Journal of Cardiovascular Disease Research
ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

Original Article

"A Study On Correlation Of Fnac With Histopathology Of Breast Lesions"

Dr. Tirthankar Biswas*

*Assistant Professor, Dept. of Pathology, IQ City Medical College, Durgapur, West Bengal

***Corresponding Author:** Dr. Tirthankar Biswas

*Assistant Professor, Dept. of Pathology, IQ City Medical College, Durgapur, West Bengal

Abstract

Introduction: Breast cancer is the second commonest malignancy of women globally and fifth most common cause of cancer. The incidence of breast carcinoma is increasing worldwide currently the incidence is 10.4% and developed countries have higher incidence. A palpable breast lump is a common diagnostic dilemma to surgeons, so it is important to differentiate a benign from malignant breast lesions for surgical pathologist. The aim of present study is to differentiate and categorise the palpable breast lumps and to study the correlation, accuracy of FNAC with Histopathology of palpable breast lumps.

Materials and methods: The retrospective study on correlation of FNAC with histopathology of breast lesions was conducted in the department of Pathology in association with the department of Surgery. We included the patients with the lump in the breast irrespective of the age who has undergone fine needle aspiration cytology (FNAC) study. FNAC was done with 23-gauge needle following standard procedure under aseptic precautions. Slides were air dried, fixed with ethanol and stained with Giemsa and HE stain. Specimen after the surgical procedure was processed and stained by HE technique, and was subjected for microscopic examination.

Results: In the present study, total of we retrieved the data of 150 patients, FNAC and Histopathology slides were retrieved and reviewed. All the slides were observed and findings recorded. Mammography findings were retrieved and recorded. Out of 150, it was found that 126 were diagnosed to have benign lump by FNAC and 24 had malignant lump. Fibroadenoma was the commonest benign breast lump accounted for 42.6%, followed by fibrocystic changes (18.66%), chronic granulomatous mastitis (8%), benign Phyllodes (6.66%), lactating adenoma (5.33%) and atypical ductal hyperplasia (2.66%), and in the malignant group the most common was infiltrating duct carcinoma accounting for 12%, followed by medullary carcinoma (2.6%), intraductal carcinoma (1.3%), mucinous adenoma (0.66%), and papillary carcinoma (0.66%). Similarly, the histopathology showed benign lump in 124 patients and 26 had malignant lump. The correlation and the diagnostic accuracy of FNAC revealed sensitivity of 92.3%, specificity 100%, PPV 100% and NPV 98.4%. The present study had a good correlation between FNAC diagnosed benign and malignant lump with histology diagnosed benign and malignant lump.

Discussion and conclusion: FNAC is a reliable, fast and accurate diagnostic method for the assessment of breast lumps and this procedure can be performed on OPD basis without admitting the patients, this can minimise the patients waiting time for excision biopsy. FNAC help us to differentiate malignant from benign breast lesions with high specificity, sensitivity and accuracy. However histopathological examination remains gold standard for the diagnosis.

Keywords: fine needle aspiration cytology, histopathology, sensitivity, specificity, benign lump and malignant lump.

INTRODUCTION

Breast cancer is the second commonest malignancy of women globally and fifth most common cause of cancer. The incidence of breast carcinoma is increasing worldwide currently the incidence is 10.4% and developed countries have higher incidence. A palpable breast lump is a common diagnostic dilemma to surgeons, so it is important to differentiate a benign from malignant breast lesions for surgical pathologist. [1-4]

FNAC (fine needle aspiration cytology) is simple, reliable, cost effective diagnostic tool with excellent patient acceptance. It helps in differentiating malignant from benign breast lesions, and it plays an important role in Triple test along with clinical and mammography examination in assessment of breast lumps. [5,6]

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 micro calcification present. [7] There is increasing awareness with associated anxiety and stress among women, who perceive every symptom in breast as cancer, compelling them to seek medical advice. It is sometimes difficult to determine whether a suspicious lump is benign or malignant simply from clinical assessment.

