

Cytomorphological Study of Palpable Breast Lump in a Tertiary Care Hospital

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Abstract

Background: The incidence and mortality of Breast Cancer in Bangladesh are increasing at alarming rate and already reached an unexpected level. Fine needle aspiration cytology (FNAC) is an inexpensive, simple and highly accurate means of diagnosing both benign and malignant breast lesions.

Objective: The objective of this study was to observe the various cytomorphological patterns of breast lumps among the individuals attending the Department of Pathology at Enam Medical College Hospital, Savar. **METHODS:** This was a retrospective study conducted from 1st January 2018 to December 2018. 100 patients presenting with breast lump who were advised for FNAC were included in this study. FNAC was performed and the smears were also categorized into neoplastic and non-neoplastic lesions and neoplastic lesions were further categorized into benign and malignant lesions. Numbers of benign and malignant lesions in various age groups were also observed.

Results: Out of 100 cases Neoplastic lesions accounted for 70 cases. Among neoplastic lesions Ductal carcinoma was the most common malignant lesion 50 cases. All malignant lesions were observed in older age between 41-50 years.

Conclusion: From this study it can be concluded that FNAC is a simple and reliable method for diagnosis of both benign and malignant lesions of breast. Though it cannot categorize the lesion in some cases but it can rule out malignancy in most of the cases. Sometimes further histopathological study is needed to confirm the accuracy of FNAC in the diagnosis of breast lesion.

Keyword: Breast lump, FNAC, Fibroadenoma, Ductal carcinoma.

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Introduction:

The incidence of breast cancer is increasing in an alarming rate. It has been estimated in South Asia like Bangladesh, India, Pakistan, Nepal, Myanmar and Tibet etc. 76,000 women die of breast cancer in a year.¹ Although there is no national cancer registry in Bangladesh but it was estimated that 30,000 women died for breast cancer. It is holding 2nd position in the world among 100 different types of cancer. Bangladesh stays at top rank for breast

cancer in South Asian countries.² Again in United States Breast cancer is the leading cause of morbidity and mortality among women, and the second most common cause of cancer death.³ Increase in number of breast cancer cases are related to late marriage, birth of children at the later age, shorter period of breastfeeding and null parity or low parity. Clinically, the diseases of breast usually present with lump in breast or nipple discharge. Mass in breast, whether benign or malignant is a

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cause anxiety to the patient & her family members. FNAC of breast lumps is an important part of triple assessment (clinical examination, imaging and FNAC). A variety of inflammatory lesions can be seen in breast. Some of them are as a result of infectious agents while others do not have well understood etiology. Tuberculosis of the breast occurs very rarely. It is documented that only 3-4.5% tuberculosis has been observed in developing countries like India.⁴ Due to increasing awareness there has been a recent increase in the number of fine needle aspiration cytology (FNAC) of breast. Triple test has good sensitivity and specificity in the evaluation of breast lumps.⁵ The primary goal of aspiration cytology is to separate from benign to malignant lesions. Benign lesions of the breast lump include inflammatory lesions, epithelial and stromal proliferative lesions and neoplasms. The incidence of benign breast diseases begins to rise in the second decade and peaks in the fourth and fifth decade of life.⁶ Among the benign lesion proliferative breast disease without atypia and with atypia confers mild and moderate risk respectively, whereas carcinoma in situ is associated with substantial risk if untreated.⁷ Other diagnostic tool includes core needle biopsy. There are different preoperative diagnostic modalities for breast pathology. FNAC is sensitive, simple, cost effective, less traumatic and rapid method. FNAC may be used for palpable or non palpable benign or malignant breast lesions. Palpable lesions may be either solid or cystic and non-palpable lesions are detected by radio imaging study.⁴ Like other South Asian countries, breast cancer is the most common malignancy among women in Bangladesh.⁸ Unlike women in high-income countries, more women in South Asian countries (including Bangladesh) are diagnosed with breast cancer before menopause.⁹ A very few study has been conducted regarding FNAC in Bangladesh. The objective of this study was to find out the various cytomorphological patterns of breast lumps among the individual attending the Department of Pathology at Enam Medical College and Hospital, Savar.

Methods:

This Retrospective study was conducted Enam Medical College Hospital, Savar from January 2018 to December 2018. The study was conducted after approval from the ethical review committee of Enam Medical College. For this total 100 patients presenting with breast lump who were advised for FNAC were included in this study. FNAC was performed with 21 gauge needle as per the standard guideline. Five smears were made and stained with Pap stain as per the standard guidelines. Smears were also categorized into neoplastic and non-neoplastic lesions and neoplastic lesions were further categorized into benign and malignant lesions. Number of benign and malignant lesions in various age groups was also observed. All data were inserted into SPSS17 software and were analysed.

