edinburgh Breast Unit from its initial use on 7/7/2008−31/7/2012 were reviewed retrospectively. Follow up was completed to 30/11/2012.

Results: 147 patients received 232 sheets of ADM (156 Strattice, 73 Permacol and 3 Alloderm). 40 reconstructions were lost (17.2% or 27.2% of patients). 7 of 27 (25.9%) patients requiring adjuvant therapy had this delayed due to problems with the reconstruction. 30 of 80 patients (37.5%) undergoing unilateral surgery have undergone contralateral symmetrisation. Implant loss varied significantly with smoking

(34.6% loss rate in smokers, $p = 0.0009$), with radiotherapy (28.1% loss rate, $p = 0.0006$) and with incision type. There was no statistically significant variation by operating surgeon, type of ADM used, chemotherapy use, patient weight, breast weight, nipple preservation or type of axillary surgery. Patients underwent a mean of 1.54 further operations (range 0–7).

Conclusions: While offering potential cosmetic and financial benefits the use of ADM with implant-based reconstructions has a significant rate of implant loss, further surgery and potential delay in adjuvant therapy. These must be considered when planning treatment and consenting patients.

http://dx.doi.org/10.1016/j.ejso.2013.01.016

10. Patient reported outcomes in immediate breast reconstruction: Acellular dermal matrix is more comparable to autologous rather than implant based reconstruction

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Aims: To audit immediate breast reconstruction at UHSM, comparing patient reported outcome measures (PROMs) in our unit against National Mastectomy and Breast Reconstruction Audit (NMBRA) data. To compare, for the first time, PROMs of acellular dermal matrix (ADM) with implant or flap based reconstruction.

Methods: All patients undergoing immediate breast reconstruction between May 2009 and May 2012 ($n = 158$) were sent a postal survey of the validated patient questionnaire used in NMBRA. Non-responders ($n = 75$) were sent a second survey after 4 months. Questions covered cosmetic, emotional and functional outcomes.

Results: Of 158 patients identified, overall response rate was 67% ($n = 107$). Reconstruction consisted of flap based (Lat dorsi {LD, $n = 29$}, Deep Inferior Epigastric Perforator {DIEP, $n = 17$}, and implant based (Tissue Expander {TE, $n = 28$} ADM $n = 33$).

High ('excellent'/'very good') overall satisfaction with surgery was reported by 69%, paralleling NMBRA (67%).

Of 19 patients reporting overall satisfaction with surgery as fair or poor, 30% (fair) and 50% (poor) had undergone radiotherapy, compared to 15% in the high satisfaction group.

High satisfaction with the sensitive marker of 'how natural the breast looked unclothed' were reported for flap based reconstructions (LD $n = 24$, 83%, DIEP $n = 14$, 82%). Reconstruction using TE rated poorly, at 39% ($n = 11$) but surprisingly, 82% ($n = 27$) of women undergoing ADM reported high satisfaction.

Conclusions: Overall satisfaction with immediate reconstruction is good and compares favourably with NMBRA data. In this cohort of patients, ADM compares more closely with flap based reconstruction in terms of patient perceptions of cosmesis, and scores considerably better than TE.

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11. Short-term oncological safety of oncoplastic breast conservation surgery – the Glasgow experience

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Introduction: Oncological safety of oncoplastic breast conservation surgery (OBCS) is widely investigated. Recurrence and incomplete excision rates are the most frequently presented indicators to measure oncologic adequacy of surgical and (neo) adjuvant treatment. In this study, we examined these outcomes in a cohort of patients treated with OBCS in three Glasgow breast units.

Methods: An oncoplastic breast surgical database has been maintained prospectively in Glasgow since 2009 (patients operated before 2009 were entered retrospectively). A descriptive analysis with regards recurrence rates of patients treated with OBCS was carried out.

