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Is preoperative axillary ultrasound scan detection associated with clinicopathologic features at presentation in early-stage breast cancer?

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Introduction: UK guidelines state all patients diagnosed with invasive breast cancer should have a preoperative axillary us scan, PAUS, and if appropriate Fine Needle Aspiration (FNA) or core biopsy should be carried out (1). The accuracy of PAUS varies because of its operator dependency (2, 3, 4) but there are limited data correlating PAUS findings with known clinicopathological features preoperatively (5, 6). We have recently examined the accuracy of PAUS at our unit .The aim of this study is to assess the association of PAUS nodal metastasis with cinicopathological features to see if the pre operative detection rate is related to tumour morphology and patient factors.

Materials & Methods: This is a retrospective study. Patients case notes and hospital cancer database were studied to identify lymph node positive (LN+ve) breast cancers. PAUS findings, patient demographics, mammographic and tumour characteristics were recorded. Thickening of the cortex ≥ 2.3 mm was considered abnormal prompting a biopsy. The correlation of nodal status as assessed by PAUS was compared with various histological factors including tumour grade, size, presence of lymph vascular invasion (LVI), oestrogen receptor status(ER+), human epidermal growth factor receptor -2 (HER-2) status as well as breast cancer subtypes including invasive ductal cancer (IDC) with or without ductal carcinoma in situ (DCIS), invasive lobular cancer (ILC) with or without DCIS and mixed special type (ST).Patient related factors including age at presentation, gender, symptomatic lump and clinically palpable lymph nodes as documented in triple assessment were also studied. Correlation was tested using χ^2 test with p value of ≤0.05 as significant.

Results: Over a 2 year period (2012-2014), two hundred and five patients were diagnosed with LN+ve breast cancer. The mean age was 61 (range 31-90) with male to female ratio of 4:201. One hundred and forty patients (68%) were symptomatic. Thirty eight (18.5%) had palpable lymph nodes as documented in triple assessment. One hundred and fifty eight (77%) had IDC with or without DCIS, twenty nine (14.1%) were ILC with or without DCIS and eighteen (8.7%) were classified as having ST.Of the factors studied, tumour size of ≥ 5 cm (χ^2=7.743, p= 0.0054) and clinically palpable lymph node (χ^2 =24.74, p= P<0.0001) were significantly associated with positive PAUS findings.The Presence of Grade 3 tumour (χ^2=4.072, p=0.0436) and LVI were also associated with positive PAUS (χ^2 =4.374, p= 0.0365). There was no significant association between positive PAUS and age at presentation, Gender, symptomatic lump,subtype of breast cancer (IDC, ILC, and ST) and ER and HER-2 status.

Conclusion: The presence of LVI, grade 3 tumour, large tumour size and palpable lymph node at triple assessment are associated with positive PAUS, suggesting possible lymph node metastasis and prompting a second look ultrasound scan of axilla. If additionally validated, these findings can improve the preoperative detection of axillary lymph node metastasis influencing management options.