

Study of Breast Lump Cytology Evaluation in Pre-Menopausal Females

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Abstract

Palpable breast lumps in females are quite common which can be benign or malignant. After carcinoma cervix, carcinoma breast is the second most common cancer in females. Rapid diagnostic test like Fine needle aspiration cytology (FNAC) which is easy, quick, reliable, affordable and an OPD procedure can be utilized to plan the treatment accordingly. In this study various breast lesions of Pre-menopausal females were evaluated on the basis of cytological findings. This two-year study from January 2013 to December 2015 including 200 cases aspirated from palpable breast lumps of pre-menopausal females. Physical examination of breast lumps was done by palpation with aspiration and Cytological diagnosis was made. In this study most common benign breast lesion was fibroadenoma and among malignant ones medullary carcinoma was predominant (02 cases)

Keywords: Breast, Cytology, FNAC, pre-menopausal.

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INTRODUCTION

Breast cancers are one of the most common cancer in females worldwide & it is also the major cause of fatality in women. Almost 80 to 85% is contributed by benign lesion & remaining 20% are malignant in nature. Therefore for their proper management, distinction between the two is of utmost importance which can be done by cytological examination of breast lumps. Fine Needle Aspiration Cytology (FNAC) is one of the important steps among the triple test which is applied worldwide after physical examination & radiology. FNAC is an established & highly accurate method for diagnosing breast lesion.

Fine Needle Aspiration Cytology (FNAC) is 65-99% sensitive and 96-100% specific in diagnosis of palpable breast lumps.

MATERIAL AND METHOD

It is a retrospective study carried out from the data of North Indian tertiary care centre of period from January 2013 to December 2015 for the period of two years. All selected cases underwent FNAC in the mentioned period were retrieved. A proper written consent in patient's local language was obtained from each patient. Physical examination of breast mass by palpation was done along with the examination of axillary lymph nodes, FNAC was done by using needle attached to 10cc/20cc disposable syringe. 95% alcohol

fixed smears were prepared and stained with H&E (Hematoxylin & Eosin) & Leishman stain.

Inclusion Criteria

Pre-menopausal females with unknown primary diagnosis of breast mass.

Exclusion Criteria

1. Patient with recurrent malignancy.
2. Patient in whom Fine needle aspiration cytology (FNAC) was acellular.
3. Patient not giving written informed consent.

Cytological Slides were studied under light microscope & cytological diagnosis were made under the standard cytological diagnostic protocol.

OBSERVATIONS

We included 200 breast aspirates of Pre-menopausal females with breast out of 200 patients, lump was located in right breast in 80 (40%) cases, in 100 (50 %) cases in left breast and in 5 (2.5%) cases it was bilateral (Table-1).

The most common site (Table-2) for lump was upper outer quadrant having 85(42%) cases followed by upper inner quadrant in 35 (17.5%) cases. In 30 (15%) cases, lump was subareolar and in 15 (7.5%) cases it was diffuse involving all the quadrants. Of the total 200 cases, in 190 cases the aspirated material was adequate

to confer the diagnosis, while in 10 (5%) cases it was paucicellular with haemodilution precluding the definite opinion (Table 2). Various lesions on cytological evaluation diagnosis were inflammatory in 52 (26%) cases, benign 123 (61.5 %), atypical 13 (6.5%), and malignant 02 (1%) cases (Table-3).

In Inflammatory lesions (Table-4), the maximum cases were of acute mastitis 43 (82.7%) (Table-4) followed by Fat necrosis 05 (9.6 %) having history of previous surgeries and trauma. 02 (3.8%) cases of granulomatous mastitis. In 02 (3.8%) case there was chitinous wall, vegetative nuclei, with scattered lymphocytes, plasma cells, histiocytes, epithelioid cells & foreign body giant cells and diagnosed as Cysticercosis.

In Benign lesions (Table-5), the maximum cases were of Fibroadenoma 60 (48.8%). 30 (24.4%) cases were of Fibrocystic disease, 02 (1.6%) having Simple cyst which disappeared after aspiration, 20 (16.3 %) cases were galactocele which also decrease in size after aspiration, 07 (5.7%) cases of lactational adenoma, while spindle cell lesion have incidence of 04 (3.2 %) cases.

All 02 cases of malignant lesions were finally diagnosed as ductal carcinoma (Table-6). Majority of patient presented clinically with breast lump followed by fever, mastalgia & breast enlargement (Table-7).

Table-1: Breast lumps Side wise distribution (Right, left & bilateral)

Side	Cases (200)	Percentage (%)
Right	80	40
Left	100	50
Bilateral	5	2.5

Table-2: Quadrant distribution of Breast lumps

Quadrant	No of cases (200)	Percentage (%)
All	15	7.5
Lower inner	15	7.5
Lower outer	20	10
sub areolar	30	15
Upper inner	35	17.5
Upper outer	85	42
total	200	

Table-3: Cytomorphologic spectrum of Breast lumps

Cytological diagnosis	Number of cases (200)	Percentage (%)
Inflammatory	52	26
Benign breast lesions	123	61.5
Atypical/probably benign	13	6.5
Malignancy	02	1
Unsatisfactory	10	5
Total	200	100

Table-4: Breast lumps: Distribution of Inflammatory lesions.

