

CYTOMORPHOLOGICAL STUDY OF BREAST LESIONS IN PRE-MENOPAUSAL AND POST-MENOPAUSAL WOMEN PRESENTING IN JNIMS HOSPITAL, MANIPUR: A RETROSPECTIVE STUDY

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ABSTRACT

BACKGROUND

Diagnosis of a breast lump is of prime concern to the physician for proper management. The diagnostic aids come in various modalities, but Fine Needle Aspiration Cytology (FNAC) is a quick, reliable and time saving procedure to distinguish malignant from benign diseases of breast and thereby influencing the way of treatment proceeding in each case. The study gives emphasis on the distribution of various breast diseases among the pre- and post-menopausal females by using FNAC.

MATERIALS AND METHODS

Between 2012 and 2016, a total of 412 female patients presenting with breast lumps subjected to FNAC are retrospectively analysed. The study population was divided into two groups - premenopausal and post-menopausal group and the comparison of the various types of breast lesions as diagnosed by FNAC was made in the two study groups.

RESULTS

Out of the total study population, 400 were eligible out of which 337 females were pre-menopausal and 53 females were post-menopausal. Palpable breast lump was the most common presenting complaint (86.8%) followed by mastalgia (11.5%) and nipple discharge (7.5%); 94% (n=376) were benign lesions and 6% (n=24) were malignant lesions. Among the benign lesions, fibroadenoma was the most predominant lesion (53.9%) and infiltrating ductal carcinoma was the most common malignant lesion (79.2%).

CONCLUSION

FNAC as a diagnostic tool for breast lesions is a rapid and reliable procedure. It distinguishes benign from malignant lesions with very few cases with inconclusive findings. In pre-menopausal and post-menopausal women the lesions were mostly benign, but malignant disease occurred more commonly in post-menopausal women. Diagnosis of breast lesions with the help of FNAC helped in guiding treatment and correlation with histopathological examination of the lesion will further measure the reliability of this procedure.

KEYWORDS

FNAC, Breast Lump, Carcinoma, Ductal, Fibroadenoma.

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BACKGROUND

Evaluating a breast mass can be a difficult task. The patient has a fear of breast malignancy as a result of which she has lots of anxiety, and physicians may sometimes find it difficult to differentiate the mass from normal breast parenchyma. Majority of breast lesions will prove to be of a benign aetiology. Physical, psychological and financial costs of investigating benign breast diseases, primarily to exclude malignancy are substantial. The management of the patients varies according to the hospital the patient visits. Treatment facilities in different hospitals vary due to variation in the setup from Peripheral hospitals with basic facilities to the

specialised institutions in the higher centres with all specialists, medical oncologists, radiation oncologists, surgical oncologists and other supporting facilities. Treatment in peripheral hospitals is usually a radical mastectomy with or without radiotherapy. But in specialised cancer institutions, management follows international recommendations, viz. brachiocephalic trunk or modified radical mastectomy, radiation therapy and chemotherapy.^[1]

Fine-Needle Aspiration Cytology (FNAC) method was introduced as a primary test in the diagnosis of breast carcinoma. FNAC is not only useful in diagnosis and further planning of treatment without need for biopsy, but also helpful in prognostication of the tumour by helping in estimating nuclear grading, mitotic index, hormone receptor status and DNA contents.^[2] Techniques used to diagnose breast lesions include clinical breast examination, breast imaging and breast cytology.^[3,4] Fine-needle aspiration cytology is the most reliable component of this triple test assessment of breast lesions due to its accurate negative predictive value and positive predictive value.^[5,6] A histologic study of 1501 breast specimens conducted by Bjerregaard

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and Kung'u found that benign and malignant lesions accounted for 72.2% and 27.8% of the diagnosed breast lesions, respectively.^[7] A retrospective study of 1172 patients performed by Otieno et al found that fibroadenoma (33.2%) and ductal carcinoma (17.4%) were the most commonly diagnosed types of lesions and 98.9% of all breast lesions occurred in female patients.^[8] Fine Needle Aspiration Cytology (FNAC) is a safe, reliable and time saving outdoor procedure with little discomfort to the patient. FNAC is useful in diagnosis. The study was carried out with the aim of studying the frequency of various breast lesions on FNAC in patients presenting in JNIMS Hospital, Manipur.

