Cytomorphological Study Of Benign And Malignant Breast Lesions Diagnosed By Fine Needle Asiration Cytology In A Tertiary Care Hospital

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Abstract: Background: Carcinoma of breast is the most common non skin malignancy in women and is second only to lung cancer as a cause of cancer deaths[1]. FNA has now become a popular investigation to assess the nature of palpable breast lesions. The purpose of FNA is to confirm cancer preoperatively and to avoid unnecessary surgery in specific benign conditions[2]. Material And Methods: The observational study (prospective) was conducted in the cytology section in Department of Pathology over a period of 2 years (December 2018- November 2020) and included 100 patients who presented with palpable breast breast lumps. Cytomorphological features of all the lesions were studied. The findings were tabulated and analysed. Result: There were 98 female and 2 male patients. Majority of the patients were from the age group of 31 – 40 yrs. There was no significant association between the gender, duration of symptoms with the side of the breast involved. In benign breast lesions, fibroadenoma was most common and amongst malignant lesions, Ductal carcinoma. Conclusion: FNAC is a good diagnostic tool for breast lesions and it should be considered as a primary investigation of choice for suspected breast lesions considering its safety, simplicity and inexpensive characteristics. [Kaname M Natl J Integr Res Med, 2022; 13(2): 20-24, Published on Dated:10/02/2022]

Key Words: Breast lump, FNAC, Cytomorphology

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Introduction: The main aim of FNAC in breast lesions is to separate malignant lesions that require more radical therapy from benign ones that may be conservatively managed. It has become widely accepted as first line diagnostic procedure for breast lesions and as a reliable diagnostic tool with high sensitivity and specificity with minimal rate of complications. It helps in studying the different cytomorphological patterns as well as grading the malignant lesions, finding the minimal residual disease, recurrent lesions, solving the purpose of planning therapeutic protocol and eventual follow up.

It can also provide cellular material for IHC and other genetic study if further required. It is as sensitive and specific for male breast lesions as for female breast lesions[3]. The purpose of this study is cytological diagnosis and evaluation of benign and malignant breast lesions by FNAC as a minimally invasive procedure that can be used in palpable and non-palpable breast lesions.

Aim: To study the cytomorphological findings of benign and malignant breast lesions by FNAC in a tertiary care hospital. To evaluate the efficacy of FNAC as primary diagnostic tool to differentiate benign and malignant breast lesions.

Material & Methods: The observational study (prospective) was conducted in the cytology section in Department of Pathology over a period of 2 years. All females and males with unknown primary diagnosis of breast mass/lump or mamographically detected lesions advised cytological evaluation by FNAC were included in this study. Detailed clinical history and relevant general physical examination, systemic and local examination was done on each patient. An informed and written consent was taken from the patients in their native language before performing FNAC. For superficially, located lesions, direct FNAC was performed with 21–23-gauge needle and for deep seated lesions, Ultrasound guided or CT guided FNAC was performed. The aspirate retrieved was expressed on to the slides so as to obtain 4-6 smears. The smears were stained by May Grunwald Giemsa (MGG) and Papanicolaou stain and analysed under microscope. Demographic, clinical and pathological data was recorded on the case record form.

Inclusion criteria: All breast lumps which were clinically and radiologically diagnosed as benign or malignant lesions. Both male and females
All age groups.

Results: There were 98 females (98%) and 2 males (2%) in this study and majority of the patients were from the age group of 31 – 40 years (30%). Out of 100 patients, 53 had left breast swelling (53%), 44 had right breast swelling (44%) and rest 3 had bilateral breast swelling (3%). The range of duration of symptoms observed was Minimum – 7 days to Maximum 6 Years.

Majority cases showed involvement of upper outer quadrant (36%) while least was retro areolar lesions (5%). Majority of the patients (42%) had lump size of 3 cm.

Minimum size of lump was 1cm while maximum size noted was 6cm. Majority of the lesions were firm in consistency (92%).

10 cases had diffused margins (10%) while 90 cases had well defined margins (90%). Majority of the lesions were mobile, seen in 92 cases (92%) while 8 cases had fixed lesions (8%). Pain was present in 10 patients (10%) while in 90 cases lesions were painless (90%). Nipple discharge and Axillary Lymph Node involvement was seen in 3 cases (3%).