Results:

The most common age group affected in our study was 31-40 years. Table I shows detailed age distribution of neoplastic and non-neoplastic lesions among 100 cases. Among 100 cases 70 cases were neoplastic and 30 cases were non-neoplastic. Among the neoplastic lesion most of the cases were malignant 50 and 20 cases were benign. Most of the malignant lesion was in 41-50 years age group. Among non-neoplastic lesion most of the cases were in the age group 31-40 years.

Table-I

Distribution of Neoplastic and Non neoplastic cases according to age (n=100).

Age (Years)	Non-Neoplastic lesions (n=30)	neoplastic lesion (n=70)	
		Benign	Malignant
0-10	0	0	0
11-20	1	1	0
21-30	10	15	7
31-40	13	4	14
41-50	6	0	16
51-60	0	0	8
61-70	0	0	4
71-80	0	0	1
Total (n=100)	30	20	50

Among the clinical features 100% cases presented with the breast lump. Among neoplastic cases most of the malignant 42% cases presented with hard lump and 23% cases presented with mobile lump. Among neoplastic lesion 15cases presented with nipple retraction and 5cases presented with axillary lymphadenopathy. Among non-neoplastic lesion most of the cases 35% presented with mobile lump, 22% cases presented with pain, 8% cases presented with nipple discharge. Table II showed detailed signs and symptoms of 100cases.

Table-II

Distribution of neoplastic and non-neoplastic lesion according to sign and symptom in 100 Cases.

Sign and symptom	Non-neoplastic	Neoplastic
Lump	30	70
Pain	22	8
Hard lump	0	42
Mobilelump	35	23
Nipple discharge	8	0
Nipple retraction	0	15
Fever	8	5
Axillary lymphadenopathy	0	5

According to FNAC category different neoplastic and non-neoplastic lesion were identified. Non-neoplastic lesions accounted for (30%) and neoplastic lesions consisted of (70%). The prevalence of various non-neoplastic and neoplastic categories is shown in Table III and Table IV respectively. Non-neoplastic cases observed in this study were chronic non-specific mastitis (n=3), chronic granulomatous mastitis (n=4), fat necrosis (n=1), mammary duct ectasia (n=1), fibrocystic change (n=6),Proliferative breast lesion without atypia(n=10), Proliferative breast lesion with atypia (n=5). Among non-neoplastic lesion most 33.33% cases was Proliferative breast lesion without atypia.

Table-III

Distribution of FNAC pattern among non-neoplastic lesion (n=30).

FNAC diagnosis	No of cases	Percentage
Chronic nonspecific mastitis	3	10%
Chronic Granulomatous mastitis	4	13.33%
Fat necrosis	1	3.3%
Mammary duct ectasia	1	3.3%
Fibrocystic change	6	20%
Proliferative breast lesion without atypia	10	33.33%
Proliferative breast lesion with atypia	5	16.67%
Total	30	100%

Similarly the neoplastic cases observed in this study were fibroadenoma (n=20), ductal carcinoma (n=45), ductal carcinoma with lymph node metastasis (n=5). Among neoplastic lesion the most common lesion was ductal carcinoma, 50 (71.43%).

Table-IV

Distribution of FNAC diagnosis among neoplastic lesion (n=70).

FNAC diagnosis	No of case	Percentage
Fibroadenoma	20	28.57%
Ductal carcinoma	45	64.29%
Ductal carcinoma with lymph node metastasis	5	7.14%
Total	70	100%

Discussion:

Breast lump is a common clinical presentation for which a cytological study is often sought. It is a necessary diagnostic tool and adjunct to the clinical examination. Cytological (FNAC) study has further many advantages including easiness, cost effectiveness and accuracy.¹²⁻¹⁴ In our study breast lump as a clinical presentation was found in 100 cases. Similar observations were made by other authers.^{11,15,16} In our study most (70%) of the breast lumps were neoplastic in origin which was similar to the other study.¹⁴ Inflammatory lesions in our study were 15. Several studies

also found similar findings.¹⁷ Chronic granulomatous mastitis in our study were 4 which was in accordance with other studies.^{17,18} Ductal carcinoma was the most common type of malignant breast lesion (50/70 cases; 71.43%) which was also found by others.^{11,19} Many study also reported that ductal carcinoma is the commonest breast malignancy and found in the age group of 41-60 years of age.^{11,16,19} The present study shows similar findings, the ductal carcinoma being the most common breast malignancy in the age group of 41-50 year of age. Nipple discharge was observed in 8 cases of chronic nonspecific mastitis and mammary duct ectasia. Axillary lymphadenopathy was observed in 5 patients who were subsequently diagnosed as ductal carcinoma with lymphnode metastasis on FNAC. Similar findings were correlate by others.¹⁵ This study has highlighted the several potential benefits of the breast FNAC. Due to its feasibility, FNAC has become the first diagnostic tool in the investigation of a breast lump. Success of FNAC is contingent upon several important contributing factors like aspirator's experience, skillful cytological interpretation and a rational analysis based upon correlation of cytological and clinical information of the patient.

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