Results: 160 patients were treated with OBCS between July 2005 and November 2012, although this analysis included 99 patients with a median age of 53 [24–79]. Most patients were diagnosed in the symptomatic service (58.6%). Incomplete excision rate was 14.1%. Median pathological (whole) tumour size was 26 mm [7–62]; 13 of 99 patients had multifocal disease. Six patients received neoadjuvant chemotherapy, 95 patients received adjuvant radiotherapy, and 55 patients received adjuvant chemotherapy. During a median follow-up time of 27 months [1–88], six patients (6.1%) were diagnosed with recurrence (five distant and one local), and three patients died of breast cancer. Disease free survival rate was 93.1%, while overall survival rate was 97% during this follow-up time. Analysis of the full cohort will follow.

Conclusions: These data indicate that OBCS is relatively safe oncologically. However, a longer follow-up period of the entire patient cohort is necessary, and recurrence rates need to be compared to matched controls treated with wide excision and mastectomy to provide firmer evidence.

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12. Local recurrence after skin sparing mastectomy and Latissimus Dorsi breast reconstruction; single centre experience with >10 years follow up

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Introduction: Skin sparing mastectomy with breast reconstruction is actively encouraged by current guidelines. It is argued that a conflict of interest exists between optimal cancer surgery and cosmesis that may result in an increased and unacceptable ipsilateral local recurrence (LR).

Aim: To review the ipsilateral breast LR in a prospective cohort of women having a skin sparing mastectomy and Latissimus Dorsi breast reconstruction (SSMx + LD).

Method: By review of a stand alone prospective database from a single centre and single surgeon practice.

Results: Between 1995 and 2012, 324 women with a mean age of 46 years underwent a SSMx + LD. 80% of cases had invasive disease and 20% insitu disease. Average length of stay 5.6 days. For principally ongoing cosmetic reasons 61% had 1 further procedure, 35% had 2 further procedures and 21% had 3 further procedures.

An ipsilateral breast LR occurred in 23 women giving a LR rate of 7% after a median follow up of 8 years; 17 (74% occuring within 5 years and the majority occurring in grade 3/ node +ve women)

Conclusion: The ipsilateral breast LR after SSMx + LD is acceptable, but 'only just'. This population is biased by a disproportinate number of young women with higher grade disease in whom cosmesis is important but not at the expense of an optimal cancer procedure.

Ongoing monitoring of LR after SSMx with breast reconstruction requires close audit in all breast units.

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13. Partial breast reconstruction with pedicled perforator flaps for patients with breast cancer: our initial experience

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Introduction: Redundant skin folds on the lateral/lower chest wall are suitable donor sites for partial breast reconstruction after conservation surgery in women with lower/outer quadrant tumours and small-moderate, non-ptotic breasts.

Methods: We performed 8 partial breast reconstructions over a 12 month period where wide local excision would have resulted in significant volume deficit and poor aesthetic outcome. Data on clinicopathological features, complications, aesthetic outcome and interference with mammographic surveillance were collected prospectively.

Patients were asked to complete an anonymised Body Image Scale (BIS) questionnaire (best outcome 10, worst outcome 40). A visual analogue scale evaluating cosmetic results based on anonymised post operative photographs was completed by three observers.

Results: Eight patients underwent surgery involving pedicled perforator flaps (6 LICAP, 1 LTAP and 1 thoraco-epigastric). All patients received radiotherapy. The median age was 49 years (range 42−56). Median follow-up was 12 months (range 9−15). The median clinical size of the tumours was 20 mm (range 10−50). The radial margins were at least 4 mm (>10 mm in 50%). One patient underwent further excision. There were no significant complications of surgery and no recurrence. Annual follow up mammograms were performed in 5/8 with no difficulties in interpretation. BIS questionnaires were completed by 7/8, resulting in a median score of 13 (range 10−21). Overall cosmetic effect was good to excellent on combined rater scores.

Conclusion: Wide excision combined with pedicled perforator flaps for partial breast reconstruction provides effective oncological treatment and results in good cosmesis as judged by patients and clinicians.

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14. A retrospective analysis of patients with margin positive wide local excision for DCIS to evaluate predictors that aid the decision between re-excision of margins or completion mastectomy

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Introduction: Selecting a treatment strategy following wide local excision (WLE) for DCIS with positive margins is challenging. This study sought to identify factors associated with residual disease, thus aiding the decision between margin re-excision and completion mastectomy.

