



## SPECTRUM OF CYTOMORPHOLOGICAL STUDY OF BREAST LUMP

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**ABSTRACT** **Background:** Breast or mammary gland is under the influence of hormones resulting in physiological changes throughout reproductive life and thereafter various structures give rise to different lesions. Breast lump is a very common clinical condition in reproductive age groups of females. Breast Carcinoma is the leading cause of cancer death in women worldwide in distribution with high mortality and morbidity rate. The expected and significant role of cytological diagnosis is to distinguish benign from malignant processes. Fine needle aspiration cytology (FNAC) of the breast has two main goals. One is to confirm a radiological and clinical benign lesion and avoid unnecessary surgery and the other is to confirm a malignant diagnosis and allow definite treatment planning. FNAC is cost effective, low complication rate with rapid and high diagnostic accuracy. The aim of the study is to see the accuracy of FNAC and the spectrum of cytomorphological findings in patients with breast lesions.

**Materials and Methods:** A retrospective study over a period of 1 year January 2019 to December 2019 was done. A total number of 186 cases of breast lump aspirates were studied with clinical correlation and cytological analysis by FNAC. Smears were stained with MGG and correlation with imaging studies was done in few of the patients.

**Results and observations:** Total numbers of 186 cases were studied. Out of these 150 (80.63 %) were found to be benign; 15 (8.06 %) Malignant; 07 (3.76 %) suspicious of malignancy; 04 (2.15 %) were unsatisfactory. Out of the 186 cases, Fibroadenoma 104 (55.9 %), Benign proliferative breast lesion 23(12.36%), Fibrocystic disease 15 (8.06%), Lactating adenoma 02 (1.07%) Galactocele 02(1.07%) and Mastitis/Breast abscess 04 (2.15%) cases.

**Conclusion:** Benign breast lesions are common than the malignant lesions, Fibroadenoma being the commonest. Maximum number of lesion was seen in the age group of 21 to 30 years (36.55%), infiltrating ductal carcinoma was the maximum number of lesion amongst the malignant lesion.

**KEYWORDS :** Breast lump, FNAC, Cytomorphology, Fibroadenoma, Breast Carcinoma.

#### INTRODUCTION:

Breast is an appendage of skin. Breast lumps are a common complaint for women of all ages, but are particularly common during the reproductive years. Breast lumps may occur spontaneously or gradually.

Evaluating a breast mass can be a difficult task. It may be difficult for the patient because of the anxiety associated with her underlying fear of a breast malignancy. Majority of breast symptoms or lesions are of benign etiology. Benign as well as malignant breast lesions are quite common in Indian population. Breast carcinoma is one of the most malignant tumors and the leading cause of death from cancer in women. Fine Needle Aspiration Cytology (FNAC) is an important component of triple approach, which has been widely accepted for the preoperative diagnosis of breast lesions (1). FNAC is cost effective, low complication rate with rapid and high diagnostic accuracy. Evaluation of breast lumps involves the rational use of a detailed history, clinical breast examination, imaging modalities and tissue diagnosis.

Though the final diagnosis is made by histopathological examination of the excised tissue, routine excision of all breast lumps would not be rationale, because as much as 80% of lumps are benign [2]. Thus, the need is the utilization of less invasive and cost-effective methods of diagnosis without resorting to a more painful and invasive surgical biopsy. The modality should also be acceptable to the patient, accurate, easy to apply, reproducible and must not need too much preparations (3). The only hope of reducing morbidity/mortality due to breast cancer is in the early detection of disease. This can be achieved by "Fine Needle Aspiration Cytology" which is used now-a-days for cytological diagnosis of various breast lumps. FNAC is not only useful in diagnosis and further planning of treatment without need for biopsy, but is also helpful in prognostication of the tumor factors such as nuclear grading, mitotic index, hormone receptor status and DNA contents.

#### AIMS AND OBJECTIVES:

The aim of the study is to see the accuracy of FNAC and the spectrum of cytomorphological findings in patients with breast lesions.

#### MATERIALS AND METHODS:

A retrospective study (over a period of 1 year January 2019 to December 2019) was carried out in the department of Pathology, Jorhat Medical College & Hospital. A total number of 186 cases of breast lump aspirates were studied with clinical correlation and cytological analysis by FNAC. Palpable axillary lymph nodes were also aspirated and studied. Necessary data was taken regarding the age, size of the lesion, site of involvement and imaging studies including mammography was done in few of the patients. Smears were stained with MGG and Pap stains.

#### The cytological findings were categorized into four groups:

- (I) Benign
- (ii) Suspicious of malignancy
- (iii) Malignant
- (iv) Unsatisfactory

#### RESULTS AND OBSERVATION:

A total number of 186 cases were studied. And out of these 150 (80.6%) were found to be benign, 15 (8.06%) Malignant, 07 (3.76%) suspicious of malignancy, 04 (2.15 %) were unsatisfactory. Out of the 186 cases, Fibroadenoma 104 (55.9%), Benign proliferative breast lesion 23 (12.36 %), Fibrocystic disease 15 (8.06%), Galactocele 02(1.07%), Lactating adenoma 02 (1.07%) cases and Mastitis/Breast abscess 04 (2.15 %) cases. The age of the patient varied from 14 years to 80 years. Maximum number of lesion was seen in the age group of 21 to 30 years (36.55%) followed by 31 to 40 years (21.5%) and 41 to 50 yrs (16.12%). In the age group of 70 to 80 years only 2 lesions (1.07%) was found.

