



Letter to Editor

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Diagnostic Accuracy of Fine Needle Aspiration Cytology, Triple test and Tru-cut Biopsy in the Detection of Breast Lesion

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INTRODUCTION

Palpable breast masses require a thorough clinical breast examination, imaging, and tissue sampling for a definitive diagnosis to rule out malignancy. Mammography screens in same or contralateral breast can also detect malignant lesions in older women. Ultrasonography is particularly valuable in detecting cystic masses, and may be used to guide biopsy techniques. Invasive procedures such as core-needle biopsy allow histologic diagnosis, hormone-receptor testing, and differentiation between in situ and invasive disease. Breast masses have a variety of etiologies, benign and malignant. Fibroadenoma is the most common benign breast mass while invasive ductal carcinoma is the most common malignancy. In this review, an attempt is made to examine the role of FNAC, triple test & Tru-cut biopsy in the detection of breast lesions.

ROLE OF FNAC IN DIAGNOSIS OF BREAST LESIONS: Fine needle aspiration cytology (FNAC) has become a critical component in the investigation of palpable breast masses and has become popular as a valuable tool in preoperative assessment of breast masses. It has gained popularity due to its fast and easy approach, being inexpensive, and can be performed with little complications.

The three main areas where FNAC plays a major role are the following:

- a) Diagnosis of benign disease in symptomatic palpable lumps as part of triple assessment.
- b) Staging of breast carcinoma, in particular preoperative axillary lymph node FNAC.
- c) Diagnosis of metastatic disease at distant sites following treatment for carcinoma^[1].

Reports in literature shows an efficient role of FNAC in the evaluation of breast masses with a high accuracy rate, sensitivity rate and specificity rate:

- i. Accuracy rate which ranges from 95.8 % t 97.87% ^[2-4]
- ii. Sensitivity rate which ranges from 95% to 98.4% ^[5, 6]
- iii. Specificity rate which ranges from 60% to 93% ^[5, 6]

In spite of these, there are instances where the smear is reported as inadequate which ranges from 0.7% to 25.3%, and this is influenced by the nature of the lesion, the available technology, and the experience of the operator. It has been reported that the nature of the lesion (schirrous lesions) was the most common cause of inadequacy of FNAC, accounting for 68% of the inadequate aspirates, followed by the experience of the aspirator that accounted for 32% of the inadequacy rate^[7]. In order to overcome such circumstances, most centers have now adopted a triple assessment approach, i.e. clinical, imaging and FNAC as the first-line of investigations in both screening and symptomatic populations. This increases the accuracy rate to 98% to 100%. ^[8, 9] Triple assessment is a cost effective, easy to perform and time saving approach^[1].

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TRIPLE TEST APPROACH

The triple test, initially described in 1975, is the evaluation of palpable breast masses by physical examination, mammography, and fine-needle aspiration. The triple test score (TTS) is useful and accurate for evaluating palpable breast masses and can replace open surgical biopsy for diagnosis when all 3 components are concordant; that is, all benign or all malignant^[10]. Where discordant results have been obtained the patient may be subjected to further investigations and an open surgical biopsy. The three prongs of Triple test are Clinical Breast Examination, Breast Imaging (Breast Ultrasound and/or Mammogram) and Fine needle aspiration cytology.

Further a triple test has been subjected to a scoring system for the above criteria. Each criteria is assigned 1-3 points as follows : Benign (1 point), Suspicious (2 points) and Malignant (3 points). Interpretation of result is based on total score between 3 to 9.

1. Total score of 3-4: Benign lesion
2. Total score of 5: Intermediate risk that requires excisional Biopsy.
3. Total score of 6 or more: Possible malignancy & Surgical intervention may be indicated

TRU-CUT BIOPSY: In cases of assessment of a discrete mass in the breast, ultrasound-guided automated Tru-cut needle biopsy may be used as an alternative to fine needle aspiration cytology. The sensitivity of the procedure for detecting significant pathology ranges from 88.7% to 97%, and the specificity ranges from 96.8% to 100%.^[11-13] When used as part of triple assessment, the sensitivity increases to 97.9%.^[13]

Tru-cut biopsy vs FNAC: Studies have shown that tru-cut biopsy is superior to FNAC in confirming breast cancer in suspicious lumps and it enables a definite histology of the lesion with low cost, well tolerated and low complication rate and obviates the need for formal excision biopsy of lesions in which there is a low index of suspicion^[11,14].

The use of core biopsy (CB) has increased, although not always for evidence-based reasons. CB and FNAC are not mutually exclusive. FNAC should be used in diagnosis of benign, symptomatic lesions and CB as an alternative diagnostic modality should be used advisedly, in situations where it is more likely to yield diagnostic information, e.g., in the diagnosis of impalpable masses, microcalcifications or a clinically apparent malignancy where preoperative chemotherapy has been planned. CB should not be used as a substitute for poor performance at FNAC. Where there is access to skilled cytopathologists, FNAC and CB can complement each other and provide a highly accurate, rapid and cost-effective means of patient triage^[15].

In spite of the measures taken above, a "gray zone" exists between benign and malignant lesions in FNAC of breast where an unequivocal diagnosis cannot be given. Presently, many different techniques, such as morphometry, stereology, and static image and flow cytometry are routinely used in diagnostic quantitative pathology which is more reproducible and capable of preventing under and over treatment.

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