

## Cytomorphological Spectrum of Breast Lesions at Tertiary Care Centre Diagnosed On FNAC

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Conflict of interest: Nil

### Abstract:

**Introduction:** Palpable breast lumps are quite common which can be benign or malignant. Carcinoma breast is the second most common cancer after cervical cancer. Fine needle aspiration cytology (FNAC) is a minimally invasive, rapid, reliable and cost-effective outdoor procedure to provide effective diagnosis and way to further planning of treatment without need for biopsy.

**Objectives of Study:** To study the cytomorphological spectrum of palpable breast lesions to aid in diagnosis and treatment.

**Material and Methods:** A prospective study undertaken on 150 patients who had presented with Palpable Breast Lump at the Department of Pathology for a period of 6 months.

**Results:** FNAC was performed in 150 cases which showed age range of 10-80 years. Wide varieties of lesion were seen which included inflammatory, benign and malignant lesions. Benign neoplasms were seen in majority of cases 64 (42.67%) followed by malignant lesions 22 (14.67%). Fibroadenoma was the commonest benign neoplasm 52 (34.67%) cases in our study. Duct carcinoma was the commonest malignant breast tumour 18 (12%) cases in our study.

**Conclusion:** FNAC is a rapid, economical, and reliable tool for the diagnosis of palpable breast lesions. FNAC provides useful information in the management of the lesions and prevents unnecessary surgery in cases of non-neoplastic lesions. Breast lesions can be classified into benign, malignant, atypical, suspicious, and unsatisfactory categories. Benign breast lesions are common in comparison to malignant lesions.

**Keywords:** Fine-needle aspiration cytology; Breast Lump; Fibroadenoma; Duct carcinoma.

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### Introduction

Breast lump is the commonest presentation in most of the breast diseases. The 2nd commonest cancer among women in India is Breast cancer [1]. Most of the breast lumps observed in general population are benign [2]. FNAC of breast lumps is a highly sensitive, low risk of complications, rapid, easy to perform, minimally invasive and low cost first line high diagnostic accuracy test that can be carried out at outpatient department [3], [4]. It is a rapid and reliable procedure and helps in planning of treatment in the breast lump [5]. It differentiates cysts from a solid tumor and can be used as therapeutic procedure when cyst is encountered. Globally, triple assessment is done for the investigation of breast mass which includes clinical examination, imaging studies, that is, ultrasound and mammography and above all FNAC. [6] Breast cancer is also the most common cause of cancer death among women. In India, the incidence of breast cancer has increased by more than 20 %

while mortality rate due to breast cancer has increased by 145 % due to rapid urbanization, changes in lifestyle and increased life expectancy. The risk factors for breast cancer include low parity, low age at first childbirth, late menopause, etc. The incidence of breast cancer is highest in the age group of 41-60 years. [7]

### Objectives of study

To study the cytomorphological spectrum of palpable breast lesions to aid in diagnosis and treatment.

### Materials and Methods

This is a prospective study and a total of patients including all age groups and both sexes presenting with palpable breast lump in FNAC clinic of our institute over a period of 6 months are included in our study. FNAC was conducted with 24 Gauge disposable needles attached to 5 cc syringes.

Smears were fixed by air drying and in 95% ethyl alcohol and stained with field stain and papanicolaou stain. Field stain was done on air dried smears. Ziehl-Neelsen (ZN) staining was done wherever a cytological diagnosis of granulomatous disease was made. In cases where fluid was aspirated on FNA, the fluid was centrifuged and smears were prepared from the sediment followed by the above staining methods.

**Place of study:** Cytology section, Department of pathology, Jhalawar Medical College, Jhalawar.

**Sample size:** 150 cases.

#### Inclusion criteria

1. All male and female patients of all age group with palpable breast lump.

#### Exclusion criteria

1. Inadequate sampling.
2. Non palpable breast lump.
3. Patient presented with nipple discharge only.
4. Uncooperative patient.

