

A Correlational Study on FNAC and Histopathology for the Diagnosis of Breast Lump

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Abstract

Objectives: This present study was to correlate the diagnostic accuracy of FNAC and histopathology for the diagnosis of breast lump.

Methods: A total of 50 patients with palpable breast lumps attending OPD of surgery department were enrolled in this study. FNAC was performed using 23 gauge needle after history and clinical examination of the patient. Aspirated material was expressed to glass slide and slide was immersed in fixator of 95% methyl alcohol. Slides were stained with Hematoxylin-Eosin and Leishman's stain. According to findings, FNAC study was categorized into benign and malignant lesions.

Results: Majorities of patients 29(58%) were in age group of 31-40 years. Out of 50 cases of breast lump, benign lesion was seen in 35(70%) cases and malignant lesion was seen in 15(30%) cases.

Conclusions: FNAC is a reliable, safe, inexpensive, little discomfort, fast and time saving diagnostic method for the assessment of breast lumps with high degree of accuracy as compared to histopathological diagnosis. It should be used as preliminary investigation for the diagnosis of breast lump in outdoor patient department.

Keywords: Breast lump, Histopathological diagnosis, FNAC.

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Introduction

Breast cancer is the most common type of cancer in women, age 40- 50 yrs. It is the second leading cause of cancer deaths, about 250000 women die of this disease every year [1]. Breast disorders/lumps are a fairly common presenting feature in our outpatient department. They are mostly benign and of no serious consequences but malignancy contributed a significant percentage of breast lumps [2]. Breast

lump is most common presentation in the most of the breast disease. It is sometimes difficult to determine whether a suspicious lump is benign or malignant simply from clinical assessment [3].

The use of core needle biopsy in the management of palpable breast lumps in recent times has been increasing [4,5]. This is because core needle biopsies are less invasive than open biopsy, and

vacuum assisted biopsy devices have been developed to produce larger specimen for analysis [5]. Core needle biopsy is however not without disadvantages. These include a high cost (when compared with FNAC), long tissue processing time, patient discomfort such as pain and haematoma, and the risk of seeding of the tumor along the needle track [6]. The triple test which comprises clinical, radiological, and pathological assessment however remains an excellent tool in the assessment of palpable breast lumps. Its diagnostic accuracy exceeds 99% when all three modalities are concordant [7,8].

Mammography is other screening diagnostic modality for a breast lump which is routinely used method with simple, low cost with high accuracy. Benign breast lesions are round to oval in shape with regular, linear margin, homogenous echo texture and hypoechoic. Whereas malignant breast lesions are irregular in shape with ill-defined speculated margins and microcalcification present [9].

Surgical intervention in the form of incisional or excisional biopsy involves preoperative preparation of the patient, hospitalization and anaesthesia. It is followed by scarring, fibrosis of connective tissue altering the consistency and optical density of breast interfering with the radiological follow up of the case. To overcome these difficulties and to fill the gap in the diagnostic evaluation of the breast lesions, fine needle aspiration cytology was introduced. Fine needle aspiration cytology (FNAC) is not new technique; it was described and practiced by Martin and Ellis in 1930 at New York. This technique provides a representative sample for microscopic examination without interfering with radiological appearance of breast [10]. FNAC has now become a popular investigation to assess the nature of palpable lesions. The main purpose of FNAC is to confirm cancer

preoperatively and to avoid unnecessary surgery in specific benign conditions [11]. FNAC of breast lumps is an accepted and established method for determining the nature of breast lumps with a high degree of accuracy [11]. Objectives of our study was to compare the FNAC and histopathology for the diagnosis of breast lump.

Materials & Methods

This present study was conducted in the Department of Pathology with the collaboration of Department of Surgery, Jawaharlal Nehru Medical College, Bhagalpur, Bihar, India during a period from January 2022 to November 2022. Entire subjects signed an informed consent approved by institutional ethical committee of Jawaharlal Nehru Medical College, Bhagalpur was sought.

A total of 50 patients with palpable breast lumps attending OPD of surgery department were enrolled in this study. Entire subjects signed an informed consent approved by institutional ethical committee was sought.

