# Comparative Study between FNAC and Core Needle Biopsy in Evaluation of Breast Lump

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## Abstract

### BACKGROUND
Previous studies have shown that FNAC and CNB play a significant role in the diagnosis of breast lumps. FNAC has been used for a long time for this purpose along with clinical examination and mammography. It is popular because of its accuracy, cost-effectiveness, and ease of use. CNB has recently gained popularity, especially in the evaluation of non-palpable breast lesions. It has the advantages of lower inadequacy rates, allowing of Ancillary methods, grading, and typing of cancer. However, it is more time-consuming and expensive.

### Aims and Objectives
1. To compare the results of FNAC and Core Needle Biopsy in breast lump.
2. To evaluate the diagnostic accuracy of FNAC and Core Needle Biopsy with reference to their sensitivity, specificity, positive predictive value, negative predictive value, and accuracy

### METHODS
A single centered prospective study including 180 patients with palpable breast lumps admitted to the Department of General Surgery, M.K.C.G. Medical College & Hospital, Berhampur during the period from July 2019 to June 2021. All consecutive breast lump cases in female patients keeping in view of the inclusion and exclusion criteria were included in the study. Patients with relevant clinical history were examined serological and routine investigations done. After explaining, informed consent is taken followed by patient underwent FNAC followed by CNB.

## RESULTS

FNAC detected 40.6% cases of IDC and 1.7% of lobular cancer, 2.2% of medullary cancer. CNB detected 58.9% IDC cases and 1.7% lobular cancer, 1.7% medullary cancer. So CNB has better results as compared to FNAC

## CONCLUSION

It is concluded that, CNB is better than FNAC in evaluating breast lumps.

## KEYWORDS

FNAC, CNB, Histopathology, Breast Lump.

## Introduction

A lump within the breast whether inflammatory, benign or malignant resultsin anxiety for the patient and her family, is one amongst the foremost prevalent reasons fora woman to consult with a surgeon. Breast lumps are the most presenting symptoms in females of all age groups. It includes disorders of normal physiologic function, inflammatory disorders and benign or malignant neoplasms. Benign breast tumours are extremely common and though not life threatening but could also be the reason behind much concern till the chance of a malignant process is excluded. A disorder of breast that raises most of the concerns is that the malignancy. Significant numbers of malignant lesions are considered benign by clinical examination and mammography.[1,2]

This appears to be a specific problem in patients below 50 years old where 40% of carcinomas are considered benign clinically thus clinicaldiagnosis concerns further investigation forconfirmation of diagnosis particularly in clinically doubtful cases.[3]

To overcome this difficulty more accurate and complicateddiagnostic modalities like frozen section biopsy, mammography, xero radiography, resonance imaging (MRI), ductography, ultrasonography,drill biopsy are advocated and evaluated to make an accurate preoperative diagnosis. Each modality of investigation has certain advantages likesensitivity, specificity etc.in adding to the diagnosis of various breast pathologies.[4]

Due to advances in imaging of breast and biopsy devices, the latter part of the 20th century saw the transition from open surgical biopsy to percutaneous biopsy asthe initial process of tissue acquisition. This paradigm change was driven by the many benefits and equivalent accuracy to open surgical biopsy offered by percutaneous biopsy.[5]

FNAC has been used since a protracted time for this purpose, together with clinical examination and mammography. it's popular thanks to its accuracy, costeffectiveness, and simple use.[6]

However, it's certain limitations like inability to differentiate between invasive and in place carcinomas, insufficient samples and false negative results.[7] Core biopsy has recently gained popularity, especially within the evaluation of non-palpable breast lesions. it's the benefits of lower inadequacy rates, permitting of ancillary methods, grading and typing of cancer. However, it's more time-consuming and expensive. The present study was takenup to check and analyse the benefits and limitations of fine needle aspiration cytology (FNAC) and core biopsy (CNB) in patients in preoperative assessment and in diagnosing breast lesions.[8] Reviewing the above literature, this study was designed to search out the role of fine needle aspiration cytology and core biopsy in evaluation of breast lumps.