Method: A retrospective analysis of all patients with DCIS on WLE with positive margins (<1 mm), 1999−2012. Categorical data were analysed with Fisher's exact test.

Results: Complete data was available for 80/108 patients. On further surgery (margins re-excision or mastectomy) 45 had residual disease. 42% of these had ≥2 positive margins (PM) compared to 14% for the 35 patients with no disease ($p<0.01$; sensitivity 75%, specificity 86%, PPV 79%).

52 patients had margin re-excision. Clearance was achieved in 40. 15% had ≥2 PM. This was in contrast to 58% for patients in whom clearance was not achieved ($p < 0.01$).

28 patients proceeded straight to mastectomy. Eight patients had no residual disease. 25% had ≥2 PM. Twenty patients had further disease of which 50% had ≥2 PM. This suggested a similar trend but did not reach statistical significance.

4 patients had a recurrence in the time period (2 treated with margin re-excision, 2 with completion mastectomy). Data were also analysed between groups for DCIS grade and a ratio of pathological:mammographic size. No associations were found.

Conclusion: Two or more positive margins on WLE for DCIS is an indicator that there is residual DCIS within the breast and that oncological clearance is less likely to be achieved with a single margin re-excision.

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15. The impact of a change in margin width policy on rates of re-operation for breast conserving surgery

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Introduction: The optimal margin width in breast conserving surgery (BCS) balances oncological safety with cosmetic outcome with no current published consensus. Margin policy was amended in November 2010 from a 5 mm to a 2 mm mandate for both invasive and non-invasive carcinoma. An audit was undertaken to determine the effect of this change in policy on rates of re-excision and residual disease in re-excision specimens.

Methods: Data were collected on women undergoing BCS for symptomatic and screen-detected breast cancer between 1/11/2009 and 31/10/2011. Rates of re-excision rates and residual disease were compared for a 12 month period immediately before (group 1) or after (group 2) a change in margin policy.

Results: A total of 615 women underwent breast surgery, amongst whom 410 had BCS (67%). Slightly more localization procedures occurred in group 2 (59.5% versus 48.4%) but there were similar numbers of screening and symptomatic cases. Rates of re-excision were 24.6% (53/215) and 27.7% (54/175) with a margin mandate of 5 mm and 2 mm respectively. Eleven women within each group had completion mastectomy and residual disease was found in a higher proportion of re-excision specimens for a 2 mm (40.1%) compared with a 5 mm (30.2%) margin. All patients achieved negative margin status after one further operation.

Conclusion: A reduction in surgical margin width from 5 mm to 2 mm has not resulted in a decrease in rates of re-excision but has increased the proportion of re-excision specimens with residual disease. Longer term follow up is required to assess local recurrence.

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16. Mode of detection of recurrence in operable invasive breast cancer

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Introduction: Guidelines recommend hospital based follow up should cease after 5 years. This study examines the mode of presentation of recurrence in a consecutive series presenting with operable invasive breast cancer after long term hospital based follow up.

Methods: 904 patients received treatment between 1 January 1996 and 31 December 2004. Follow up was 3 monthly for one year, 6 monthly in second year and yearly thereafter in designated clinics. Recurrence was recorded prospectively on a computerised data base. Patients were divided according to mode of detection of first recurrence.

A: routine hospital clinic, B: by GP, C: by patient, D: other.

Results: Median follow up 132 months (range 90−186).

212 (23%) patients developed recurrent disease. 100 (11%) presented as loco-regional disease as first recurrence. 112 (12.4%) with distant metastasis. 68% ($n = 144$) of first relapses to date have occurred in <5 years.

Mode of presentation of first recurrence.

Group	Loco-regional	Distant Mets	Total
A	70	60	130 (61.3%)
B	9	28	37 (17.5%)
C	11	11	22 (10.4%)
D	10	13	23 (10.8%)

Mode of detection of recurrence.