Inclusion criteria: all patients with palpable breast lumps and in whom further biopsy/surgery had been performed.

FNAC was performed using 23 gauge needle after history and clinical examination of the patient. Aspirated material was expressed to glass slide and slide was immersed in fixator of 95% methyl alcohol. Slides were stained with Hematoxylin-Eosin and Leishman's stain. According to findings, FNAC study was categorized into benign and malignant lesions.

Observations

A total of 50 female with breast lump were enrolled in this study. All the cases were in age group of 20 to 50 years. Majorities of patients 29(58%) were in age group of 31-40 years.

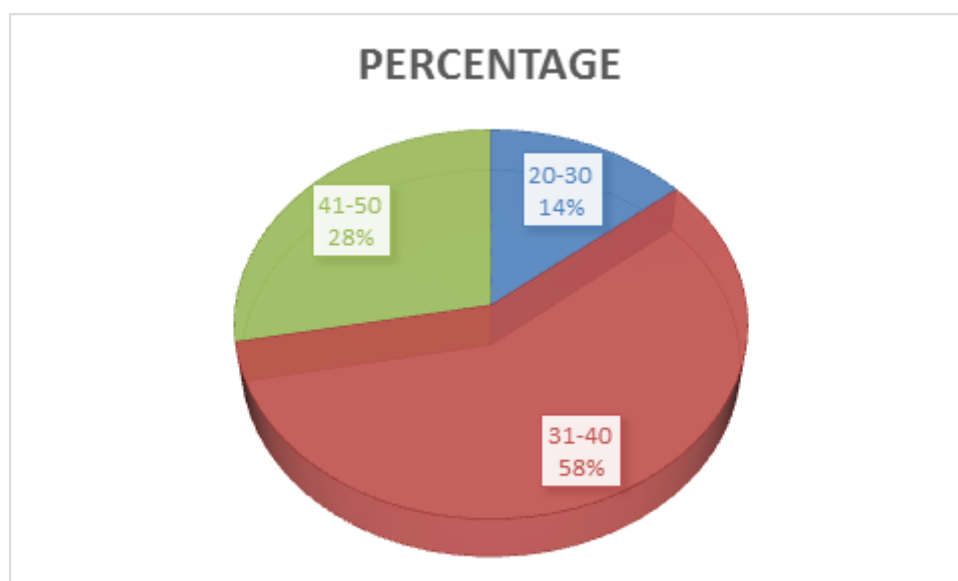


Figure.1. Age wise distribution of breast lump female.

All the cases were undergone in cytological as well as histopathological diagnosis. Out of 50 cases, benign lesion was seen in 35(70%) cases and malignant lesion was seen in 15(30%) cases.

Table 1: Clinical diagnosis

Clinical diagnosis	Total	Cytological diagnosis		Histopathological diagnosis	
		Benign	Malignant	Benign	Malignant
Benign	35	34	1	35	-
Malignant	15	2	13	-	15

Benign lesions: In 35 patients, FNAC was suggestive of benign lesion in 34 cases and they were consistent with histopathological diagnosis. But in 1 case, FNAC was suggestive of malignant in whom histopathology was benign lesion (false positive).

FNAC and histopathological findings of benign breast lesion i.e fibroadenoma respectively.

Table 2: Benign breast lesions

Histopathological diagnosis	No. of cases	Cytological diagnosis	
		Consistent	Inconsistent
Fibroadenoma	27	34	1
Fibro adenositis	1	0	0
Fibrocystic disease	2	0	0
Cystosarcoma phylloides	2	0	0
Abscess	1	0	0
TB Mastitis	2	0	0

Out of 35 benign breast lesions, 27 had fibroadenoma on histopathological diagnosis.

Table 3: Malignant breast lesions

Histopathological diagnosis	No. of cases	Cytological diagnosis	
		Consistent	Inconsistent
Infiltrating duct carcinoma	13	12	2
Medullary carcinoma	2	1	0

Malignant lesions: Out of 15 malignant lesions, 13 cases had infiltrating duct carcinoma and 2 were medullary carcinoma on histopathological diagnosis. On FNAC, 13 cases were consistent and 2 cases were inconsistent. Among 13 consistent cases, 12 cases had Infiltrating duct carcinoma and 1 case had medullary carcinoma. All the 2 inconsistent cases on FNAC had infiltrating duct carcinoma.

