

ORIGINAL ARTICLE

Study of Breast Lump by FNAC and Distribution of Disease Pattern: A Study of 275 Cases in Bangabandhu Sheikh Mujib Medical University

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Abstract:

A prospective study of breast lump by FNAC was carried out in Bangabandhu Sheikh Mujib Medical University, Dhaka during the period of 15 October 2002 to 17 July 2003 to evaluate the nature of disease pattern. A total of 275 patients with breast lump underwent fine needle aspiration cytology (FNAC) examination. Out of 275 lumps examined, 145 (52.5%) were in the left breast, of which 74 (26.90%) were located in the upper outer quadrant. The cytological diagnoses were benign in 213 (77.45%) cases, malignant in 32 (11.63%) cases, suspicious in 2 (0.72%) cases and unsatisfactory in 28 (10.18%) cases. Of the benign diseases, the most common lesions were fibroadenoma 102 (47.8%) followed by fibrocystic change 64 (30.04%). Of the malignant cases, most common breast carcinoma was duct cell carcinoma 30 (93.75%). The incidence of both benign and malignant diseases were more in left breast and frequent in upper and outer quadrant.

Introduction:

The most common sign and symptom of breast disease is a palpable mass. This is usually found by the patient, and may be due to either benign or malignant diseases¹. Diseases of the breast are not only a medical problem but also a socioeconomic one. Any lump in the breast, whether it is benign or malignant, results in anxiety for the patients and her family². Most diseases of the breast present as palpable masses, inflammatory lesions, nipple secretions or mammography abnormalities³.

Fine needle aspiration cytology (FNAC) can provide a morphological diagnosis of palpable breast masses in an accurate, efficient, inexpensive and safe manner⁴. Fine needle aspiration cytology are now used more frequently to diagnose any mass in the breast⁵. Because of existing social circumstances, the tendency to overlook the complaints for lump in the breast, most patients report in advanced stages of breast cancer⁶. In the field of fine needle aspiration cytology, the breast is the organ aspirated most frequently⁷. The present study is carried out to study the nature of the diseases pattern that presents with a lump in the breast by FNAC.

Materials and method:

This study was carried out in the Department of Pathology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, during

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the period of 15 October 2002 to 17 July 2003. It is a prospective study of breast lump. Patients of any age presenting with palpable breast lump under-twenty FNAC examination for the diagnosis of the type of the lesion. The clinical history was taken from all the patients, which included the age, site and duration of breast lump, any discharge and pain in the lump. The breasts were examined physically to determine the size and location of the lump, its consistency, and fixity to the chest wall or overlying skin, nipple retraction, nipple discharge and regional lymph-node involvement. Patients with breast lump <0.5cm or just palpable were not included in this study. The purpose of study was to determine the nature of the diseases that present with a lump in the breast. Samples were obtained with a fine needle and syringe. It was done as an outpatient test and no special preparation was required. The procedure was performed in a separate room with full consents of the patients maintaining the privacy. The smeared slides were promptly dipped in 95% ethyl alcohol for fixation and to prevent drying artifacts. Smears were

sectioned and stained with hematoxylin and eosin (H&E).

Results:

A total of 275 patients with breast lump underwent FNAC examination for the diagnosis of breast lump. Out of 275 patients, in whom the location of lumps were recorded, 145 had lumps in the left breast, 106 in the right and 24 in both breasts. In the left breast highest percentage (26.8%) were located in upper and outer quadrant followed by 11 (4.0%) in upper and inner and equal number in lower outer quadrant. Central or subareolar region was affected in 36 (13%), lower and inner quadrant in eight (2.9%) and multiple quadrant in five (1.8%). In the right breast, highest percentages (19.4%) of lumps were detected in upper outer quadrant followed by 18 (6.5%) in central quadrant, 11 (4.0%) upper and inner and equal number in multiple quadrants. Lower and outer region was affected in nine (3.3%) and lower and inner in five (1.8%) cases (Table-I).