Event	Group		Total	Duration follow up
	A	Others		
L/R	46(67%)	23	69	<5years
	24(77%)	7	31	>5years
DM	41(55%)	34	75	<5years
	19(51%)	18	37	>5years

Conclusion: The majority of distant and loco-regional recurrences-were detected in hospital based follow up both before and after 5 years.

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17. Contralateral breast cancer in high-risk patients: Identification of risk factors to guide recommendations for contralateral prophylactic mastectomy − A 30-year experience

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Introduction: Rates of contralateral prophylactic mastectomy (CPM) are on the rise, despite a fall in the actuarial incidence of contralateral breast cancer. There is mounting pressure on clinicians to consider this treatment option, despite formal risk assessment on patients. We describe a 30-year experience of contralateral breast cancer in high-risk breast cancer patients and have identified risk factors that may help in the objective assessment for CPM in these patients.

Method: All breast cancer patients with a pathogenic mutation in either BRCA1, BRCA2 or TP53 ($n = 845$) were identified from the North West England Genetic Database (Family history of breast and ovarian cancer) dating back to 1974. Data regarding age at first breast cancer diagnosis, contralateral second breast cancer diagnosis, age at menopause, Tamoxifen use, risk-reducing oopherectomy and histological subtypes were recorded. Kaplan-Meier estimations were performed.

Results: In high-risk patients, the risk of subsequent metachronous contralateral breast cancer is 2−3% per year remaining constant for up to 25 years. Potential risk factors were young age at diagnosis of initial breast cancer (under 40 years) and TP53 mutation, with similar rates observed in BRCA1 and BRCA2 mutation carriers. Factors that may offer some degree of protection included menopause prior to the age of 45 years, particularly if secondary to oophorectomy and treatment with tamoxifen after initial breast cancer.

Conclusion: Patients being considered for CPM require an objective assessment of known risk factors. In high-risk patients, oophorectomy under the age of 45 years may reduce the risk of further primaries sufficiently to change decision-making about risk reducing mastectomy.

http://dx.doi.org/10.1016/j.ejso.2013.01.024

18. Predict: a population-based prognostic model for early breast cancer that includes Ki67

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Introduction: Predict (www.predict.nhs.uk) is an online, prognostication tool based on tumour size, grade, lymph node status, ER status, HER2 status and mode of detection. This abstract describes the inclusion of Ki67 in the model.

Method: The prognostic effect of Ki67 status on breast cancer specific survival was based on a multivariable analysis of data from 1835 ER positive breast cancer patients in the UK SEARCH study (1) of which 372 (20%) were Ki67 positive. Ki67 positivity was defined as ≥10% cells staining positive.

Results: The breast cancer specific mortality relative hazard for ER positive, Ki67 positive tumours compared to ER positive Ki67 negative tumours was 1.3 after adjusting for grade, node status and tumour size. In order to incorporate Ki67 into PREDICT, the relative hazard for Ki67 positivity compared to Ki67 negativity was converted into a relative hazard compared to the average relative hazard of 1 (by definition). Thus Ki67 positivity is associated with a relative hazard of 1.23 and Ki67 negativity with a relative hazard of 0.94. These were then applied to the baseline hazard estimates used in the PREDICT model to estimate expected breast cancer specific mortality.

Conclusion: Predict is the first online clinical breast cancer prognostication tool to include Ki67 status as well as mode of detection, HER2 status and the benefit of trastuzumab.

(1) Ali HR, Dawson SJ, Blows FM, et al. A Ki67/BCL2 index based on immunohistochemistry is highly prognostic in ER-positive breast cancer. *J Pathol* 2012; 226(1):97-107.

http://dx.doi.org/10.1016/j.ejso.2013.01.025

Session 10 − Submitted Papers Tuesday 21st May 2013, 15:00 to 16:00

19. Sentinel lymph node mapping failure and axillary disease burden in invasive breast cancer − A cohort study

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Background: Technetium-99 (Tc-99m) radio-isotope labelling is used in the pre- and intra-operative identification of axillary sentinel node(s). In a minority of patients, this pre-operative sentinel lymph node (SLN) mapping fails. The aim of this study was to investigate the effect of this failure on initial axillary staging and subsequent axillary outcomes.

