

ORIGINAL RESEARCH

## Breast Cancer Nodal Staging- Reliability of Clinical Assessment with Core Biopsy

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### ABSTRACT

**Background:** Aim of this study to estimate the diagnostic accuracy of clinical assessment with ultrasound guided axillary node core needle biopsy (CNB) / fine needle aspiration cytology (FNAC) for axillary staging in early stage breast cancer.

**Materials and Methods:** This prospective study was conducted in a tertiary care centre of central India in medical college hospital Jabalpur. We identified 64 consecutive patients of newly diagnosed early stage breast cancer. After clinical examination, ultrasound axilla guided core biopsy or fine needle aspiration cytology was performed if the node was in ultrasound. Axillary node dissection was performed in all patients. Preoperative and postoperative nodal positivity was compared and analysed.

**Results:** Clinically and by ultrasound sensitivity and specificity of metastatic nodes was 50 and 75% and 75 and 83% respectively. False negative rate of our study was 6.2% that is equivalent to sentinel node biopsy. Sensitivity of guided FNAC/biopsy was 50 % in our study.

**Conclusion:** Our study showed use of detailed clinical assessment is a good alternative where facility of sentinel node biopsy is not available. It is a good and less morbid alternative to sentinel node biopsy and if the result is positive can proceed directly to axillary node dissection

**Keywords:** Breast cancer, Axillary node core biopsy, Axillary node fine needle aspiration cytology, Nodal staging.

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### INTRODUCTION

Breast cancer is a major public health problem throughout the world. Although breast cancer has traditionally been less common in non-industrialized nations, its incidence in these areas is increasing.<sup>[1]</sup> Axillary node dissection came to be regarded as a staging procedure that provided prognostic information and maintained local control in the axilla. Avoid nodal dissection in early stage breast cancer is debatable because of low nodal positivity rate in T1/T2 cancer and with availability of effective systemic therapy.<sup>[2,3]</sup> For node negative breast cancer now sentinel node biopsy is standard of care using radiotracer and blue or Indocyanine green (ICG) dye.<sup>[4]</sup> Sentinel node biopsy is not feasible in large parts of developing countries due to lack of availability of radiotracer agent and frozen section facility. There are some practical issues to be resolved related to sentinel node biopsy.<sup>[5]</sup> This study is to determine the diagnostic accuracy of clinical assessment with ultrasound guided core biopsy/FNAC in early

stage carcinoma breast and can we use good clinical assessment with ultrasound guided CNB /FNAC as alternative to sentinel node biopsy where the facility of sentinel node biopsy is not available.

## MATERIAL AND METHOD

This was a prospective study conducted in a tertiary care centre of central India in medical college hospital Jabalpur. We identified 64 consecutive patients who sought care from August 2019 to February 2020 of newly diagnosed early stage breast cancer. After obtaining informed consent of all patients of T1-T2 node negative cancer that was confirmed by ultrasound axilla with guided CNB/FNAC were included in the study. After evaluation axillary dissection was done in all patients. T3, T4, matted, fixed nodes (N2) and patients with less than 15 nodes dissected in axillary dissection were excluded from study. Axillary lymph node was identified as positive if it could be palpated by at least one physician on examination (If node was matted and fixed it was excluded from study). If the node is not palpable or mobile on physical examination ultrasound axilla with high frequency probes was done. Round shape, long to short axis ratio  $<2$ , hypoechoic, compression or disappearance of fatty hilum or cortical thickening or asymmetry in lymph nodes was considered abnormal on ultrasound.<sup>[5]</sup> If there is no abnormal feature in ultrasound it is considered as cN0 disease. If nodes were abnormal in ultrasound then guided biopsy/FNAC was performed. The decision to perform fine needle aspiration or core needle biopsy was based on operator preference. Axillary dissection was performed in all patients. Level I and level II axillary nodes were removed in all patients. Nodes were subsequently submitted for permanent section and evaluated by haematoxylin and eosin staining. Preoperative and postoperative findings were confirmed and analysed after cross tab analysis using SPSS 17 software.

## RESULTS

We identified and evaluated 64 women with invasive breast cancer who had completed predefined protocol of clinical examination and USG axilla with guided biopsy/FNAC in suspicious nodes. Mean age of the cohort was 56 years. Epidemiological profile of our cohort of patients was mentioned in [Table 1]. Mean tumor size was 3.1 cm. Mean 19 nodes were dissected in a cohort of 64 patients. In clinical examination 21 patients (35%) had suspicious mobile node. 15 patients had abnormal axillary nodes in ultrasound axilla, in these 15 patients core biopsy/FNAC was done.

In 11 patients, guided biopsy/FNAC was negative for metastasis and 4 patients had positive nodes for metastasis. After complete clinical assessment axillary dissection was done in all 64 patients and nodal tissue sent separately for pathological analysis. Nodal tissue was examined by haematoxylin and eosin stain. At final surgical pathology 8 patients (12.5%) of the 64 patients with breast carcinoma had node positive disease. 4 additional patients were positive for metastatic node in axillary dissection even after complete assessment of axillary node including clinical examination, ultrasound axilla and negative core biopsy/FNAC. 2 patients in these four patients USG axilla was normal hence core biopsy/FNAC was not done. The other 2 patients FNAC were false negative. False negative rate of our study was 6.2%. Identification of nodal positivity by different clinical methods mentioned in [Table 2]. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated and mentioned in [Table 3].

