

**Research Article****Diagnostic Accuracy of Fine Needle Aspiration Cytology of Breast Lump in Rural Population of Western U.P.****Sangita Singh<sup>1</sup>, Prakash Chandra<sup>2</sup>, Jitendra<sup>3</sup>**<sup>1</sup>Assistant Professor, Department of Pathology, Saraswathi Institute of medical Sciences Hapur, U.P., India<sup>2</sup>Professor & HOD, Department of Psychiatry, Saraswathi Institute of Medical Sciences, Hapur, U.P., India<sup>3</sup>Assistant Professor, Department of Pathology, Saraswathi Institute of Medical Sciences, Hapur, U.P., India**\*Corresponding author**

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**Abstract:** Breast lump is a very common presentation in surgery and gynae OPD with increasing awareness in patients. Breast cancer is second most common cancer in Indian women. FNAC is simple, safe and rapid method for diagnosing breast lumps. FNAC has high sensitivity, specificity and accuracy. Aim of this study was to correlate FNAC findings with histopathology and determine sensitivity and specificity of FNAC in our set up. This retrospective study of FNAC of breast, done in the department of Pathology of Saraswathi Institute of Medical Sciences, Hapur from Jan2009 to Dec 2010. SIMS caters rural population of Hapur and surrounding districts of western U.P. FNAC findings were correlated with Histopathological data available in the department. FNAC was done in 104 cases with Histopathology in 50 cases for correlation with cytology. FNAC of breast constituted 12% of all FNAC. Age of the patients ranged from 15yrs to 65yrs with mean age of 33 years. Fibroadenoma was the most common diagnosis on FNAC, which accounts 46.15% of total breast lesion. Malignancy was diagnosed in 10.57% of cases. So, conclusion is derived that FNAC is highly sensitive and specific technique for the diagnosis of breast lump. As FNAC is simple, rapid and less expensive it should be used routinely for diagnosing breast lumps.**Keywords:** Breast lumps, FNAC, Diagnostic accuracy, Histopathology.

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**INTRODUCTION**

With growing awareness in general population about breast lesions, breast lump is very common presentation in Surgery and Gynae OPD. All breast lumps are not malignant but breast lumps are matter of worry to the patients as well as clinicians. Although histopathological diagnosis is the gold standard for diagnosis of palpable breast lump, FNAC and Core needle biopsy is gaining popularity for diagnosis of breast lumps [1].

FNAC is a quick, simple, reliable and inexpensive procedure in diagnosing these lumps and helps clinician to plan management. In India breast cancer is second most common cancer in women [2]. For the FNAC no anaesthesia is required and complications are rare.

FNAC was first introduced in 1930 by Martin and Lewis at Memorial Hospital USA [3].

FNAC is relatively painless, produces rapid results and is cheap. Its accuracy in many situations when applied by experienced and trained practitioners can approach that of histopathology in providing

equivocal diagnosis [4]. Accuracy of FNAC can be increased by multiple sampling or image guidance [5].

Breast lump is most common presentation of breast diseases. Most accepted protocol followed for breast lumps is "triple assessment", which includes clinical assessment, radiological imaging and pathological diagnosis. Since FNAC forms the most important aspect of cytopathology as a part of triple assessment it is expected to be an efficient technique which can be relied upon in terms of avoiding further diagnostic surgery before proceeding to final definitive surgery

**MATERIALS AND METHODS**

This is a retrospective study done in the department of Pathology of Saraswathi Institute of Medical sciences, Hapur U.P. Saraswathi Institute of Medical Sciences caters rural population of Hapur and surrounding district of western U.P. Data related to FNAC done between Jan 2009 to Dec 2010 of palpable breast lumps were retrieved from records of FNAC and Histopathology. Request form was used to retrieve data related to age, sex, and clinical presentation. Slides of all FNAC and Histopathology were reviewed in order

to confirm the diagnosis. Findings of FNAC were correlated with data from Histopathology records and sensitivity, specificity and accuracy was calculated using standard statistical methods. FNAC in our set is done using 23 gauge needle and 5 c.c syringe by trained pathologists.