Methods: This retrospective observational cohort study included all patients undergoing SLN biopsy within a two year period from April 2010, identified from a prospectively maintained database. Radiological 'no-shows' were defined as patients who had no visible uptake of Tc-99m in the axilla prior to surgery. Data regarding initial lymph node harvesting, and subsequent axillary node clearance, were collected, along with basic cancer demographics.

Results: 368 patients, with 378 unilateral breast procedures were identified. Procedures preceded by radiological 'no shows' ($n = 11$, 2.9%) had a significantly greater number of both positive SLNs and total positive nodes at primary surgery. Axillary node clearance (ANC) was performed in 82% of the 'no show' cohort compared with 25% in the control group, ($p < 0.0001$). Radiological 'no show' predicted for a greater

number of involved axillary nodes at subsequent ANC ($p < 0.001$). Final cancer stage and type were equivalent between the two groups.

Conclusion: Failure of sentinel lymph node mapping in patients with invasive breast cancers should not be seen as a pure technical failure but rather a predictor of an increased tumour burden in the axilla. Such patients should be considered for more aggressive initial surgical management of their axilla.

http://dx.doi.org/10.1016/j.ejso.2013.01.026

20. Molecular analysis of whole sentinel lymph node (SLN) in breast cancer using OSNA (one step nucleic acid amplification) intraoperatively: Prospective data over four years

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Introduction: The One Step Nucleic Acid (OSNA) amplification is a rapid and accurate molecular diagnostic assay for intraoperative detection of cytokeratin 19 mRNA in SLN analysis specific to breast cancer. It provides the user with both quantitative and qualitative results as macro- and micro-metastases. We present our 44 month OSNA data since its multi-centre evaluation and subsequent introduction in our unit in 2008.

Methods: Data was collected prospectively from 2008 to 2012. All patients eligible for OSNA had negative axilla clinically, cytologically and sonographically. SLN biopsy was performed using blue dye and radioisotope. Patients with micro-metastases (+) underwent level I and those with macro-metastases (++) had level II/III axillary nodal dissection (AND).

Results: A total of 859 patients had 1740 SLN analysed. 265 (31%) were OSNA positive and had further AND. Of these, 125 (47%) had macrometastases (++) and 140 (53%) had micro-metastases (−). A quarter of OSNA positive (67/265) had further positive NSLN. In OSNA positive patients with micrometastases (+), 6% (9/140) had four or more positive nodes (SLN + NSLN), making them eligible for adjuvant radiotherapy. 618 (71%) of total patients had breast conserving surgery.

Conclusion: A third of our patients had OSNA positive results and underwent axillary surgery at the same operation. This technique allows accurate, timely and qualitative assessment of the sentinel lymph node. Our four year data reflects the successful application of OSNA in clinical practice, facilitating one step surgery in the cancer treatment pathway.

http://dx.doi.org/10.1016/j.ejso.2013.01.027

21. Is completion axillary lymph node dissection necessary in the presence of metastasis in the sentinel lymph node?

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Introduction: The management of the axilla in the presence of positive sentinel lymph node (SLN) remains controversial. Some centres forgo completion axillary lymph node dissection (cALND) in micrometastases in the SLN. The ACOSOG Z0011 trial argues for extending this to macrometastasis. The aim of this study was to examine the extent of disease in the residual lymph node basin following positive SLN biopsy.

Methods: Patients who underwent cALND following a positive SLN were analysed for histopathological features and burden of disease.

Results: Of 151 patients, 109 (72%) had macrometastases, 38 (25%) micrometastases, 3 (2%) fibrosis post-neoadjuvant chemotherapy and 1 (0.7%) isolated tumour cells (ITC) in SLNs. Residual axillary disease was detected in 47/151 (31%) patients with macrometastases and 2/38 (5%) patients with micrometastases. Both patients with micrometastases were categorised as failed SLNB due to high volume disease in residual lymph nodes. Logistic regression analysis showed increased odds ratios for further disease in all groups when compared to the 2−2.9 mm group, and statistical significance for >5 mm deposit.