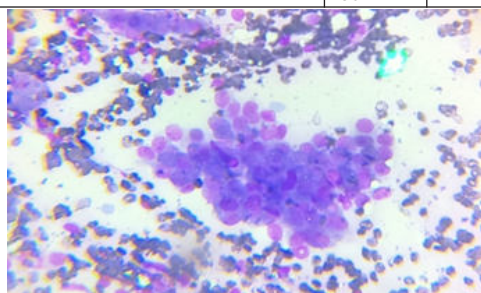
**Table 1: Distribution of lesions according to age group:**

Age in years	Number of cases	Percentage
14-20	25	13.44%
21-30	68	36.55 %

31-40	40	21.5%
41-50	30	16.12%
51-60	16	8.6%
61-70	05	2.68%
71-80	02	1.07%

**Table 2: Cytological spectrum of various palpable breast lumps:**

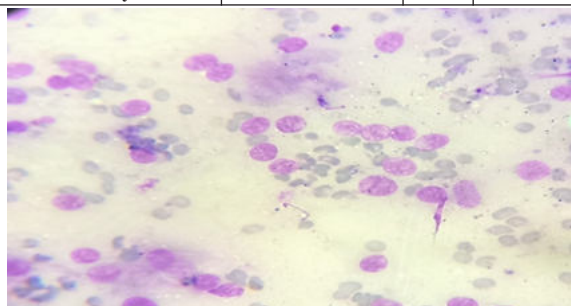
Cytological Type	Number of cases	Percentage
<b>Benign</b>	150	80.64%
<b>Malignant</b>	15	8.06%
<b>Proliferative breast lesion with atypia</b>	10	5.37%
<b>Suspicious of malignancy</b>	07	3.76%
<b>Unsatisfactory</b>	04	2.15%
<b>Total</b>	186	



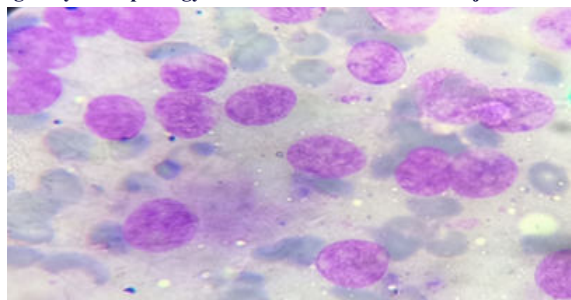
**Fig 1. Cytomorphology of Fibroadenoma at 40x objective**

**Table 3: Spectrum of cytological diagnosis of breast lump by FNAC:**

Category	Cytological diagnosis	No. of cases	Percentage
<b>1. Inflammation and benign lesions</b>	Mastitis	04	2.15%
	Galactocele	02	1.07%
	Fibrocystic disease	15	8.06%
	Fibroadenoma	104	55.91%
	Benign proliferative breast lesion	23	12.36%
	Lactating adenoma	02	1.07%
<b>Atypical</b>	Proliferating breast lesion with atypia	10	5.37%
<b>Suspicious of malignancy</b>		07	3.76%
<b>Malignant</b>		15	8.06%
<b>Unsatisfactory</b>		04	2.15%



**Fig 2: Cytomorphology of Ductal Carcinoma at 40x objective**



**Fig 3: Cytomorphology of Ductal Carcinoma at 100x objective**

Axillary, lymph node status in the carcinoma patients, shown below. Out of 15 cases of malignant breast lump, 06 were having palpable axillary lymph nodes at the time of presentation and all 06 cases showed metastasis from the primary breast carcinoma.

**Table 4: Lymph node status of the patients.**

Lymph node status	No. of cases	Percentage
<b>Palpable</b>	06	40%
<b>Not palpable</b>	09	60%
<b>Total</b>	15	100%

**DISCUSSION:**

The primary goal of FNA is to separate benign and malignant lesions so that early diagnosis helps in management and reduces morbidity and mortality. Breast diseases are more common in women because estrogen cyclically stimulates breast during their reproductive life. The most common age group involved in this study includes females of 21-30 years age group. Similar findings were observed by Farkhanda and co-authors and Godwin E et al.[4,5)

Breast cancer is the most common type of cancer in women, age 40- 50 yrs. It is the second leading cause of cancer deaths, about 250000 women die of this disease every year. So, early detection & management requires the search for best diagnostic modality. FNAC of breast lumps is an accepted and established method for determining the nature of breast lumps with a high degree of accuracy (6,7,) Application of Fine Needle Aspiration (FNA) for the diagnosis of palpable breast masses was first introduced by Martin and Ellis (8) in 1930 and since then, it has been established as an important tool in the evaluation of breast lesions. In this present study benign breast disease were most common, showing fibro adenoma (55.9%) as a commonest lesion, similar findings were also observed also in studies of dr.meena et al 2014 (52%), Panjavani et al 2013 .

In the present study, all the 15 cytologically diagnosed cases were confirmed same findings on subsequent histopathological examinations. A 100% cytohistopathological correlation was observed for breast lesions. Zhang Qin et al., [11], AZ Mohammed et al., [12], Tiwari M [10] had also observed the same results in their studies.

A difference was noted in the incidences of benign and malignant breast lesions amongst various studies, which may be explained on the basis of variables like the duration of study period, number of cases studied, age group of patients, etc.

**CONCLUSION:**

The FNAC of breast is the cheap, safe and highly accurate preoperative method for diagnosis of breast lesions. Preoperative categorization of breast lesions is utmost important for management of the patient. Some false negative results are inevitable. Sampling errors and interpretation errors are responsible for false negative results. Therefore, correlation between clinical examination, cytopathology and histopathology holds high significance in diagnosis of breast cancer.

**Conflict of Interest:** None.

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