## Aims and Objectives

- To compare the results of fine needle aspiration cytology and core needle biopsy in breastlump.
- To evaluate the diagnostic accuracy of fine needle aspiration cytology and Core NeedleBiopsy with reference to their sensitivity, specificity, positive and negative predictive value.

## MATERIALS & METHODS

### Study Population
The patients admitted consecutively, in Dept. of General Surgery, M.K.C.G. Medical College Hospital, Berhampur with clinically found breast lumps from July 2019 to June 2021 were included in the study.

### Inclusion Criteria
Female patients of all the age groups who presented with a clinically palpable breast lump.

### Exclusion Criteria
- Patients with acute breast abscess
- Patients who did not undergo surgery
- Patients refusing to participate in the study Patients already undergoing treatment ofbreast lumps

### Study Design
Single Centre Prospective Study.

### Method
After taking detail history of the patients admitted with clinically palpable breast lumps then sent for serology and routine blood investigations. After which patients were informed about the procedure and informed consent was obtainedbefore subjecting to FNAC of the breast lump. The standard procedure was followed, making use of 5 ml syringe bearing a 22 gauge needle. The mass which as clinically located and fixed in position with the freehand. The skin over the puncture site was sterilised.

### Statistical Analysis
The data was collected and tabulated in Microsoft® Excel® and statistically analysed using IBM® SPSS® 23.0, for Windows®, to bring out the results of the study. To describe about the data, descriptive statistics, frequency analysis, percentage analysis were used for categorically variables and the mean and standard deviation were used for continuous variable. To find the significance in categorical data Chi Square test was used. In all the above statistical tools, the probability value $<0.05$ was considered as significant.

### OBSERVATION

### Clinical Symptoms in Cases (Table 1)
Table 1 shows all cases have clinically palpable breast lumps, symptoms include mastalgia, relation of lump size, nipple discharge, skin ulceration. Total numberof cases 180.

| Clinical findings | No. of Patients | Percentage |
|---|---|---|
| **Pain** | | |
| Negative | 122 | 67.8 |
| Positive | 58 | 32.2 |
| **Nipple discharge** | | |
| Negative | 173 | 96.1 |
| Positive | 7 | 3.9 |
| **Other symptoms (Nipple retraction, ulcer etc)** | | |
| Negative | 139 | 77.2 |
| Positive | 41 | 22.8 |
| *Table 1. Clinical Symptoms in Cases* | | |

In this present study of 180 patients, pain associated with lump is present in 58patients (32.25%), nipple discharge is present in 7 patients (3.9%), other symptoms like- nipple retraction, skin ulceration present in 41 (22.8%).

180 patients are divided into two groups Premenopausal, Post-menopausal according to attainment of menopause.

| Menstrual Status | No. of patients | Percentage |
|---|---|---|
| Premenopausal | | |
| No | 61 | 33.9 |
| Yes | 119 | 66.1 |
| Post-menopausal | | |
| No | 122 | 67.8 |
| Yes | 58 | 32.2 |
| *Table 2. Menstrual Status of the Patients* | | |

In this present study of 180 patients, 119 patients with breast lump are premenopausal women (66.1%), 58 patients are post-menopausal women (32.2%).

Higher incidence of lump is seen in premenopausal women when compared topostmenopausal women. This table shows frequency of the side involved in 180 patients attended SOPDPercentage is calculated taking into consideration whether the lump was on right side or left side.

| Side | No. of patients | % |
|---|---|---|
| Left | 58 | 32.2 |
| Right | 122 | 67.8 |
| Total | 180 | 100.0 |
| *Table 3. Side Wise Distribution of Lump in Patients* | | |

In this present study, 58 (32.2%) patients have lump in left side of breast, 112 (67.8%) patients have lump on right side of the breast. The higher incidence of breast lumps are seen on right side with percentage of (67.8%), when compared to left side.

