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Research Article

SENSITIVITY OF CORE BIOPSY VERSUS FINE NEEDLE ASPIRATION FOR DETECTION OF PALPABLE AND DOUBTFUL BREAST LESIONS

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Abstract:

Objective: To assess the sensitivity of the core biopsy (CB) compared to the Fine Needle Aspiration Cytology (FNAC) for the pre-diagnosis of suspected breast lesions that are clinically addressed.

Study design: A prospective comparative study.

Adjustment and Duration: In the West Surgery department of Mayo Hospital, Lahore for one year duration from May 2016 to May 2017.

Methodology: Fifty-two patients with suspected non-fatal breast lesion in the Surgical Unit IV Breast Clinic FNAC and CB performed no imaging guide, including clinical, radiological and tissue diagnosis.

Results: Fifty suspicious palpable breast lesions presenting to FNAC and CB. FNAC suspected malignancy (C4) was found in 21 patients (40.40%), atypia C3-7 patients (13.5%) and in one patient sample was inadequate in 14 patients (26.9%), carcinoma (C5) confirmed (1.9%). Nine patients were benign, then false negative (17.3%). The absolute sensitivity for FNAC was 26.9%, while full sensitivity was 80.71%. B5a invasive carcinoma by biopsy was detected in 6 patients (12.05%), B5b in 38 patients (72.90%), B4 suspected in 7 patient but was uncertain (13.9%) and in 1 patient B3 was found. The absolute sensitivity of Core biopsy is 84.62%, while the exact sensitivity is 100%.

Conclusion: Core biopsy is more sensitive than FNAC in the preoperative diagnosis of palpable breast lesions. It also provides information on tumor grade, tumor type, recipient status, and helps in planning neoadjuvant therapy for advanced breast carcinoma.

Key Words: Fine needle aspiration cytology (FNAC), Palpable breast lesion, Core biopsy (CB), Breast cancer, Absolute sensitivity Total sensitivity.

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INTRODUCTION:

Breast lump is the most common symptom in breast clinics. Triple assessment consists of clinical examination, breast imaging (mammography/ or ultrasound), tissue biopsy by aspiration cytology for the preoperative diagnosis by FNAC or CB (biopsy) for detection of Breast cancer preoperatively. Fine needle (FNAC) initially used in the UK, used in the triple evaluation of breast lesions in the screening program. Core Biopsy (CB) was introduced to assess the detected lesions diagnosed at the end of the 1990s, with the use of FNAC reduced, and several screenings were completely abandoned. In some series, FNAC has been reported to have a false negative rate of as low as 1.4%. There are, however, other series of diagnostic difficulties in the interpretation of the cytological preparation. Therefore, cytological diagnosis may not be possible for 30% of the patients undergoing this test. Other disadvantages are between early breast cancer and FNAC which does not allow the distinction between invasive carcinoma and carcinoma in situ and cannot evaluate the degree of tumor in advanced definitive treatment plan. The Core biopsy of the breast lesion provides histological diagnosis, the degree of the tumor, the type of tumor, and the condition of the recipient. The surgeon and oncologist provide all reliable information that will guide the modern

treatment strategy and the ultimate use of neoadjuvant therapy. The aim of our study was to compare the Core biopsy and FNAC results in terms of absolute and complete sensitivity for clinically administered palpable breast lesions without imaging orientation. Reporting categories for FNAC and core biopsy used in the NHS for breast screening.

MATERIALS AND METHODS:

This prospective comparative study was held in the West Surgery department of Mayo Hospital, Lahore for one year duration from May 2016 to May 2017. All patients presented with suspicion of a palpable breast mass at the Breast Clinic of the surgical unit. Triple assessment were applied to all patients including fine needle aspiration (FNAC) and core biopsy cytology including clinical examination, imaging (ultrasound / mammography) and tissue diagnosis. Core biopsy and FNAC were performed by a consultant surgeon in the ambulatory setting at the Breast Clinic, after approval and patient consent. FNAC was done without anesthesia after an aseptic measurement with a 21 gauge needle placed in a 10 ml syringe. A minimum of 2 smears were prepared on slides, fixed with absolute alcohol and sent for cytological evaluation. Biopsy procedure is shown in Figure 1.

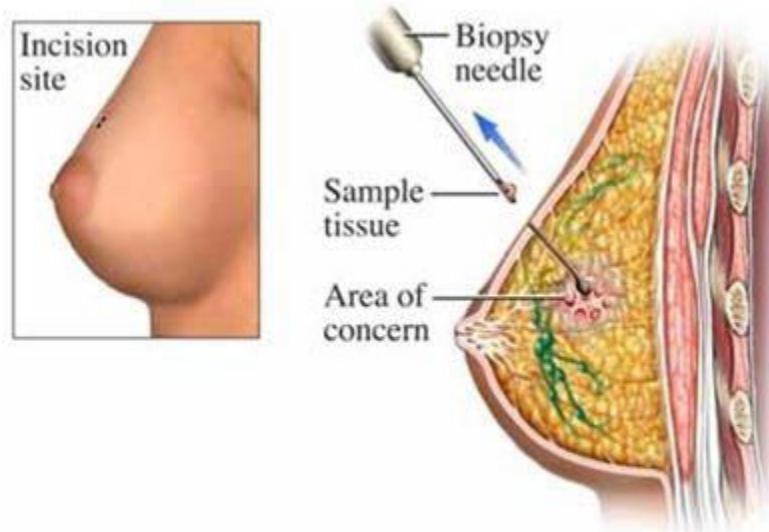


Figure 1: Fine Needle Aspiration

The core biopsy was performed with a 14-gauge trucut needle and 100-mm of size. To insert the disposable tip of a local anesthetic needle trucut using 2% lignocaine infiltrated with a small 2-3 mm incision made with a scalpel after aseptic measures. The biopsy sample was obtained by four consecutive splices with different needle angulations in the core of the lesion. The tissue was placed in 10% formalin, sent to the histopathologist, and the results of both procedures were tabulated and complete absolute sensitivity was calculated and compared. The data were entered into the Statistical Social Sciences Program (SPSS version 11).