AIM AND OBJECTIVES:

The aim of present study is to differentiate and categorise the palpable breast lumps and to study the correlation, accuracy of FNAC with Histopathology of palpable breast lumps.

MATERIALS AND METHODS:

The retrospective study on correlation of FNAC with histopathology of breast lesions was conducted in the department of Pathology in association with the department of Surgery. We included the patients with the lump in the breast irrespective of the age who has undergone fine needle aspiration cytology (FNAC) study. FNAC was done with 23-gauge needle following standard procedure under aseptic precautions. Slides were air dried, fixed with ethanol and stained with Giemsa and HE stain. Specimen after the surgical procedure was processed and stained by HE technique, and was subjected for microscopic examination.

RESULTS:

We retrieved the data of 150 patients, FNAC and Histopathology slides were retrieved and reviewed. All the slides were observed and findings recorded. Mammography findings were retrieved and recorded.

Table 1: Shows the number of cases diagnosed on FNAC

	Number	Percentage
Benign group		
1. Fibroadenoma	64	42.6%
2. Fibrocystic disease	28	18.66%
3. Chronic granulomatous mastitis	12	8%
4. Benign Phyllodes	10	6.66%
5. Lactating adenoma	8	5.33%
6. Atypical Ductal Hyperplasia	4	2.66%

Malignant group		
1. Infiltrating ductal carcinoma	16	12%
2. Medullary carcinoma	4	2.6%
3. Intraductal carcinoma	2	1.3%
4. Mucinous adenoma	1	0.66%
5. Papillary carcinoma	1	0.66%

Table 2: Shows the number of cases diagnosed on Histopathology		
	Number	Percentage
Benign group		
1. Fibroadenoma	66	44%
2. Fibrocystic disease	24	16%
3. Chronic granulomatous mastitis	13	8.66%
4. Benign Phyllodes	12	8%
5. Lactating adenoma	7	4.66%
6. Atypical Ductal Hyperplasia	4	2.66%
Malignant group		
1. Infiltrating ductal carcinoma	18	10.6%
2. Medullary carcinoma	4	2.66%
3. Intraductal carcinoma	2	1.33%
4. Mucinous adenoma	1	0.66%
5. Papillary carcinoma	1	0.66%

Table 3: Shows cytohistological correlation of breast lesions			
	Histological diagnosis		**Total**
FNAC	**Malignant lesions**	**Benign lesions**	
Malignant lesions	24 (TP)	0 (FP)	24
Benign lesions	2 (FN)	124 (TN)	126
Total	26	124	150

Table 4: Shows diagnostic accuracy of FNAC and Histopathology	
Sensitivity	92.3%
Specificity	100%
Positive predictive value (PPV)	100%
Negative predictive value (NPV)	98.4%

DISCUSSION:

In the present study, total of we retrieved the data of 150 patients, FNAC and Histopathology slides were retrieved and reviewed. All the slides were observed and findings recorded. Mammography findings were retrieved and recorded. Out of 150, it was found that 126 were diagnosed to have benign lump by FNAC and 24 had malignant lump. Fibroadenoma was the commonest benign breast lump accounted for 42.6%, followed by fibrocystic changes (18.66%), chronic granulomatous mastitis (8%), benign Phyllodes (6.66%), lactating adenoma (5.33%) and atypical ductal hyperplasia (2.66%), and in the malignant group the most common was infiltrating duct carcinoma accounting for 12%, followed by medullary carcinoma (2.6%), intraductal carcinoma (1.3%), mucinous adenoma (0.66%), and papillary carcinoma (0.66%). Similarly, the histopathology showed benign lump in 124 patients and 26 had malignant lump. The correlation and the diagnostic accuracy of FNAC revealed sensitivity of 92.3%, specificity 100%, PPV 100% and NPV 98.4%. The present study had a good correlation between FNAC diagnosed benign and malignant lump with histology diagnosed benign and malignant lump. This finding was similar to the studies conducted by Reddy [8], Clegg-Lamptey and Hodasi [9], Rupom et al [10], and Chiemchanya et al [11]. The incidence of breast malignancy has increased worldwide due to advancement in screening, diagnosis and changes