Conclusion: Patients may be advised to undergo cALND based on size of metastasis in the SLN and risk of further axillary nodal disease.

Size of SLN met (mm)	Further axillary disease (%)	No further axillary disease (%)	Total
2−2.9	1 (9)	10 (91)	11
3−3.9	5 (29)	12 (71)	17
4−4.9	5 (42)	7 (58)	12
>5	37 (54)	32 (46)	69

http://dx.doi.org/10.1016/j.ejso.2013.01.028

22. Have we changed the management of axilla with positive sentinel node biopsy in breast cancer since the introduction of the NICE guidelines in 2009?

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NICE guidelines − February 2009 recommended that all women with breast cancer should have a pre-operative ultrasound evaluation of the axilla and recommend Sentinel Node Biopsy (SNB) should be recommended as a staging procedure of the axilla. Further axillary clearance is recommended if sentinel node has metastases including micrometastases.

Aim: To compare management of axilla following positive sentinel node biopsy before and after implementation of the NICE guidelines at a single centre.

Method: A retrospective analysis of women who underwent SNB in a Breast Unit from 2005 to 2010 was performed. Patient demographics, surgical procedures and histology were obtained from the hospital's electronic records system. The pre and post guideline second axillary procedure and outcomes were compared

Results: 1348 patients underwent a sentinel node biopsy, 271 (20.1%) showed metastases in the sentinel node. Completion axillary node clearance was performed in 172 patients. 64 (23.6%) patients had further non-sentinel node metastases.

	Before NICE guidelines (year 2005−2008)	After NICE guidelines (year 2009−2010)
No. of patients who had SNB	760	588
No. of patients with positive SNB	145 (19.1%)	126 (21.4%)
Other axillary procedure with SNB		
-SNB only	74 (51%)	102 (81%)
-SNB + Axillary sampling	45 (31%)	19 (15%)
-SNB + Axillary clearance	26 (18%)	5 (4%)
Positive SNB		
-ITC	6 (4.1%)	2 (1.6%)
-Micrometastases	29 (20%)	29 (23%)
-Macrometastases	110 (75.9%)	95 (75.4%)
Further axillary clearance	74 (51%)	98 (77%)
Further lymph node metastases	26 (35%)	18 (18.6%)

Conclusion: Since the introduction of the NICE guidelines, there is an increase in the number of completion axillary procedures particularly in micrometastatic disease

Less than 20% of patients showed further lymph node involvement, probably due to effective pre-operative ultrasound evaluation of the axilla.

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23. Axillary pathology complete response rates in node positive breast cancer patients after neoadjuvant chemo- or endocrine therapy

Panagiottis Pappas, Mohammed Tahir, Jennifer Rusby
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Introduction: Patients who are node positive at diagnosis (by FNAC or core biopsy) and undergo neoadjuvant treatment are usually offered axillary lymph node dissection (ALND). Reported axillary pathological complete response rates (pCR) have risen to 50% in some subgroups. The ACOSOG Z1071 trial, reported at San Antonio 2012, suggests that further studies are required prior to use of SLNB in these patients. This study retrospectively assessed the rate of axillary pCR after neoadjuvant treatment in a UK cohort of node positive patients, with specific attention to tumour subtypes.

Methods: Electronic records of patients with proven axillary metastases (C4/5 cytology) at diagnosis, treated with neoadjuvant chemo- or endocrine therapy followed by ALND between June 2006 and October 2012 were examined. Patient age, tumour type, grade, receptor status and treatment regime were recorded. Pathological complete response (no invasive or in situ disease) in the breast and the axilla were recorded. Results were subdivided by receptor status.