This table shows frequency of involvement of different quadrants of breast thatis (LI- Lower inner quadrant, LO- Lower outer quadrant, UI- Upper inner quadrant, UO- Upper outer quadrant, C- Central) in various breast lumps

| Quadrant | No. of patients | Percentage |
|---|---|---|
| Central | 4 | 2.2 |
| Lower Inner Quadrant | 25 | 13.9 |
| Lower Outer Quadrant | 20 | 11.1 |
| Upper Inner Quadrant | 22 | 12.2 |
| Upper Outer Quadrant | 109 | 60.6 |
| Total | 180 | 100.0 |
| *Table 4. Quadrant Wise Distribution among the Patients* | | |

In this present study 109(60.6%) patients have lump in upper outer quadrant, 25(13.9%)patients have lump in lower inner quadrant, 22 (12.2%) patients are with lump in upper inner quadrant, 20(11.1%) patients are seen with lump in lower outer quadrant, 4 (2.2%)patients have lump in the centre. The higher incidence of breastlumps is seen in upper outer quadrant.

This table shows frequency distribution of patients taking the size of the breast lumps into consideration. They are categorized as patients with lump size <4cm, lump size 4-8 cm, lump size >8 cm

| Lump size (Cm) | Frequency (n) | Percentage |
|---|---|---|
| <4 | 55 | 30.6 |
| 4-8 | 117 | 65.0 |
| >8 | 8 | 4.4 |
| Total | 180 | 100 |
| *Table 5. Size of the Lump among the Patients* | | |

In this study of 180 cases, 55 (30.6%) cases have lump of size of <4 cm, 117 (65.0%) cases have lump of size of 4-8 cm, 8(4.4) cases have lump of size of >8 cm. More number of patients presented with tumour size of 4-8cm.

This table shows frequency distribution of different breast lesion both benign and malignant on fine needle aspiration cytology.

| FNAC Report | No. of Patients | Percentage |
|---|---|---|
| Infiltrative Ductal Carcinoma | 73 | 40.6 |
| Fibroadenoma | 50 | 27.8 |
| Atypical Epithelial Hyperplasia | 21 | 11.7 |
| Non-specific mastitis | 11 | 6.1 |
| F/S/O Carcinoma Breast | 7 | 3.9 |
| Cystic degeneration | 4 | 2.2 |
| Inflammatory breast abscess | 4 | 2.2 |
| Medullary Carcinoma | 4 | 2.2 |
| Fatty degeneration | 3 | 1.7 |
| Lobular Carcinoma | 3 | 1.7 |
| *Table 6. Table Shows Frequency Distribution of Breast Lesions on FNACamong the Study Participants* | | |

In this present study of 180 patients, on FNAC 73 cases (40.6%) report as infiltrating ductal carcinoma (IDC), 3(1.7%) as lobular carcinoma and 4(2.2%) as medullary carcinoma, 50 (27.8%) cases as fibroadenoma, 21 (11.7%) cases as AEH, 11 (6.1%) cases as non-specific mastitis, 4 (2.2%) cases as cystic degeneration, 4 (2.2%) cases as inflammatory breast abscess, 3 (1.7%) cases as fatty degeneration, 7 (3.9%)cases have feature suggestive of cancer breast.

This table shows, the frequency distribution of breast lesions both benign and malignant by core needle biopsy in total of 180 patients.

| Breast Lesions | No. of Patients | Percentage |
|---|---|---|
| Infiltrative Ductal Carcinoma | 106 | 58.9 |
| Medullary Cancer | 23 | 12.8 |
| Fibrocystic disease | 13 | 7.2 |
| Fibroadenoma | 7 | 3.9 |
| Granulomatous mastitis | 7 | 3.9 |
| Chronic inflammatory abscess | 4 | 2.2 |
| Invasive Lobular Cancer | 4 | 2.2 |
| Nonspecific mastitis | 4 | 2.2 |
| Complex cyst with AEH | 3 | 1.7 |
| DCIS | 3 | 1.7 |
| Giant fibroadenoma | 3 | 1.7 |
| Lobular Cancer | 3 | 1.7 |
| Total | 180 | 100.0 |
| *Table 7. Frequency of Breast Lesions on CNB among Patients* | | |