#### Ethical clearance

This work has been approved by the ethical committee of Saraswathi Institute of Medical Sciences Hapur U.P

#### RESULTS

A total of 104 cases of FNAC were obtained which constituted 12% of all FNAC in the department of Pathology in two years period. Out of these 104 cases 2 patients were Males and rest 102 cases were Females. Age of the patients ranged from 15-65 with mean age of 33yrs. Out of 104 cases histopathology was available in 50 cases. FNAC diagnoses of breast lumps

are shown in Table 1 and Histopathological correlation in Table 2. Most common cause of breast lump was Fibro adenoma (46.15%) followed by Fibrocystic disease of breast (13.46%). Invasive ductal carcinoma constituted 10.57 % cases of breast lump. No case of inadequate sampling was there in this study as in our setup repeat sampling is done in all cases of inadequate sample.

In this study all cases of malignancy on FNAC proved to be malignant by histopathology. Results of FNAC matched with Histopathology in 48 cases out of 50 cases. Out of two in which FNAC did not match with Histopathology one showed atypical hyperplasia and other showed only inflammatory cells and necrotic material.

So, sensitivity and specificity of FNAC in breast lump was found to be 96% and 100% respectively.

**Table 1: FNAC Diagnosis of Palpable Breast Lump**

Diagnosis	No. of cases	No. of cases in %
Fibro adenoma	48	46.15%
Fibrocystic disease	14	13.46%
Invasive ductal carcinoma	11	10.57%
Breast Abscess	07	6.73%
Duct Ectasia	07	6.73%
Galactocele	05	4.80%
Others	05	4.80%
Total	104	100%

**Table 2: Correlation of Histopathological Diagnosis with FNAC**

Diagnosis	FNAC (n=50)	Histopathology (n=50)
Fibroadenoma	21	21
Fibrocystic disease	11	11
Invasive ductal carcinoma	11	13
Gynecomastia	02	02
Inflammatory	01	00
Ductal ectasia	03	03
Atypical epithelial hyperplasia	01	00

#### DISCUSSION

Lump in breast is very common presentation in OPD with growing awareness. Although most of the cases of breast lump are benign it causes anxiety regarding possible malignancy. Hence to reduce anxiety a quick diagnosis is essential. Considering patients comfort, cost effective, quick reporting, no need of anesthesia and hospital stay, FNAC is an ideal diagnostic modality in breast lumps. Accuracy of FNAC can be increased by multiple sampling image guidance where required and if performed by experienced pathologist. In the last 30 yrs FNAC has gained wide popularity in diagnosing malignancies. Its use in detecting the presence of cancer before surgery and as a guide to rationale treatment has been well documented. Countries with most developed aspiration biopsy techniques are Sweden, Slovenia, USA, and

India. Average annual volume of cytology specimens is more than 15000, with FNAC comprising roughly half of the aspirations [6, 7].

This study showed that benign breast lumps are the most common breast lesions which indicate increasing awareness in patients.

Sensitivity and specificity of FNAC in diagnosing breast lumps is 96% and 100%. This is comparable to other studies [8-14] (Table 3).

As all cases of malignancy on FNAC proved malignant on histopathology no false positive case was reported. Two cases were reported false negative which were later proved malignant by histopathology.

**Table 3: Sensitivity and Specificity of FNAC by different studies**

Studies	Sensitivity %	Specificity %
Watson DP [10]	74	99
Tiwari M [8]	83.3	100
Sreenivas M [11]	91	91
A Singh [12]	84.6	100
Horgan PG <i>et al.</i> [15]	84	99
Bojia F <i>et al.</i> [9]	94.3	78.6
Hussain [13]	90.9	100
Jayaram [14]	97.4	92.4
Present study	96	100

**CONCLUSION**

Fine Needle Aspiration Cytology is easy, rapid, reliable, cheap and simple diagnostic test. Diagnostic accuracy of FNAC is high when performed by expert pathologists and it.

Is an ideal investigative modality for the palpable lumps in the breast? It should be routinely performed for the diagnosis of breast lumps in OPDs and open biopsy performed in doubtful cases only.

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