MATERIALS AND METHODS

Medical records in the form of breast cytology reports from 412 consecutive patients presenting to Breast or General Surgical Clinics at JNIMS and over the period of four and a half years from January 2, 2012 to June 6, 2016 were studied. The study population is divided into two groups - pre-menopausal and post-menopausal age group. Patients presented with palpable breast lump, nipple discharge, breast pain, nipple retraction, skin changes or palpable axillary lymph nodes were accessed from the records of Department of JNIMS's Cytology Laboratory and examined for eligibility. Reports having patient age and sex, clinical summary, sampling technique, microscopic findings and conclusive diagnosis were included in the study. Reports having major typographical errors, cytological diagnosis of secondary breast diseases and inconclusive breast cytology results were excluded from the study. Appropriate approval of the Institutional Ethical Committee, JNIMS, was obtained for the same. All data were analysed by Chi Square test using Microsoft Excel 2013.

RESULTS

A total of 400 breast cytology reports satisfied eligibility criteria. The study population were in the age group (14–80) yrs. of age. Reports are classified into pre-menopausal and post-menopausal age groups. The pre-menopausal population was in the age group (14–42) yrs. of age. The post-menopausal population was in the age group (42–80) yrs. of age. The presenting complaints are summarised in Table 1. Palpable breast lump was the most common complaint (n=347), while palpable axillary lymph node(s) was the least common (n=2).

Sl. No.	Signs and Symptoms	Total No. of Cases
1	Palpable breast lump	347 (86.8%)
2	Nipple discharge	30 (7.5%)
3	Breast pain	46 (11.5%)
4	Skin changes	12 (3.0%)
5	Palpable axillary lymph node(s)	2 (0.5%)
6	Nipple retraction	4 (1%)

Table 1: Presenting Complaints of Study Populations (n=400)

Menopausal Status	Lesion Type		P-Value
	Benign, N (%)	Malignant, N (%)	
Pre-menopausal	329(97.6)	8(2.4)	0.001
Post-menopausal	47(4.6)	16(25.4)	

Table 2: Comparison of Lesion Type with Menopausal Status (N= 400)

The frequency distribution of all diagnosed breast lesions is shown in the Table 2 and Table 3. Fibroadenoma (n=203) and benign proliferative breast disease (n=40) were the most frequently diagnosed benign breast lesions, whereas ductal carcinoma (n=19) was the most frequently diagnosed malignant breast lesion. Other frequently diagnosed breast lesions include fibrocystic breast disease (n=33), inflammatory breast lesions (n=23), sub-areolar abscess (n=17), galactocele (n=13), lactation changes (n=14).

(A) Benign and Inflammatory Lesions	Pre-Menopausal (n=329)	Post-Menopausal (n=47)	Total (n=376)
Fibroadenoma	193 (58.6%)	10 (21.3%)	203 (53.9%)
Fibrocystic disease	23 (7.0%)	10 (21.3%)	33 (8.8%)
Fibrocystic dx with lactational change	2 (0.6%)	0 (0%)	2 (0.5%)
Duct ectasia	0 (0%)	5 (10.6%)	5 (1.3%)
Atypical ductal hyperplasia	8 (2.4%)	4 (8.5%)	12 (3%)
Benign proliferative breast disease	33 (10.0%)	7 (14.8%)	40 (10.6%)
Benign phyllodes tumour	3 (0.9%)	2 (4.2%)	5 (1.3%)
Galactocele	13 (3.9%)	0 (0%)	13 (3.4%)
Lactational change	14 (4.2%)	0 (0%)	14 (3.7%)
Benign cystic lesion	6 (1.8%)	0 (0%)	6 (1.5%)
Lactating adenoma	2 (0.6%)	0 (0%)	2 (0.5%)
Fat necrosis	1 (0.3%)	0 (0%)	1 (0.3%)
Sub-areolar abscess	11 (3.3%)	6 (12.8%)	17 (4.5%)
Inflammatory breast lesions	20 (6.1%)	3 (6.3%)	23 (6.1%)

Table 3: Types of Diagnosed Benign Breast Lesions and Distribution in Pre-Menopausal and Post-Menopausal Populations

(B) Malignant Lesions	Pre-Menopausal (n=8)	Post-Menopausal (n=16)	Total (24)
Infiltrating ductal carcinoma	4(50.0%)	16(100%)	19(79.2%)
Medullary carcinoma	3(37.5%)	0(0%)	3(12.5%)
Mucinous (colloid) carcinoma	1(12.5%)	0(0%)	1(4.2%)

Table 4: Types of Diagnosed Malignant Breast Lesions and Distribution in Pre-Menopausal and Post-Menopausal Populations

Of the 400 diagnosed breast lesions, 94% (n=376) were benign lesions (with inflammatory lesions), 6% (n=24) were malignant lesions. Thus, benign-to-malignant ratio is 15.6:1.