In this present study 106 cases (58.9%) report as infiltrating ductalcarcinoma(IDC), 3(1.7%) as lobular carcinoma and 23(12.8%) as medullary carcinoma,3(1.7%) as DCIS, invasive lobular cancer 4(2,2%) and, 13 (7.2%) cases as fibrocystic disease, 7 (3.9%) cases as fibroadenoma, 7 (3.9%) cases as granulomatous mastitis, 4 (2.2%) cases as chronic inflammatory abscess, 4 (2.2%) cases as non-specific mastitis,3 (1.7%) cases as complex cyst with AEH, 3 (1.7%) cases as giant fibroadenoma.

This table shows frequency distribution according to final histopathology reportof the 180 patients.

| Type of tumour | No. of Patients | Percentage |
|---|---|---|
| Infiltrative Ductal Carcinoma | 106 | 58.9 |
| Medullary Cancer | 26 | 14.4 |
| Fibrocystic disease | 10 | 5.6 |
| Fibroadenoma | 7 | 3.9 |
| Granulomatous mastitis | 7 | 3.9 |
| Lobular Cancer | 6 | 3.3 |
| Chronic inflammatory breast abscess | 4 | 2.2 |
| Invasive Lobular Cancer with ALN Metastasis | 4 | 2.2 |
| Non-specific mastitis | 4 | 2.2 |
| Ductal Carcinoma in situ | 3 | 1.7 |
| Giant fibradenoma | 3 | 1.7 |
| Total | 180 | 100.0 |
| *Table-8. Histopathological Report of Breast Lesions* | | |

In this study according to final histopathology examination (HPE) of excised lumps, out of which infiltrating ductal carcinoma(IDC) seen in 106(58.9%) cases, medullary carcinoma seen in 26(14.4%) cases, lobular carcinoma seen in 6(3.3%) cases, ductal carcinoma in situ seen in 3(1.7%) cases, fibrocystic disease is seen in 10 (5.6%)cases, fibroadenoma seen in 7(3.9%) cases, granulomatous mastitis seen in 7 ( 3.9%) cases, chronic inflammatory breast abscess seen in 4 (2.2%) cases, non-specific mastitisseen in 4 (2.2%) cases, giant fibroadenoma seen in 3 (1.7%) cases. In this study evaluating suspicious breast lumps more cases are IDC, followed by medullary carcinoma.

**Grade Of Tumour in CNB (Table 9)**

This table shows frequency distribution of patients taking into consideration thegrade of the tumour on CNB, the grading is categorised as Grade-I, Grade -II, Grade - III, and not made out.

| Grade | No. of Patients | Percentage |
|---|---|---|
| 0 | 8 | 4.4 |
| 1 | 41 | 22.8 |
| 2 | 38 | 21.1 |
| 3 | 57 | 31.7 |
| NA | 36 | 20 |
| Total | 180 | 100 |
| *Table 9. Grade of the Tumour on CNB among the Patients* | | |

In this present study according to CNB report Grade 0 is seen in 8(4.4%). GradeI is seen in 41(22.8%) and Grade II is seen in 38(21.1%) Higher incidence of patients falls under Grade III, followed by Grade-II.