Table 4: Comparison of core needle biopsy and fine needle aspiration

	<i>Core needle biopsy</i>	<i>Fine needle aspiration</i>
Sensitivity	High (88-94%)	Lower/ equivalent to CNB) (77-97%
Specificity	High (90-100%)	Lower/ equivalent to CNB (64-100%)
False negative rate	Low (0.5-9%)	Variable (5-15%)
False positive rate	Low (0-1%)	Variable (5-10%)

RESULTS:

The total number of patients was 52. The mean age was 46.12 (\pm 12.36) years. The size of the evaluated lesion ranged from 2 to 13.5 cm and the mean size was 5.33 cm (\pm 2.88). FNAC confirmed carcinoma in 14 of 52 patients (26.9%), suspected malignancy in 21 (40.4%), C3 atypia in 7 (13.5%), and benign in 9 patients. in (17.3%) shows false negative results and sample was inadequate in 1 patient (1.9%). In 52

Absolute sensitivity (Category 5) = number of cancers, detected on needle biopsy, was identified in the category 5 and biopsy was expressed as a percentage of the total number of carcinomas. Complete the sensitivity (Caegory3 / 4/5), expressing the number of carcinomas identified in category 3,4 and 5, the total number of carcinomas were expressed in percentage confirmed on needle biopsy. False negative speed = number of false negatives (Category 2 result is expressed as a percentage of the total number of carcinomas performed by needle biopsy). Comparison of core biopsy and fine needle aspiration cytology shown in Table 4.

patients, invasive B5b carcinoma in 38 patients (73.1%), noninvasive B5a carcinoma in 6 patients (11.5%), and B4 malignancy in 7 patients (13.5%) were suspected in 52 patients. and B3 were benign but unclear (1.9%) in 1 patient. While absolute sensitivity of FNAC (C5) was 26.92%, the absolute sensitivity of Core biopsy was 84.62%. The exact sensitivity for FNAC observed in this study was 80.71%, whereas it was 100% for Core biopsy.

Table I. Reporting Categories for FNAC and Core Biopsy according to “NHSBSP Guideline”

FNAC		Core Biopsy	
C1	Inadequate	B1	Unsatisfactory/Normal tissue only
C2	Benign	B2	Benign
C3	Atypia probably benign potential	B3	Benign but uncertain malignant
C4	Suspicious of malignancy	B4	Susupicious of malignancy
C5	Malignant	B5a	Non invasive carcinoma
		B5b	Invasive carcinoma
		B5c	Cancer of non assesable invasiveness

DISCUSSION:

Needle core Biopsy has become a widely used technique to assess breast lesions detected palpable / radiographically. This technique changed the practice in the preoperative diagnosis of lesions in symptomatic lesions and was detected on the screen. Atypical Core biopsy (B3) is more valuable than B3 injury core biopsy changes to the subsequent division of the clinically atypical tan to the FNA (C3) that carries the risk of malignancy. FNAC is cheaper and less invasive, but does not provide all the information needed to decide on the modern management of breast cancer compared to CB. FNAC reported problems include insufficient sample performance, low sensitivity and low performance in some injuries, eg inability to differentiate invasive lobular carcinoma, false positivity, and noninvasive invasive disease. Neoadjuvant does not provide an assessment of the degree and analysis of hormone receptors that are important in treatment planning. The above problems can be addressed to some extent by the cytopathologist, but such experience is not available in all centers that treat breast cancer. These reasons led to the introduction of FNAC by Core biopsy and gradual replacement. In our study, the size of the lesions was taken from biopsy of the SEFA and compared with the dimensions reported in the study with Prlgrim S and M. Bdour studies that were the same and few of the obvious lesions were compared, but most of them were more sensitive to the Core biopsy found. For FNAC and Core Biopsy, sensitivity was 67% versus 94%, 90% versus 95% and 90% versus 97%. The reported full sensitivity was greater than 90% for FNA and 99% for Core biopsy. Waqar and Qaisar were diagnosed with 100% of CB, and 89.3% of FNAC had breast injuries. The results of the core biopsy showed an absolute sensitivity of 84.62% and a full sensitivity of 100%. This is very close to the results reported in the literature. Preferred values for the Core Biopsy proposed by the NHSBSP and the European Union are greater than 80% and 90% for absolute and complete sensitivity, respectively. In this study, absolute sensitivity for FNAC was very low, ie, 26.92% with respect to full sensitivity, ie, 85.71%, which was reported in the literature. In this study, both FNAC and Core biopsies were performed without imaging guidance; it was not always necessary for successful CB and FNAC in relatively large palpable lesions.

CONCLUSION:

Core biopsy has potential benefits and helpful for preoperative histological diagnosis is more sensitive than FNAC to allow for the grade of the tumor, the condition of the recipient, and the final use of

neoadjuvant therapy for breast injury.

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