**Statistical analysis:** Retrieved data from the cytology records, cytology section of dept. of Pathology which was tabulated according to age, sex and different type of lesions were expressed in percentage.

#### Results

**Table 1: Gender wise distribution of patients (n = 150)**

Gender	No. of Cases	Percentage
Male	10	6.67
Female	140	93.33

In the present prospective study total, no of 150 patients with palpable breast lump were studied among them 140 (93.33%) were females & 10 (6.67%) were males. (Table-1)

**Table 2: Age wise distribution of patients (n=150)**

Age Group (Years)	No. of Cases	Percentage
10-20	32	21.33
21-30	49	32.67
31-40	29	19.33
41-50	16	10.67
51-60	12	08
61-70	10	6.67
71-80	2	1.33

The age of patients ranges from 10 year to 80 years among 150 cases maximum cases were recorded in the age group of 21-30 years i.e. 49 (32.67%) cases followed by 10-20 years of age i.e. 32 (21.33%) cases. (Table -2)

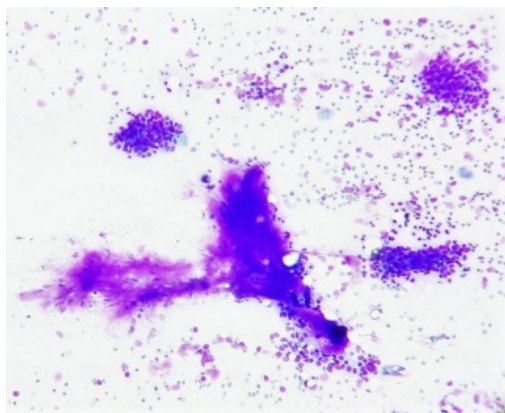
**Table 3: Cytological diagnosis of Breast lump aspiration (n=150)**

Fnac Diagnosis		No. of Cases	Percentage
Inflammatory	Abscess	10	6.67
	Acute mastitis	7	4.67
	Granulomatous mastitis	2	1.33
	Fat necrosis	1	0.67
	Total	20	13.33
Non-proliferative Breast Changes	Fibrocystic Change	9	06
	Galactocele	2	1.33
	Epidermal Cyst	1	0.67
	Total	12	8
Proliferative disease without atypia	Proliferative Breast Lesion	4	2.67
	Usual Ductal Hyperplasia	1	0.67
	Total	5	3.33
Proliferative disease with atypia	Atypical Ductal Hyperplasia	2	1.33
Benign Breast Disease NOS		21	14
Benign Neoplasms	Fibroadenoma	52	34.67
	Gynecomastia	10	6.67
	Phyllodes	2	1.33
	Total	64	42.67
Malignant Lesions	Duct Carcinoma	18	12
	Lobular Carcinoma	1	0.67
	Medullary Carcinoma	1	0.67

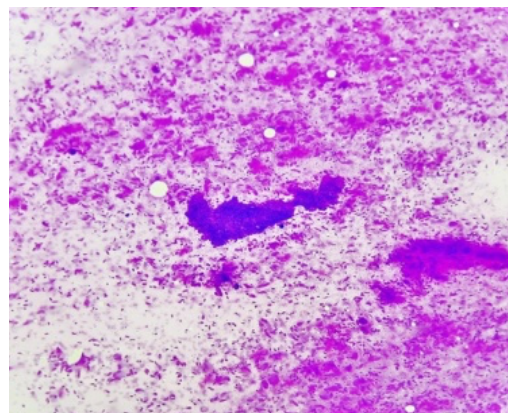
	Pleomorphic Carcinoma	1	0.67
	Suspicious for Malignancy	1	0.67
	Total	22	14.67
Inadequate aspirations		4	2.67
Total		150	