Table- I: Distribution of patients according to location of lumps

Quadrant of breast	Left Breast	Right Breast	Bilateral	Total
Upper outer	74 (26.8%)	53 (19/2%)	10 (3.6%)	137 (49.6%)
Upper inner	11 (4.0%)	11 (4.0%)	01 (0.4%)	23 (8.3%)
Lower outer	11 (4.0%)	09 (3.3%)	01 (0.4%)	21 (7.6%)
Lower inner	08 (2.9%)	04 (.8%)	-	13 (4.7%)
Central	36 (13%)	18 (6.5%)	07 (2.5%)	61 (22.1%)
Multiple	05 (1.8%)	11 (4.0%)	05 (1.8%)	21 (7.6%)
Total	145 (52.5%)	106 (38.8%)	24 (8.7%)	275 (100%)

stained by papanicolaou stain. Usually two or more slides of cytologic smears were prepared for each case. Mastectomy and lumpectomy specimens for histopathological examinations were fixed in 10% formalin solution, routinely

In the present series, the incidence of duct cell carcinoma was highest (5.5%) in the upper and outer quadrant of the left breast followed by five (4.7%) in the upper and outer quadrant of the right breast. The incidence of fibro

Table-II Distribution of disease pattern according to location in 275 cases

Left breast	Distribution by quadrant						
	Upper and outer (%)	Upper and inner (%)	Lower and outer (%)	Lower and inner (%)	Central (%)	Multiple quadrant (%)	Total (%)
Fibroadenoma	34 (23.4)	05 (3.4)	01 (0.7)	02 (1.4)	09 (6.2)	02 (1.4)	53 (36.6)
Fibrocystic change	18 (12.4)	03 (2.1)	02 (1.4)	03 (2.1)	06 (4.1)		32 (22.1)
Abscess	03 (2.1)		01 (0.7)		03 (2.1)		07 (4.8)
Gynaecomastia					01 (1.4)		02 (1.4)
Mastitis	01 (0.7)		02 (1.4)		02 (1.4)		05 (3.4)
Granulomatous						01 (0.7)	01 (0.7)
Lipoma				01 (0.7)			01 (0.7)
Fat necrosis	01 (0.7)		01 (0.7)	01 (0.7)			03 (2.1)
Galactocoele	02 (1.4)				01 (0.7)		03 (2.1)
Suspicious	01 (0.7)				01 (0.7)		02 (1.4)
Lactating adenoma	01 (0.7)						01 (0.7)
Unsatisfactory	05 (3.4)	03 (2.1)	03 (2.1)		08 (5.5)		19 (13.1)
Duct cell carcinoma	08 (5.5)		01 (0.7)	01 (0.7)	04 (2.8)	02 (1.4)	16 (11)
Total (%)	74 (51)	11 (7.6)	11 (7.6)	08 (5.5)	36 (24.8)	05 (3.4)	145 (100)

adenoma was highest (23.4%) in the upper and outer quadrant of the left breast followed by 20 (18.9%) in the upper and outer quadrant of the right breast (Table II, III).

In patients with both breast lumps, the incidence of fibro adenoma was 20.8% and fibrocystic change was 16.7%. The incidence of duct cell carcinoma was 1.9% in the upper and outer quadrant (Table-IV).

Table-III Distribution of disease pattern according to location in 275 cases

Right breast	Distribution by quadrant						
	Upper and outer (%)	Upper and inner (%)	Lower and outer (%)	Lower and inner (%)	Central (%)	Multiple quadrants (%)	Total (%)
Fibroadenoma	20 (18.9)	08 (7.5)	03 (2.8)	02 (1.9)	03 (2.8)	02 (1.9)	38 (35.8)
Fibrocystic change	14 (13.2)	01 (0.9)	02 (1.9)		05 (4.7)		22 (20.8)
Abscess	03 (2.8)			02 (1.9)	04 (3.8)	01 (0.9)	10 (9.4)
Hamangioma						01 (0.9)	01 (0.9)
Gynaecomastia	01 (0.9)						01 (0.9)
Mastitis	02 (1.9)				01 (0.9)		03 (2.8)
Granulomatous	01 (0.9)						01 (0.9)
Fat necrosis	01 (0.9)					01 (0.9)	02 (1.8)
Galactocoele			01 (0.9)				01 (0.9)
Epidermal inclusion cyst	01 (0.9)				01 (0.9)		02 (1.92)
Dilated duct					01 (0.9)		01 (0.9)
Benign proliferative lesion						01 (0.9)	01 (0.9)
Unsatisfactory	04 (3.8)	01 (0.9)	01 (0.9)		01 (0.9)	01 (0.9)	08 (7.5)
Duct cell carcinoma	05 (4.7)	01 (0.9)	02 (1.9)		02 (1.9)	04 (3.8)	14 (13.2)
Medullary Carcinoma	01 (0.9)						01 (0.9)
Total (%)	53 (50)	11 (10.4)	09 (8.5)	04 (3.8)	18 (17)	11 (10.4)	106 (100)

Cytologically two hundred thirteen (77.45%) specimens were diagnosed as benign disease of which 102 (47.8%) were fibroadenoma, 64 (30.04%) fibrocystic change and two (0.72%) were suspicious cases. Besides these,

Histological examination was available in 32 (11.63%) malignant cases.