This table shows patients who are ER/PR positive, HER2/neu positive, out of all 180patients.

| Receptor status | No. of Patients | Percentage |
|---|---|---|
| ER/PR | | |
| No | 70 | 38.9 |
| Yes | 110 | 61.1 |
| HER-2/neu | | |
| No | 140 | 77.8 |
| Yes | 40 | 22.2 |
| *Table 10. Receptor Status among the Cases* | | |

In this present study 110 (61.1%) cases are ER/PR- positive. 40 (22.2%) casesare HER-2neu positive.

| FNAC REPORT VS HPE | Observation | | | | | Correlation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TP | FP | FN | TN | Total | Se | Sp | PPV | NPV | Accuracy | P value |
| Infiltrating Ductal Carcinoma | 59 | 7 | 43 | 71 | 180 | 57.8 | 91.01 | 89.4 | 62.3 | 72.2 | <0.001** |
| Fibroadenoma | 7 | 14 | 0 | 159 | 180 | 100.0 | 91.9 | 33.3 | 100.0 | 92.2 | <0.001** |
| Fibrocystic disease | 10 | 19 | 0 | 151 | 180 | 100.0 | 88.8 | 34.5 | 100.0 | 89.4 | <0.001** |
| MedullaryCarcinoma | 4 | 0 | 22 | 154 | 180 | 15.38 | 100.0 | 100.0 | 87.5 | 87.9 | <0.001** |
| Lobular Carcinoma | 3 | 0 | 3 | 174 | 180 | 50.0 | 100.0 | 100.0 | 98.3 | 98.3 | <0.001** |
| *Table 11. Comparison of FNAC Report with Final Histopathological Report* | | | | | | | | | | | |
| ** Strongly significant (P value <0.001) | | | | | | | | | | | |

In this present study of 180 patients, FNAC sensitivity, specificity, positivepredictive value, negative predictive value for IDC is 57.8%, 91.01%, 89.4%, 62.3%, 72.2 % respectively, medullary carcinoma sensitivity- 15.38%, specificity-100%, positive predictive value- 100.0%, negative predictive value -87.5%, lobular carcinoma- sensitivity-50.0%, specificity-100.0%, positive predictive value-100.0%, negative predictive value-98.3%

| BIOPSY VS HPE | Observation | | | | | Correlation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TP | FP | FN | TN | Total | Se | Sp | PPV | NPV | Accuracy | P value |
| Infiltrating Ductal Carcinoma | 122 | 0 | 4 | 54 | 180 | 96.8 | 100 | 100 | 93.1 | 97.7 | <0.001** |
| Fibroadenoma | 7 | 0 | 0 | 173 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Fibrocystic disease | 10 | 3 | 0 | 167 | 180 | 100.0 | 98.24 | 76.3 | 100.0 | 98.3 | <0.001** |
| Medullary Carcinoma | 23 | 0 | 3 | 154 | 180 | 88.46 | 100.0 | 100.0 | 98.9 | 98.3 | <0.001** |
| Chronic inflammatory abscess | 4 | 0 | 0 | 176 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Non-specific masttis | 4 | 0 | 0 | 176 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Lobular Carinoma | 3 | 0 | 3 | 174 | 180 | 50.0 | 100.0 | 100.0 | 98.3 | 98.3 | <0.001** |
| Granulomatous mastitis | 7 | 0 | 0 | 173 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Invasive Lobu Ca | 4 | 0 | 0 | 176 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Ductal Carcinoma in situ | 3 | 0 | 0 | 177 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| Giant fibroadenoma | 3 | 0 | 0 | 177 | 180 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | <0.001** |
| *Table 12. Comparison of CNB Report with Final Histopathological Report* | | | | | | | | | | | |
| ** Strongly significant (P value <0.001) | | | | | | | | | | | |

This table shows frequency distribution of patients taking into consideration thegrade of the tumour, the grading is categorized as Grade-I, Grade -II, Grade -III, and not made out.

| Grade | No. of patients | Percentage |
|---|---|---|
| I | 25 | 13.9 |
| II | 43 | 23.9 |
| III | 74 | 41.1 |
| Not Made Out | 3 | 21.1 |
| Total | 180 | 100.0 |
| *Table 13. GRADE OF TUMOUR ON FINAL HISTOPATHOLOGY STUDY* | | |

In this present study according to final histopathology report Grade I is seen in25(13.9%). Grade II is seen in 43(23.9%) and Grade III seen in 74(41.1%). Higher incidence of patients fall under grade III, followed by Grade-II.