FNAC was performed in 150 cases which showed age range of 10-80 years. Majority of females were seen in 3rd decade of life followed by 2nd decade. Aspirations in 4 cases were reported as unsatisfactory due to scant cellularity and repeat aspiration advised. Wide varieties of lesion were seen which included inflammatory, benign and malignant lesions. Benign neoplasms were seen in majority of cases 64 (42.67%) followed by malignant lesions 22 (14.67%) (Table-3). Benign breast disease not

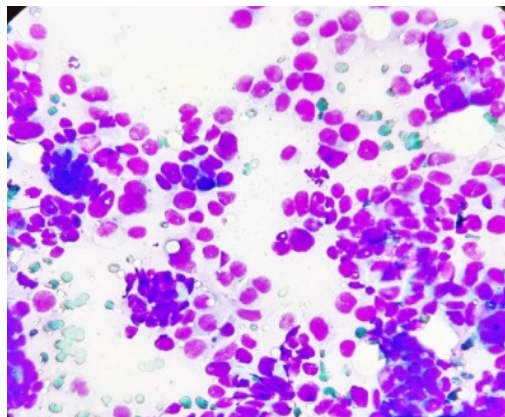
otherwise specified (NOS) were seen in 21 (14%) cases while inflammatory lesions were seen in 20 (13.33%) cases. Non-proliferative breast changes, Proliferative Disease without Atypia and Proliferative Disease with Atypia were seen in 12 (8%), 5 (3.33%), 2 (1.33%) cases respectively. Fibroadenoma was the commonest benign neoplasm 52 (34.67%) cases in our study. Duct carcinoma was the commonest malignant breast tumor 18 (12%) cases in our study (Table-3).



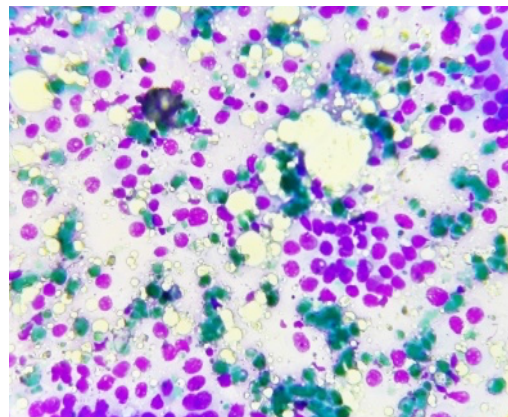
10X: FIBROADENOMA



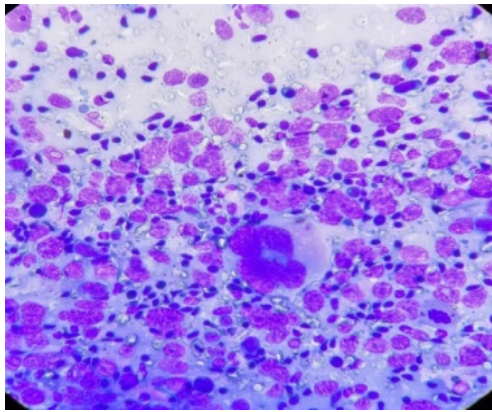
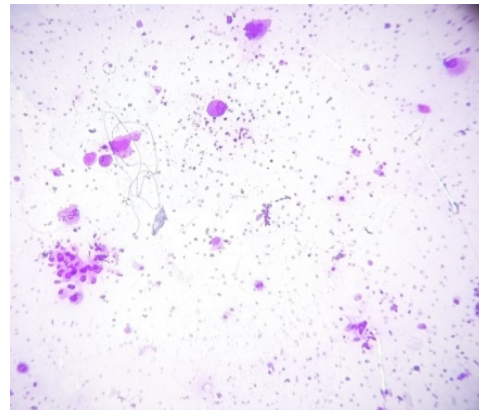
10X: PHYLLODES