Results: 194 patients had documented abnormal axillary cytology, neoadjuvant treatment and ALND. The results are shown in the table.

	pCR breast (%)	pCR axilla (%)
Neoadjuvant endocrine therapy, $n = 22$	0(0)	3 (12)
Neoadjuvant chemotherapy, $n = 124$	33 (20)	55 (33)
Receptor subtypes (chemotherapy patients):		
ER−, Her2−, n = 27	*9 (24)*	*12 (32)*
ER+, Her2−, n = 52	*8 (11)*	*11 (15)*
ER−, Her2+, n = 21	*7 (27)*	*14 (54)*
ER+, Her2+, n = 21	*9 (30)*	*18 (60)*

Conclusions: Tumour subtype is crucial to response to neoadjuvant chemotherapy and Her2 positive cases with a higher chance of axillary pCR should be the focus of attempts to identify those in whom more conservative surgery may be appropriate.

http://dx.doi.org/10.1016/j.ejso.2013.01.030

24. Relationship between aspirin use after diagnosis of breast cancer and survival in a cohort of Scottish women

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Breast cancer is the most common malignant cancer in the UK. Recent studies suggest that aspirin may have a protective effect in the prevention and progression of breast cancer.

We carried out an observational population study on a cohort of 4627 women diagnosed with breast cancer between 1st January 1998 and 31st December 2008.

4627 patients were identified. 1530 patients died during the study period, with 815 deaths attributed to breast cancer. The use of aspirin in 872 subjects following diagnosis was associated with a lower risk of all-cause mortality (HR = 0.46, 95% CI = 0.40−0.54, $p < 0.001$) after adjusting for age, socioeconomic status, tumour characteristics and aspirin use pre diagnosis.

Aspirin use post diagnosis was also associated with reduced risk of breast cancer mortality (HR = 0.48, 95% CI = 0.38−0.59, $p < 0.001$).

We noted that pre diagnosis use of aspirin caused an increased risk of all-cause mortality (HR = 2.04, 95% CI 1.74−2.40, $p < 0.001$) and breast cancer mortality (HR = 2.70, 95% CI 2.16−3.38, $p < 0.001$) after adjustment.

The results of our study suggest that aspirin use following a diagnosis of breast cancer is associated with reduced breast cancer mortality and all-cause mortality. Further research is needed but aspirin could potentially be used as a future agent in the treatment of breast cancer. The increased risk of death recorded when aspirin is used pre diagnosis is likely to be highlighting a subgroup of patients with pre-morbid cardiovascular disease. This in turn could lead to a poor outcome in breast cancer survival.

http://dx.doi.org/10.1016/j.ejso.2013.01.031

25. Experience of delivering intra-operative radiotherapy in a DGH

Siân Pugh, Archana Shetty, Virginia Hall, Sanjay Raj, Siobhan Laws, Dick Rainsbury
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Introduction: Interim results of the TARGIT-A trial comparing partial with whole breast irradiation show similar rates of local recurrence. We describe our experience in the Royal Hampshire County Hospital (RHCH) in Winchester, the only DGH in the UK to participate in the trial.

Methods: 112 patients were recruited from September 2008 to June 2012, of which 96 were recruited prior to surgery. 57 were randomised to receive intra-operative radiotherapy (IORT), of which five with pre-determined risk factors were given additional external beam radiotherapy (EBRT). All patients adhered to the trial protocol and data was recorded prospectively.

Results: Most patients recruited had good-prognosis tumours (73% screen detected, median diameter 14 mm (range 5−70 mm), 79.5% non-grade 3, 80.4% node negative). The median duration of surgery was longer for the IORT group (100 min IORT (range 45−215 min) *versus* 70 min EBRT (range 35−270 min), $p < 0.0001$) although length of stay was similar (76.8% IORT *versus* 83% EBRT day case, $p =$ ns), and complication rates were low in both groups (3 IORT *versus* 4 EBRT, $p =$ ns).

Conclusions: IORT can be successfully and safely delivered to short-stay patients in a DGH, with low complication rates. The extra time spent in theatre was offset by the avoidance of EBRT in more than 90% of patients. Patient interest led to recruitment levels in the top 30% of participating centres, highlighting the valuable role that DGHs can play in such clinical trials.