## DISCUSSION

| Study | Percentage |
|---|---|
| Present Study | 32.2% |
| Tyagi et al | 33.5% |
| **Table 14. Pain Distribution and its Comparison with DifferentAuthors** ||

In this study out of 180 cases with breast lump incidence of pain in the lump is seen in 32.2% of cases which is comparable to Tyagi et al series in whichmalignant lump with pain is seen in 33.5% of cases.

| Study | Nipple discharge (%) | Others Symptoms |
|---|---|---|
| Present Study | 3.9% | 22.8% |
| Vargus et al | 3-9% | 41.7% |
| **Table 15. Other Symptoms Seen in Patients and its Comparisonwith Different Authors** |||

In our present study nipple discharge is seen in 3.9% of cases were similar to H.L Vargus et al in their study, they observed that nipple discharge was seen in 3-9% of patient. Other symptom was seen in 41.7% of cases.

| Study | Axillary Lymph Node (%) |
|---|---|
| Present Study | 24.4% |
| Abhijit et al | 33.5% |
| **Table 16. Axillary Lymph Nodes and its Comparison with Different Authors** ||

In this study axillary lymph node is seen in 24.4% of cases and all are malignant, which is confirmed by final histopathology (HPE). This study is comparable to Abhijit Saha et al series in which axillary lymph node was seen in 33.5% of cases.[9]

| Study | Pre-menstrual Group (%) |
|---|---|
| Present Study | 66.1% |
| Raina et al | 49.7% |
| **Table 17. Menstrual Status of the Patients and its Comparison with Different Authors** ||

In this study out of 180 patients percentage of women in pre-menopausalstate is higher (66.1%). In Raina et al series 49.7% were in premenopausal groupand rest was in postmenopausal group.[10]

The slightly higher incidence in this study in premenopausal group may be attributed to oestrogen exposure from functioning ovaries.

| Study | Left Breast (%) | Right Breast (%) |
|---|---|---|
| Present Study | 32.2% | 67.8% |
| Abhijit et al | 38.0% | 62.0% |
| **Table 18. Side Involved and its Comparison with DifferentAuthors** |||

In this study lump is seen in right side in 67.8% of cases and left in 32.2%of cases. Similar findings were seen in Abhijit Saha et al series with malignant lump seen in right side in 62% and 38% in left side.[11]

| Study | Lumps in Upper Outer Quadrant |
|---|---|
| Present Study | 6.6% |
| Atkins et al | 53.0% |
| **Table 19. Quadrant Involved and its Comparison with Different Authors** ||

In this study (60.6%) lumps are located in the upper outer quadrant. Restof the quadrants show few incidences in this study group. Similar finding 53% has seen in Atkins et al series.[12,13]

The reason for higher incidence is upper outer quadrant of breast containsmaximum amount of

parenchyma. They have good prognosis in terms of distantmetastasis and survival. Early breast cancers situated in central/internal quadrants have a worse prognosis compared with those in lateral quadrants that is why tumour location is an important role in prognosis in terms of distant metastasis and survival.

| Study | <4 cm | >4 cm |
|---|---|---|
| Present Study | 30.6% | 69.4% |
| Abhijit et al | -- | 64.3% |
| **Table 20. Tumour Size and its Comparison with Different Authors** | | |

In this study out of 180 cases, 30.6% have lump of size <4 cm, lump of size >4 cm seen in 69.4%. Similar finding are seen in Abhijit Saha et al et al series in which lesion seen in 64.3% with lump of 5 to 10 cm in diameter.[14]

| Results of FNAC compared to finalHPE | | Gargi Tikku et al | Abhijit et al series | Yousuf Janet al series |
|---|---|---|---|---|
| Sensitivity | 64.58% | 57.8% | 69% | 94.9% |
| Specificity | 100% | 91.01% | 100% | 88.2% |
| Positive predictive Value | 100% | 89.4% | 100% | |
| Negative predictive Value | 68.51% | 62.3% | 38.1% | |
| Accuracy | | 72.2% | 74% | 91.5% |
| **Table 21. Comparison of Results FNAC with Final Histopathology** | | | | |

In this present study, out of 180 cases FNAC reports 93 (51.6%) cases asbenign and 87(48.3%) as malignant compared to final histopathology in which 145(80.5%) are malignant and 35(19.4%) cases are benign.