Total number of cases in premenopausal population is 338 and in postmenopausal population are 62. The distribution of breast lesions diagnosed by breast cytology in pre-menopausal and post-menopausal populations reflects

that benign and inflammatory lesions is 330 (n=330) in pre-menopausal population and 46 (n=46) in post-menopausal population. Malignant lesions in premenopausal population is 8 (n=8) and post-menopausal population is 16 (n=16).

Inflammatory lesions in pre-menopausal population is found in 31 cases and 9 cases in post-menopausal population. Of the benign lesions in pre-menopausal population, fibroadenoma (n=193) and benign proliferative breast disease (n=33) were the most common cases as compared to fibrocystic disease (n=10) and inflammatory breast lesion (n=9) in post-menopausal group.

Of the malignant lesions in pre-menopausal population (n=8), infiltrating ductal carcinoma (n=4) and medullary carcinoma (n=3) are the most common, while mucinous (colloid) carcinoma have one (n=1) case only. In post-menopausal population out of the 16 (n=16) malignant cases, all the cases were found to be of infiltrating ductal carcinomas.

IMAGING SPECTRUM OF THE LESIONS FIGURE 1 TO 6

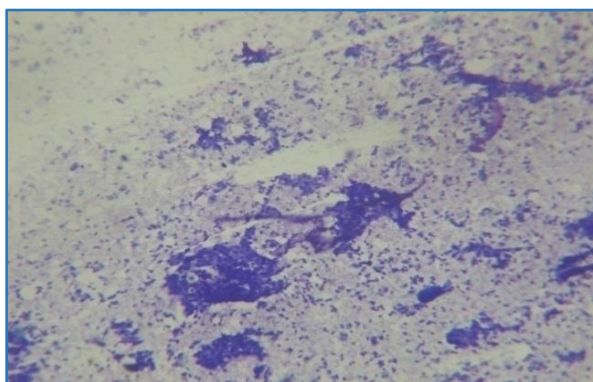


Fig. 1: Fibroadenoma May-Grunwald Giemsa Stain

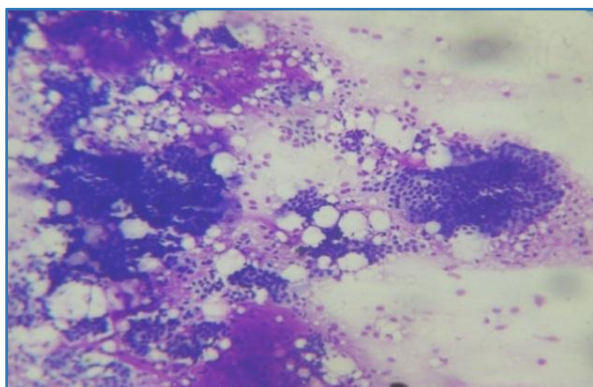


Fig. 2: Fibroadenoma with Cystic Degeneration, May-Grunwald Giemsa

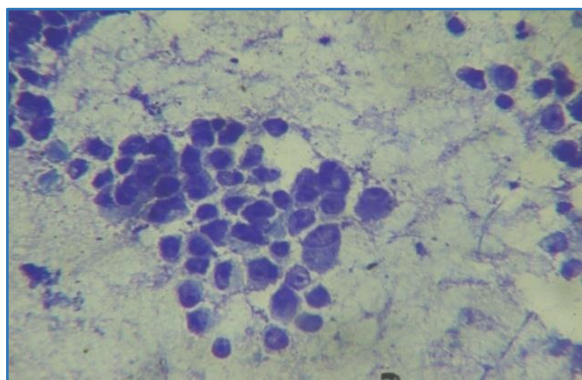


Fig. 3: Infiltrating Ductal Carcinoma May-Grunwald Giemsa

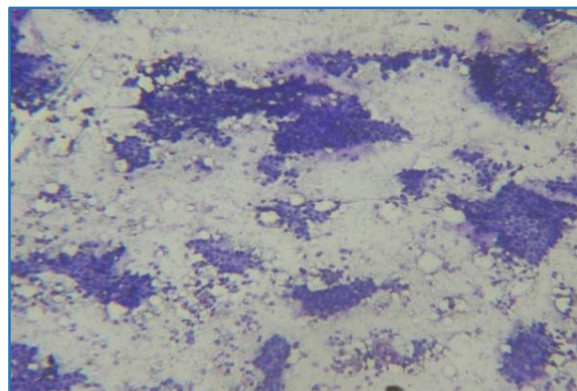


Fig. 4: Cellular Fibroadenoma May-Grunwald Giemsa

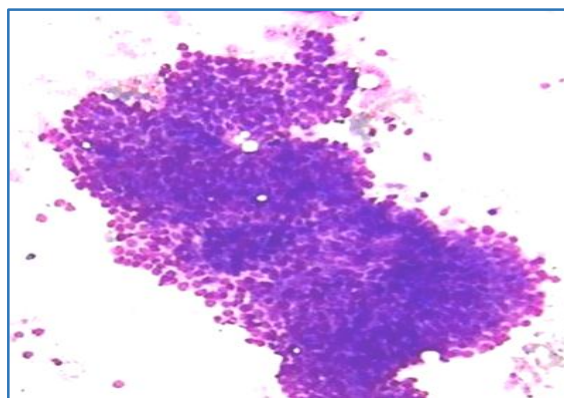


Fig. 5: Fibroadenoma with Epithelial Hyperplasia, May-Grunwald Giemsa

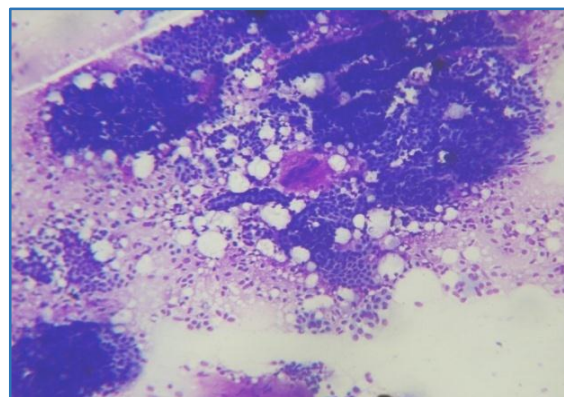


Fig. 6: Atypical Ductal Hyperplasia, May-Grunwald Giemsa

DISCUSSION

The main objective of the present study was to determine the type and distribution of breast lesions diagnosed by breast cytology in patients presenting at JNIMS Hospital. Of the total 400 cases, benign cases were found to be 376 and malignant cases were 24.