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Session 18 – Nursing Submitted Papers Wednesday 22nd May 2013, 11:30 to 12:00

26. Ensuring nursing provision for people with metastatic breast cancer

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An estimated 36,000 women are living with metastatic breast cancer (MBC) at any one time in the UK (Maher and McConnell 2011). Recent studies have shown that women with MBC do not receive the same level of support following a diagnosis of MBC, as they did when initially diagnosed with primary breast cancer (Secondary breast cancer taskforce 2008), and are more likely to have ongoing physical and psychological unmet needs throughout their trajectory (Reed et al 2012).

In 2012 a nursing toolkit for delivering a specialist nursing service for MBC patients was produced, co-designed with clinical nurse specialists. Its purpose is to promote examples of good practice to other nursing teams across the UK. The toolkit covers a range of important topic areas including: developing a nursing service to reflect current policy and national guidelines; making suggestions about changes to an existing service; as well as case studies of nurses in practice.

Using case studies, this presentation will demonstrate how the toolkit has been utilized by NHS nursing teams to develop specialist MBC nursing services in the UK. It will focus on different models and approaches and discuss some of the positive outcomes and challenges that nurses have experienced in developing specialist nursing services for people with MBC

http://dx.doi.org/10.1016/j.ejso.2013.01.033

27. The patient experience of 'short-stay/23 hour discharge' following mastectomy

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This qualitative study explores the experience of nine women discharged from hospital on the '23 hour/short stay pathway' after unilateral mastectomy, without reconstruction as treatment for breast cancer.

A phenomenological study design was employed. Data was analysed in accordance with Giorgi's four-step method (1985).

The main theme that emerged from the data was the desire expressed by all participants to return to normal life and activities as soon as possible. For some this was intrinsically linked to their role in society as wives, mothers and care providers. For most the experience was empowering, enabling them to take control of their own recovery. Being well prepared and well supported were key elements that enabled the participants to have the confidence to manage at home. Postoperative complications were well managed and the participants felt reassured by having the contact numbers of the Nurse Specialists who played a pivotal role in providing information and support. Patient satisfaction was high and no-one said that they felt pressured to leave hospital before they were ready. Some said that they had felt vulnerable at first and did not feel confident to be proactive in asking for help and advice after discharge. As a result of this finding a post discharge telephone call by the Nurse Specialist was introduced.

The study provides evidence to support the view that 23 h discharge following mastectomy is not only feasible from a medical perspective; it is also acceptable to patients.

http://dx.doi.org/10.1016/j.ejso.2013.01.034

28. Assessment of the impact of a healthy living program on survivorship after breast cancer treatments

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Aim: To evaluate if a "healthy living programme" impacts on the health and well-being of women following breast cancer treatment.

Background: The National Cancer Survivorship Initiative recognises cancer patients need support during the transition period between completing treatment and returning to normal activities. Research shows that patients experience a combination of physical and psychological responses after a diagnosis of breast cancer and physical activity can improve the well being of cancer patients.

Methods: Each patient was offered ten sessions of a gym based (or home work-out) programme by a qualified instructor. Exercises were individually designed for each patient taking into account their specific ability and requirements. This was supplemented with three educational sessions at monthly intervals. Data collected: physical health, emotional health and fitness, using a combination of questionnaires and visual analogue scores (VAS).

Results: 136 patients invited into the programme, 52% ($n = 71$) participated, 39.7% ($n = 54$) showed interest in the exercise programme. Prior to diagnosis 80% ($n = 57$) perceived they had good emotional health, 70% ($n = 50$) had a good level of fitness, 65% ($n = 46$) had good physical health. Post cancer treatments this decreased to 62% ($n = 44$) for emotional health, 50% ($n = 35$) for fitness and 60% ($n = 43$) for physical health. Post healthy living programme this increased to 75% ($n = 53$) emotional health, 69% ($n = 49$) for fitness and 75% ($n = 53$) for physical health.

Conclusion: The study has shown that patients well being and health improves after attending a structure programme. Patients' fitness, physical and emotional health, prior to diagnosis was high. Post treatments all areas deteriorated. At the end of the programme data showed a marked improvement. Physical health showed the most improvement while emotional health recovered gradually.

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