Of the 32 patients, 31(96.87%) were correctly diagnosed by fine needle aspiration cytology.

Table-IV Distribution of disease pattern according to location in 275 cases

Both breast	Distribution by quadrant						
	Upper and outer (%)	Upper and inner (%)	Lower and outer (%)	Lower and inner (%)	Central (%)	Multiple quadrants (%)	Total (%)
Fibroadenoma	05 (20.8)		01 (4.2)		03 (12.5)	02 (8.3)	11 (45.8)
Fibrocystic change	04 (16.7)	01 (4.2)			03 (12.5)	02 (8.3)	10 (41.7)
Abscess					01 (4.2)		01 (4.2)
Unsatisfactory						01 (4.2)	01 (4.2)
Duct cell carcinoma	01 (4.2)						01 (4.2)
Total (%)	10 (41.7)	01 (4.2)	01 (4.2)		07 (29.2)	05 (20.8)	24 (100)

32 (11.68%) were malignant cases and 28 (10.18%) were unsatisfactory cases. Technically unsatisfactory smears in most instances occurred because of an acellular/bloody puncture (Fig-1).

Figure-1: Categorization of FNA cytology (n=275)

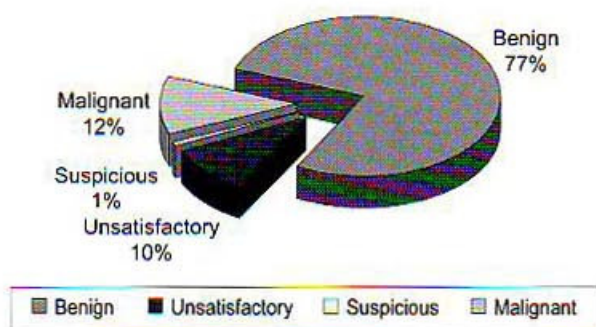


Table-III: Histopathological and cytological correlation of 32 cases with malignant breast disease

Cytology	Fibrocystic change	Duct cell carcinoma	Medullary carcinoma	Total
Duct cell carcinoma	01 (3.12%)	30 (93.75%)	-	31
Medullary carcinoma	-	-	01 (3.12%)	01
Total	01 (3.12%)	30 (93.75%)	01 (3.12%)	32

Thirty (93.75%) were duct cell carcinoma and one (3.12%) was medullary carcinoma. Another case diagnosed as duct cell carcinoma on cytology was reported as fibrocystic change on histopathological examination (Table-III).

Discussion:

In the present study, the distribution of disease pattern according to location of breast lump was available in 275 cases. The maximum number of lumps were in the left breast and only 24 (8.7%) were found in both breasts. Among the 32 Cytologically diagnosed malignant cases, 31 cases were histologically proved as malignant, one case was found to be fibrocystic change. Eisenberg et al also found highest incidence of carcinoma in the left breast and the distribution malignant lumps was similar to that was found in the present study.

Ahmed studied aspiration cytology of 82 cases of primary breast carcinoma. Of which 92.2% cases were duct cell carcinoma, 3.7% lobular carcinoma, 2.4% medullary carcinoma, 3.7% mucinous carcinoma⁹. Chiemchanya et al

studied 239 breast lumps of which 31 were diagnosed as malignant. Of the 31 malignancies 29 were duct cell carcinoma¹⁰. The result of primary carcinoma was similar to the present study. In this study 213 were benign lesions. Lester et al, studied on a large series of patient with breast complaints. About 30% of the women were considered to have no breast disease. 40% were diagnosed as fibrocystic changes. Slightly more than 10% had cancer and about 7% had benign tumour (fibroadenoma). The remainders were suffering from miscellaneous benign lesions¹¹. Khatun et al studied 100 cases of breast lumps by FNAC. Histology was available in 50 cases of which 33 cases were benign and 17 cases were malignant. Among 33 cases, there were fibroadenoma (46%), fibrocystic change (10%), benign phylloides tumour (4%) inflammatory lesion (2%), adenoma (2%) and gynecomastia (2%). Out of 17 malignant cases, 14 were invasive duct cell carcinoma, two cases were lymphoma and one case was medullary carcinoma¹². The result of benign lesion was similar to present study.

In this study it was clearly observed that most lumps of breast are benign lesions and carcinoma is relatively less. The incidence of both benign and malignant diseases was common in left breast and frequent in upper and outer quadrant.

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