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ORIGINAL ARTICLE

The significance of mammotome core biopsy specimens without radiographically identifiable microcalcification and their influence on surgical management—A retrospective review with histological correlation ☆

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Summary The aim of this study is to assess core specimens which do not contain radiographically visible calcification at stereotactic vacuum assisted core biopsy (SVACB) of indeterminate microcalcification, to determine what influence they may have on the surgical management of patients with breast disease.

Review was made of the core biopsy and surgical histology results of 104 SVACB biopsies of indeterminate microcalcification over a 26 month period. Cores were placed in separate pots; POT A for cores containing microcalcification and POT B for cores without radiographically visible microcalcification before being sent to histology.

Of 104 biopsies, 25% contained B3–B5 pathology in POT B and at surgery this correlated with a higher grade of ductal carcinoma in situ (DCIS) and an increased likelihood of invasive disease. The presence of B3–B5 pathology in POT B itself however did not act as a strong indicator of radiological–histological size discrepancy in this study.

Introduction

Stereotactic vacuum assisted core biopsy (SVACB) is established as a safe and effective technique in the assessment of microcalcification. Many authors have acknowledged its improved performance

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compared to stereotactic automated core biopsy due to more accurate targeting leading to better retrieval of calcification and the ability to obtain multiple cores via a single needle insertion.[1]

In addition, due to the larger volume acquired it has been shown to significantly lower underestimation rates for both ductal carcinoma in situ (DCIS) and atypical ductal hyperplasia (ADH).[2,3]

Jackman and colleagues also found that with an increased average number of core samples obtained per lesion the underestimation rate with respect to DCIS was lower still and similar results have been shown for ADH.[3,4]

This in part will be due to the increased number of microcalcifications removed; however, in addition, an increased volume of the adjacent breast parenchyma will also inevitably be sampled and a number of previous studies have shown that significant pathology can often be found in the tissue adjacent to the target lesion.[5–7]

This 'extra' breast tissue will result in an increased yield of pathology from the underlying lesion situated immediately adjacent to the cluster of microcalcification and as a result will improve the accuracy of the overall histological diagnosis and therefore influence the planning of subsequent surgery.

Lesion-related factors that may influence the nature of the surgical procedure as a result of a core biopsy are disease extent, tumour grade and the presence of invasion.

Disease extent is difficult to determine by SVACB unless a large volume of tissue, resembling that commonly obtained during a wide local excision (WLE), is removed. If however it is shown that the presence of potentially significant pathology (B3–B5) in the POT B specimens is associated with disease that is markedly greater in size than that implied by the mammographic appearance, it would be reasonable to suggest that with such lesions a larger volume of tissue should routinely be removed, thus reducing the risk of involved margins and a second procedure to remove additional tissue. Table 1 outlines the histological grading system used in our Breast Screening Unit.

Table 1 Histological grading classification.

Grade	Definition
B1	Normal breast tissue
B2	Benign
B3	Suspicious—probably benign
B4	Suspicious—probably malignant
B5	Malignant

In this study, we have looked specifically at those core specimens which do not contain radiographically visible microcalcification to establish their significance in determining the overall histological diagnosis, their relationship to actual lesion size and their influence on the surgical management of women with breast disease.

Materials and methods

A retrospective review was made of the records of women who had undergone SVACB of indeterminate or suspicious microcalcification between April 2002 and June 2004. For this 26 month period we were able to retrieve complete data on a total of 103 patients. Eighty-one of these women had been recalled for assessment as part of the National Health Service Breast Screening Program (NHSBSP). The remaining 22 patients had been referred as a result of microcalcification discovered during the assessment of symptomatic disease. The pattern of presentation in these symptomatic women is shown in Table 2.

As part of the NHSBSP, women between the age of 50 and 70 years are screened at three yearly intervals using two standard mammographic views. Screening mammograms are then routinely assessed by radiologists experienced in mammography. Microcalcification which is regarded as indeterminate or suspicious is referred for SVACB. SVACB for masses, asymmetric densities or distortions were not included as part of this study.

Table 2 Clinical presentation in symptomatic patients.

Presenting symptom	Number of patients
Lump	
Ipsilateral breast	6
Bilateral	1
Pain	
Ipsilateral breast	3
Contralateral breast	2
Nipple discharge	2
Family history referral	3
Follow-up for previous malignancy	
Ipsilateral breast	3
Contralateral breast	2