**Table 1: Epidemiological profile of patient cohort, ER\*- Estrogen receptor; PR †- progesterone receptor**

<b>Total patients</b>	<b>64</b>
Mean age of patient	56 year
Number of premenopausal patients	30
Mean tumor size	3.1 cm
Mean number of dissected nodes	19
One node positive patient	6 (9%)
Two node positive patient	2 (3.1%)
Number of ER* positive patients	50 (78%)
Number of PR† positive patients	41 (64%)
Number of Her 2 neu positive patients	8 (12%)
Number of Triple negative patients	6(9%)

**Table 2: Clinical and pathological nodal profile of patient cohort, CB\* – Core biopsy, FNAC† – Fine needle aspiration cytology**

<b>Total number of patients</b>	<b>64</b>
Clinically node positive patients	21 (32%)
Radiological abnormal node in ultrasound axilla	15 (23%)
CB*/FNAC† positive patients	4 (6%)
Pathologically positive node post operatively	8 (12.5%)
False negative core biopsy	4 patients

**Table 3: Sensitivity and specificity, accuracy, positive and negative predictive value of different modality in detecting metastatic lymph node in clinically node negative patient**

	<b>Sensitivity (%)</b>	<b>Specificity (%)</b>	<b>PPV (%)</b>	<b>NPV (%)</b>	<b>Accuracy (%)</b>
Physical examination	50	64	16	90	62%
Ultrasound	75	83	40	95	82%
Ultrasound guided biopsy/FN AC	50	100	10 0	93	93.7

## DISCUSSION

Clinical staging and planning is of paramount importance in carcinoma breast because positive axillary node metastasis changes the treatment protocol and surgical options.<sup>[1]</sup> The objective of this study was to determine the diagnostic accuracy of physical examination with ultrasound axilla and guided core biopsy of abnormal nodes.<sup>[6]</sup>

Our patient cohort's mean age was 56 years. Sensitivity and specificity of clinical identification of metastatic nodes was 50 and 75 % respectively. Sensitivity and specificity of ultrasound axilla was 75 and 83 % respectively that is comparable to other studies.<sup>[6,7]</sup>

In most of the developing countries in node negative patients sentinel node biopsy is not a feasible option because of scarce availability of radiotracer agent and lack of infrastructure of frozen section.<sup>[6]</sup> Axillary dissection is the only option in these patients. This is associated with morbidity of axillary node dissection like lymph oedema and frozen shoulder that has strong negative psychological impact in patient day to day life.<sup>[4]</sup> In recent years sentinel node biopsy has replaced axillary dissection at most medical centres. False negative rate of sentinel node biopsy is 5 to 10% in different studies.<sup>[3,4]</sup> False negative rate of sentinel nodes can be further decreased by dissecting 2 or more sentinel nodes and use of IHC study.<sup>[4,7]</sup> There are some practical issues to be resolved with sentinel nodes, like, pathologists must make quick

decisions based on the analysis of frozen sections or there is need to go through two surgical interventions and valuable operating room time is expanded and sometimes radiotracer distribution can be low or faulty.<sup>[3,4]</sup> Sentinel node facility is not readily available in most parts of the developing world. If nodal positivity could be proven and documented preoperatively, sentinel node biopsy could be bypassed and a direct decision will be made to perform axillary dissection. Core biopsy of the axillary node can be used as an alternative to fine needle aspiration cytology. Care must be taken during biopsy to avoid major vessel and nerve injury. Biopsy device with a controllable needle is safest. The range of sensitivity of core biopsy is from 53 to 94%.<sup>[8,9]</sup>

Sensitivity of ultrasound guided FNAC reported in literature ranges from 21 to 86 %.<sup>[8]</sup> Ultrasound guided FNAC is most sensitive in patients with extensive lymph node involvement and less sensitive for detection of small metastatic deposits (<5 mm) and micrometastasis (<2mm). In our study clinical assessment with biopsy of the axillary node has a false negative rate of 6.2 % that is equivalent to sentinel node biopsy. Sensitivity of guided FNAC/biopsy was 50 % in our study. Metastatic foci of nodes were less than 5 mm in all 4 false negative patients and in all patients only one node was positive. Detailed clinical assessment is simple and cost effective. Our study showed the use of detailed clinical assessment is a good alternative where the facility of sentinel node biopsy is not available. It is a good and less morbid alternative to sentinel node biopsy if the result is positive, and can proceed directly to axillary node dissection. By using these criteria we can avoid morbidity associated with axillary node dissection in early stage breast cancer. In the present era, availability of newer chemotherapy and targeted therapy with a wide range of hormonal agent prognosis of breast cancer is rapidly improving and it is potentially curable cancer.<sup>[10]</sup> Carcinoma breast patients now have good long term survival because of early diagnosis and availability of effective systemic agents. Decreasing the morbidity without affecting long term survival is of prime importance in breast cancer survivors.

## CONCLUSION-

This study is one step toward improving patient care by decreasing morbidity of axillary node dissection in the developing world where facility of sentinel node biopsy is not readily available. It is good practice to use complete clinical assessment with ultrasound guided biopsy/FNAC of axillary nodes in early stage breast cancer that can avoid sentinel node biopsy with further axillary dissection in 50 % of the patients. Its use in node negative breast cancer as an alternative procedure to sentinel node biopsy and its effect on regional recurrence and long term survival warrants further. This study is one step toward improving the patient care in developing countries without affecting disease prognosis as compared to standard.

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