Cytological diagnosis	Number of cases (52)	Percentage (%)
Acute mastitis/abscess	43	82.7
Granulomatous mastitis	02	3.8
Fat necrosis	05	9.6
Cysticercosis	02	3.8
Total	52	100

Table-5: Breast lumps: Distribution of benign breast lesions

Benign Breast Lesions	No of cases (123)	Percentage (%)
Fibrocystic disease	30	24.4
Simple cyst	02	1.6
Galactocele	20	16.3
Fibroadenoma	60	48.8
Lactational adenoma	07	5.7
Spindle cell lesion	04	3.2
Total	123	100

Table-6: Breast lumps: Distribution of malignant lesions

Malignancy	No of cases (02)
Ductal	02
Medullary	00
Malignant phylloides	00

Table-7: Diagnosis versus and complains of patients of breast disease

Diagnosis	Breast pain	Breast lump	Fever	Enlargement of breast
Fibrocystic disease (30)	20 (66.6%)	25 (83.3%)	-	-
Simple cyst (02)	01 (50%)	02 (100%)	-	-
Galactocele (20)	10 (50%)	20 (100%)	-	-
Fibroadenoma (60)	40 (66.6%)	60 (100%)	02 (3.3%)	06 (10%)
Spindle cell lesion (4)	04 (100%)	04 (100%)	-	01 (50%)
Lactational adenoma (07)	05 (71.4%)	07 (100%)	-	-
Acute mastitis/abscess (43)	43 (100%)	40 (93%)	35 (81.4%)	-
Granulomatous mastitis (02)	01 (50%)	02 (100%)	02 (100%)	-
Fat necrosis (05)	04 (80%)	02 (40%)	-	-
Cysticercosis (02)	-	02 (100%)	-	-
Ductal carcinoma (02)	01 (50%)	02 (100%)	-	-

DISCUSSION

In the present study, we included 200 breast lump cases in which cytomorphological study was done and cytological diagnosis were made. FNAC results were divided into inflammatory, benign, atypical/probably benign, and suspicious of malignancy, malignant & unsatisfactory categories. Only in 10 cases (5%) aspirate was unsatisfactory for evaluation where no diagnosis was made, rest aspirates were adequate and diagnosis were made. Unsatisfactory smears were slightly more than Mohammed et al [8] unsatisfactory samples can be due to technical error. Repeat nature of lesion or inappropriate aspiration with diligence technique usually yields adequate material to confer cytological diagnosis, if still inadequate, core/incisional biopsy need to be opted.

In this study left side breast lump were more common this is in agreement with Meena *et al.*, [9] and Reddy *et al.*, [10].

Upper and outer quadrant was most commonly involved quadrant (42%). This is in agreement with Rocha et al (45.20%) [11] and Zuk *et al.*, (42.2%) [12].

In present study, among the benign lesions, fibroadenoma was the most common benign lesion 60 (48 %) followed by Proliferative breast lesion without atypia inclusive of fibrocystic disease (30 cases; 24.4%), this study is comparable to study by Faiyaz Ahmad [13] (41.07%) followed by proliferative breast lesion without atypia (14.29%) and Neha Kurmi Patel *et al.*, [14] who reported 43.5% cases of fibroadenoma and 24.1 % cases of Fibrocystic disease. Thus the present study is in concordance with the most other studies available.

We reported 43 cases of acute mastitis which is in contrast with the study of Neha Kurmi patel et al

(4 cases) and Faiyaz ahmad et al (14 cases). This higher number of cases may be due to the age criteria in our study, cases of acute mastitis may be related to trauma during lactation. We observed 5 cases of fat necrosis, Faiyaz Ahmad et al observed 3 cases of the same.

Out of 200 cases, 20 cases were of Galactocele and 7 cases of Lactational adenoma. Galactocele showed benign ductal cell in the background of lipid droplets as vacuoles. Lactation adenoma showed cellular smear with minimal pleomorphism and foamy vacuolated cells. Our study is in concordance with Sharma M *et al.*, [15] who reported 16 cases of galactocele and 5 cases of lactational adenoma in their study of breast lump during pregnancy and lactation.

In two cases (3.8%) we found chitinous wall, vegetative nuclei with scattered histiocytes though hooklets were not seen and cases were reported as suspicious of Cysticercosis after excluding other diagnosis. Cysticercosis of the breast is rare and it should be considered as differential diagnosis for a lump in breast. Well formed epitheloid cell granulomas were found in 02 cases (3.8%) which were reported as Granulomatous Mastitis.

Hormonal changes before menopause and changes in breast. Malignancy was diagnosed in only two cases, both the females were around 45 year old, smears showed large pleomorphic ductal cells in cohesive clusters with many inflammatory cells in the background, lump in both cases were soft fleshy and well circumscribed, it was clinically mimicking benign lesion and FNAC helped in early diagnosis and treatment of these cases [16, 17]. In some epidemiological studies, ACE gene polymorphisms, including ID polymorphism and few more genetic associations were found to be associated with increased Carcinoma Breast risk except the Multi-ethnic Cohort

Study. So, it's always better to opt for higher ancillary tests like genetic polymorphism [18].

CONCLUSION

Fine needle aspiration cytology is diagnostic tool which is rapid and effective method for preoperative diagnosis to relieve the anxiety of premenopausal patient regarding any sort of breast lump and also for post-operative follow up of breast lumps to ensure the recurrences. Benign lesion are commoner than malignant lesion, fibroadenoma is the commonest entity, as 20-30 years are reproductive age group, pathologist must be aware of galactocoele, lactating adenoma, and acute mastitis, which are expected in breast lump during pregnancy and lactation. Although rare cysticercoids must be considered in the differential diagnosis of breast lump, FNAC was invaluable in the diagnosis of less common malignant tumour like Ductal carcinoma, which clinically and radiologically mimics as benign lesion. Further evaluation is required if FNAC findings are suspicious of malignancy like histopathology and immunohistochemistry for confirmation of the diagnosis and proper management.

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