40X: DUCT CARCINOMA



40X: LOBULAR CARCINOMA

**40X: MEDULLARY CARCINOMA****40X: PLEOMORPHIC CARCINOMA**

### Discussion

Breast lump may be either benign or malignant; however, fear of malignancy is the main reason to compel the patients report to the clinician. For relieving the stress of the patients, it is necessary to investigate these patients according to standard guidelines. [8] FNAC is extensively recognized as a reliable procedure for the initial examination of palpable breast masses. It is minimally invasive, inexpensive, safe, simple, rapid and sensitive as compared to biopsy. [9], [10] The main objective of FNAC is to distinguish malignant lesions from benign lesions in order to plan for the treatment protocol and follow-up. [11]

In this study, the spectrum of breast lesions on cytomorphological interpretation was benign neoplasms 64 (42.67%) cases, malignant neoplasms 22 (14.67%) cases and inflammatory lesions 20 (13.33%) cases. Benign neoplasm were the commonest lesions in our study similar to findings of study done by Bukhari MH *et al.* [7], Rocha PD *et al.* [12] and Feichter GE *et al.* [13]. Malignant lesions were seen in 22 (14.67%) cases in our study similar to previous studies [11, 14].

Fibroadenoma was the commonest lesion (34.67%) in this study. Most studies have found fibroadenoma to be most common lesion [15, 16, 17]. In the present study, maximum cases of fibroadenoma were in the age group of 21-30 years which is similar to results shown by Kochhar *et al.* [18], Khanzada *et al.* [19], Iyer *et al.* [20], Akhtor *et al.* [21] & Irabor *et al.* [22]. Among malignant lesions, duct carcinoma 18 (12%) cases, single case of lobular carcinoma, single case of medullary carcinoma, single case of pleomorphic carcinoma and single case of suspicious for malignancy were seen. Binayke R *et al.* [23] in their study observed ductal carcinoma in all the malignant aspirates. Qasim M *et al.* [14] also observed invasive ductal carcinoma as the most common malignant lesion in their study.

In our study 21 cases of benign breast disease NOS were also seen. Among the inflammatory category

of breast lesions, we observed 10 cases of breast abscess, 7 cases of acute mastitis, 2 cases of granulomatous mastitis and 1 cases of fat necrosis. Both cases of Granulomatous mastitis were seen with presence of caseating granulomas and positive for acid fast bacilli on ZN stain. Non-proliferative breast changes include 9 cases of Fibrocystic change, 2 cases of Galactocele and single case of epidermal cyst were seen in our study. Proliferative disease without atypia include 4 cases of Proliferative Breast Lesion and 1 case of Usual Ductal Hyperplasia were seen in our study. Proliferative disease with atypia include 2 cases of Atypical Ductal Hyperplasia (ADH) were also seen in our study.

In the present study, there were 10 (6.67%) male breast aspirates and all were diagnosed as gynaecomastia, the age ranged from 17 to 70 years. It is easy to diagnose gynaecomastia on cytology when male comes with a sub-areolar mass. The main problem in diagnosis is getting a satisfactory material and its painful aspiration. The purpose for FNAC in these patients to rule out malignancy. [24] In the present study, we observed 2 (1.33%) cases of phyllodes which is similar to reported by Likhari *et al.* [25] in 2013.

### Conclusion

Fine needle aspiration cytology is a minimally invasive, rapid and effective method for preoperative diagnosis to relieve the anxiety of patient if it is benign and also for post-operative follow up of breast lumps to ensure the reoccurrences. Despite being an invaluable tool, FNAC has some pitfalls, both false-positive and false-negative results can occur, which can be minimized by experience and expertise of cytopathologist. Benign breast lesions are commoner than malignant lesions, fibroadenoma is the commonest condition in the benign category, whereas ductal carcinoma accounts for the highest number of malignant lesions. So, we conclude that FNA should be used as a routine diagnostic

procedure for breast lumps due to its cost effectiveness, quick results and high accuracy. Breast cancer is the most common cancer in the women after cancer cervix, so we recommends FNAC as a first line diagnostic procedure in patients presenting with breast lumps especially in developing countries with limited resources.

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