In this present study of 180 patients, FNAC sensitivity, specificity, positive predictive value, negative predictive value for IDC are 57.8%, 91.01%,89.4%, 62.3%, 72.2 % respectively, medullary carcinoma sensitivity- 15.38%, specificity-100%, positive predictive value- 100.0%, negative predictive value -87.5%, lobular carcinoma- sensitivity-50.0%, specificity-100.0%, positive predictive value-100.0%, negative predictive value-98.3%. Similar results were found in Abhijit et al series with sensitivity, specificity, PPV and NPV as 69%, 100%, 100%, 38.1% and Tikku et al series with 64.58%, 100%, 100% and 68.51%. Hence from above result it can be concluded that FNAC detect benign breast lesion correctly (100%).The Sensitivity, NPV, and Accuracy is lowcompare to final HPE in detecting malignant lesions.

| Core needle biopsy | | Gargi Tikku et al series | Abhijit Saha et al | MohammadBdour et al |
|---|---|---|---|---|
| Sensitivity | 95.8% | 96.8% | 88.3% | 97% |
| Specificity | 100% | 100% | 100% | 100% |
| Positive predictive Value | 100% | 100% | 100% | |
| Negative predictive Value | 94.9% | 93.1% | 53.8% | |
| Accuracy | | 97.7% | 86% | 97% |
| **Table 22. Comparison of Results of Core Needle Biopsy with Final Histopathology Report** | | | | |

In this present study, out of 180 cases CNB biopsy reports 41 (22.7%) cases as benign and 139 (77.2%) as malignant compared to final histopathologyreport (HPE) in which 145 cases(80.5%) are malignant and 35(19.4%) cases werebenign.

From the above it can be concluded that the sensitivity of CNB found to be 96.8% in detecting malignant lesions, specificity is 100%, positive predictivevalue is 100%, negative predictive value is 93.1% and overall accuracy in detecting malignant lesions is 97.7%. Similar results were found in Gargi Tikkuet al series, Abhijit Saha et al series and Mohammad Bdour et al series, hence itcan be concluded that CNB detects benign breast lesion correctly (100%).The sensitivity, specificity and accuracy in detecting malignant lesion is higher and almost similar to final HPE.

So, on comparative analysis between FNAC and CNB (Tru-cut) in the diagnosis of breast carcinoma; sensitivity, positive predictive value, diagnostic accuracy are higher in case of CNB compared to FNAC. Detection of false negative cases are also lower in CNB assessment. Regarding specificity and detection of true negative cases both the procedures turn out to be similar. Both the procedures are have

statistically significant correlation with the confirmatoryHPE of excision specimens (p-value <0.001)

## CONCLUSION

On suspicion of malignancy, breast lumps should be evaluated.

FNAC is rapid less complicated, economical, reliable and relevant method for the preoperative pathological diagnosis of breast carcinoma. With low sensitivity and high specificity compared to core needle biopsy,malignant breast lesions can be missed by FNAC but it helps in detectingbenign breast lesion 100%.

Core needle biopsy has high sensitivity and specificity in detecting malignant lesion compared to FNAC. If the initial FNAC report is inadequate or in conclusive. Core needle biopsy always provide definitive histopathological diagnosis and also about type, grade,receptor status of tumor that permits the eventual use of adjuvant therapy, which helps in planning the appropriate treatment for the patient and also avoids unnecessary excisional biopsy. Core needle biopsy is cost-effective and has minimal complications compared to excision biopsy.

Therefore, it is concluded that, CNB is better than FNAC in evaluatingbreast lumps.

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