in life style of women. Early detection and screening can decrease breast carcinoma mortality around 18-29%. True FNAC for breast aspirations were first introduced in the beginning of 1960s by Franzen and Zajicek at the Karolinska Hospital in Stockholm. FNAC of the breast is commonly used as part of the diagnostic triad, which in addition to FNAC includes clinical breast examination and radiological evaluation (mammography and ultrasonography). The diagnostic accuracy is close to 100% when all three modalities favour a benign or malignant diagnosis. Open surgical excision biopsy remains the diagnostic "gold standard" to which other methods must be compared, with almost 100% sensitivity. However, compared to FNAC and CNB, excision biopsy is expensive and associated with a greater degree of patient morbidity. Open biopsy leaves a visible scar that is cosmetically undesirable and may complicate mammographic follow up. In addition, open biopsy is associated with a significantly longer "turn -around" time than that which accompanies FNAC.

CONCLUSION:

FNAC is a reliable, fast and accurate diagnostic method for the assessment of breast lumps and this procedure can be performed on OPD basis without admitting the patients, this can minimise the patients waiting time for excision biopsy. FNAC help us to differentiate malignant from benign breast lesions with high specificity, sensitivity and accuracy. However histopathological examination remains gold standard for the diagnosis.

REFERENCES:

1. Yong WS, Chia KH, Poh WT, Wong CY. A comparison of trucut biopsy with fine needle aspiration cytology in the diagnosis of breast cancer. *Singapore Med J.* 1999;40(9):587–589.

2. Rahman MZ, Islam S. Fine Needle Aspiration Cytology of Palpable Breast Lump: A Study of 1778 Cases. *Surgery.* S12:001.

3. Obaseki DE, Olu-Edo AN, Ogunbiyi JO. Diagnostic accuracy of fine needle aspiration cytology of palpable breast masses in Benin City, Nigeria. *West Afr J Med.* 2010;29(4):259–262.

4. Ukah CO, Oluwasola OO. The clinical effectiveness of fine needle aspiration biopsy in patients with palpable breast lesions seen at the University College Hospital, Ibadan, Nigeria: A 10-year retrospective study. *J Cytol.* 2011;28(3):111–113.

5. Jindal U, Singh K, Kochhar A. Fine Needle Aspiration Cytology of Breast Lumps with Histopathological Correlation: A Four Year and eight month study from rural India. *Internet J Pathol.* 2012;13(3)

6. Walker SR. A randomized controlled trial comparing a 21 G needle with a 23 G needle for Fine needle aspiration of breast lumps. *R Coll Surg Edinb.* 1998;43:322–323.

7. Abdel-Hadi M, Abdel-Hamid GF, Abdel-Razek N, Fawzy RK. Should fine-needle aspiration cytology be the first choice diagnostic modality for the assessment of all nonpalpable breast lesions? The experience of a breast cancer screening center in Alexandria, Egypt. *Diagn Cytopathol.* 2010;38(12):880–889.

8. Reddy DG, Reddy CRR. Carcinoma of the breast, its incidence and histological variants among South Indians. *Indian J Med Sci*. 1958;12:228–34.

9. Clegg-Lamptey J, Hodasi W. A study of breast cancer in korle bu teaching hospital: Assessing the impact of health education. *Ghana Med J*. 2007;41:72–7.

10. Rupom TU, Choudhury T, Banu SG. Study of Fine Needle Aspiration Cytology of Breast Lump: Correlation of Cytologically Malignant Cases with their Histological Findings. *Bangabandhu Sheikh Mujib Med Univ J*. 2011;4(2):60–4.

11. Clegg-Lamptey J, Hodasi W. A study of breast cancer in korle bu teaching hospital: Assessing the impact of health education. *Ghana Med J*. 2007;41:72–7.