Discussions

FNAC of breast lumps is an accepted and established method for determining the natures of breast lumps with a high degree of accuracy [12]. Application of Fine Needle Aspiration (FNA) for the diagnosis of palpable breast masses was first introduced by Martin and Ellis in 1930 and since then, it has been established as an important tool in the evaluation of breast lesions [12]. In this present study, we were enrolled 50 patients of breast lesions. Majorities of cases 29(58%) were in age group of 31-40 years. FNAC was done in all 50 cases of which 35 cases were benign and 15 cases were malignant. FNAC was helpful in diagnosis of benign breast lesions in 34(97.14%) cases and 13(86.67%) in malignant lesions. The overall accuracy of FNAC in breast lesions was 94% in present study. Wilson Stephanie L. et al [13] done study of FNAC in 48 cases of malignant lesions and found 92% accuracy with histopathological report. In another series of 2772 breast masses studied by Zajdela A., M.D. et al [13], FNAC was correlated with histopathological report in 88% of cases with malignant lesions and 89% of benign lesions. Nicholson S. et al [14] found that diagnostic sensitivity of FNAC for all patients was 88%. In this present study, most common benign lesion was 27(77.14%) fibroadenoma and most common malignant lesion was 13(86.67%) infiltrating duct carcinoma. Kahky Michel P. and et al [15] found 92% sensitivity and 97% specificity after a study of 115 cases. After a study of 464 breast masses by

F.N.A.C., William H. Wolberg and et al [16] found 98% sensitivity and 94% specificity. FNAC was introduced as a primary test in the diagnosis of breast carcinoma. The procedure is safe reliable and time saving outdoor procedure with little discomfort to the patient. FNAC is not only useful in diagnosis and further planning of treatment without need for biopsy, but also helpful in prognostication of the tumour factors such as nuclear grading, mitotic index, hormone receptor status and DNA contents [17]. Singh Kuldeep et al [18] were observed that cytological diagnosis of breast cases was consistent in 235 cases out of 240 cases (97.91%) and inconsistent in 5 cases out of 240 cases (2.08%) [19]. Sajid H Alhelfy et al [19] were noticed that cytodiagnosis of the cases were consistent with histopathological diagnosis in 116 cases out of 122 cases (95.08%) and inconsistent in 6 cases out of 122 cases (4.9%). In the present study, cytological findings were consistent with histopathological findings in 34 out of 35 cases (97.14%) were consistent in 1 (2.85%) case was inconsistent in benign breast lesion. And in malignant lesions, out of 15 cases, 13(86.67%) cases were consistent and 2(13.33%) cases were inconsistent. In Egypt, a study was carried out to evaluate the efficacy of ultrasound guided FNACs by comparing the results with the corresponding definitive histological examination outcome as in our study. They also investigated the role that core needle biopsy can play as a complementary diagnostic tool for breast cancer in selected cases. The specificity and sensitivity of FNAC were 99.3% and 96.7%, respectively. The overall positive predictive values and negative predictive values were 99.3% and 96.7%, respectively. Aiming to maximize the preoperative diagnosis of cancer, they concluded therefore that it would be cost efficient and time saving to use FNAC as a first-line investigation to benefit from the wealth of cytological information yielded,

followed by CNB in selected cases [20]. FNAC has become more reliable in the diagnosis of biological behaviour of breast masses. Although its use has led reduction in the use of frozen-section histology by about 80%, erroneous diagnosis is still commoner with FNAC than with histopathology [21]. Thus, FNAC of palpable breast lumps is a well-accepted and established diagnostic tool for determining the benign or malignant breast lesions with high degree of accuracy. [22]

Conclusions

FNAC is a reliable, safe, inexpensive, little discomfort, fast and time saving diagnostic method for the assessment of breast lumps with high degree of accuracy as compared to histopathological diagnosis. It should be used as preliminary investigation for the diagnosis of breast lump in outdoor patient department.

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