Of the total diagnosed breast lesions 94% were benign, which is in agreement with findings by Bjerregaard and Kung'u^[7] and Panjvani et al.^[9] Fibroadenoma was the most frequently diagnosed lesion in pre-menopausal women, consistent with both prospective and retrospective studies from India,^[9] Uganda^[10] and Pakistan.^[11] Whereas in study by Tiwari^[12] and Qasim et al^[13] fibroadenoma (56.25% and 82.14%) followed by mastitis/breast abscess (20.31% and

10.71%) and fibrocystic disease (7.81% and 3.57%) were the most common breast lesions. Palpable breast lump (347 patients) was the most common presenting complaint, which is consistent with previous findings in Kenya^[14] and elsewhere.^[3,11,15]

The other objective of the present study was to determine the type of lesions found in pre- and post-menopausal population. Benign lesions were 97.6% in pre-menopausal, while in post-menopausal benign lesions were 74.2%. Malignant lesions were more prevalent in post-menopausal population (25.8%) than in pre-menopausal population (2.4%). Of the malignant lesions, infiltrating ductal carcinoma was the most common case found in post-menopausal population (100%), while in pre-menopausal population, prevalence are found to be infiltrating ductal carcinoma (50%) and medullary carcinoma (37.5%). Infiltrating ductal carcinoma was most common in the present study with 20 (83.3%) cases in present study and 141 (95.91%) in study by Domínguez et al.^[16]

The statistical analysis of the study was done using Chi-Square test. The p value was found to be 0.001 and was found to be statistically significant.

CONCLUSION

Fine-needle aspiration cytology is a rapid and effective method. It is useful for primary categorisation of palpable breast lumps into benign, malignant, atypical, suspicious and unsatisfactory categories. Benign breast lesions are common than malignant lesions, in benign disease fibroadenoma and fibrocystic disease are more common, whereas of malignant lesions infiltrating ductal carcinoma accounts for the highest number.

Limitations of the Study

The paucity of the histopathology samples sent to our department was the main limiting factor for the present study and histopathological correlation could not be performed.

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