Table 1: Distribution Of Study Participants According To Overlying Skin

Overlying skin	Frequency	Percent
Normal	91	91.0
Inflamed	7	7.0
Peau d'orange	2	2.0
Total	100	100.0

Table 2: Distribution Of Study Participants According To Nature Of Aspirate

Nature Of Aspirate	Frequency	Percent
Clear	63	63.0
Haemorrhagic	17	17.0
Yellowish	12	12.0
Pus Like	7	7.0
Milky Fluid	1	1.0
Total	100	100.0

Table 3: Distribution Of Study Participants According To USG Findings

USG Diagnosis	Frequency	Percent
Benign	92	92.0
Malignant	8	8.0
Total	100	100.0

Table 4: Distribution Of Benign Lesions In Study (N = 91)

Benign Lesions	Frequency	Percent
Apocrine Adenoma	1	1.0
Fat Necrosis	1	1.0
Lactational Change With Galactocele	1	1.0
Epithelial Hyperplasia	1	1.0
Breast Hamartoma	1	1.0
Atypical Ductal Hyperplasia	2	2.0
Gynecomastia	2	2.0
Phyllodes Tumor	2	2.0
Cellular Fibroadenoma	3	3.0
Granulomatous Mastitis	3	3.0
Acute Mastitis	6	6.0
Proliferative Breast Disease	7	7.0
Fibrocystic Disease	9	9.0
Fibroadenoma	52	52.0

Table 5: Distribution Of Malignant Lesions In Study (N = 9)

Malignant Lesions	Frequency	Percent
Papillary Carcinoma	1	1.0
Mucinous Carcinoma	1	1.0
Apocrine Carcinoma	1	1.0
Ductal Carcinoma	6	6.0

Discussion: We observed that majority of the patients were from the age group of 31 – 40 years (30%). Similar results were observed by Vinay Sharma et al,[6] and Raza S. Hoda et al[4]. There

were 98 females (98%) and 2 males (2%) in our study which is in concordance with study by observed in upper outer quadrant, while benign lesions did not have any such quadrant specificity. Similar results were observed in Studies by Khemkha et al[11] and Hussain et al[12]. In our study, nipple discharge was seen in 3 cases (3%). One case each of ductal carcinoma, Reena Jain et al,[7] SumairaZareef et al[10]. In our study, Malignant lesions were most commonly fibrocystic disease and acute mastitis had nipple discharge. In this study, overlying skin was normal in maximum cases (92%), while it was inflamed in 7 cases, most of which were acute mastitis. In one case of ductal carcinoma, overlying skin showed Peau d'orange appearance.

Table 5: Comparison Of USG Diagnosis With Other Studies

USG Diagnosis	Current Study %	Vinay Sharma et al[6]	Bansi Gorasiya et al[5]	Faiyaz Ahmad et al[8]
Benign	91.0	88.68	60	64.29
Malignant	9.0	9.43	30.62	16.43

Table No 6: Comparison Of Types Of Benign Lesions

Benign Lesions	Current Study %	Vinay sharma et al[6]	Smita Balwan traosankaye et al[9]	Kulkami SN et al[14]	Bansi Gorasiya et al[5]	Faiyaz Ahmad et al[8]	Chalya P et al[13]
Fibroadenoma	52	38.67	46.5	71.11	64.58	41.07	60
Fibrocystic Disease	9	1.23	24.4	7.77	7.3	14.29	19
Proliferative Breast Disease	7				21.87		
Acute Mastitis	6	10.85	16			5	
Granulomatous Mastitis	3	1.89		3.33		4.29	1.4
Phyllodes Tumor	2			5.55	1.04	1.43	1.4
Gynecomastia	2	9.05	0.76	2.22	1.04	4.29	
Atypical Ductal Hyperplasia	2						
Galactocele	1	0.94	3.8		1.04	1.43	3.1
Fat Necrosis	1	0.94		1.11		1.07	

Figure 1: FNAC - Cytology Images Of Benign Lesions

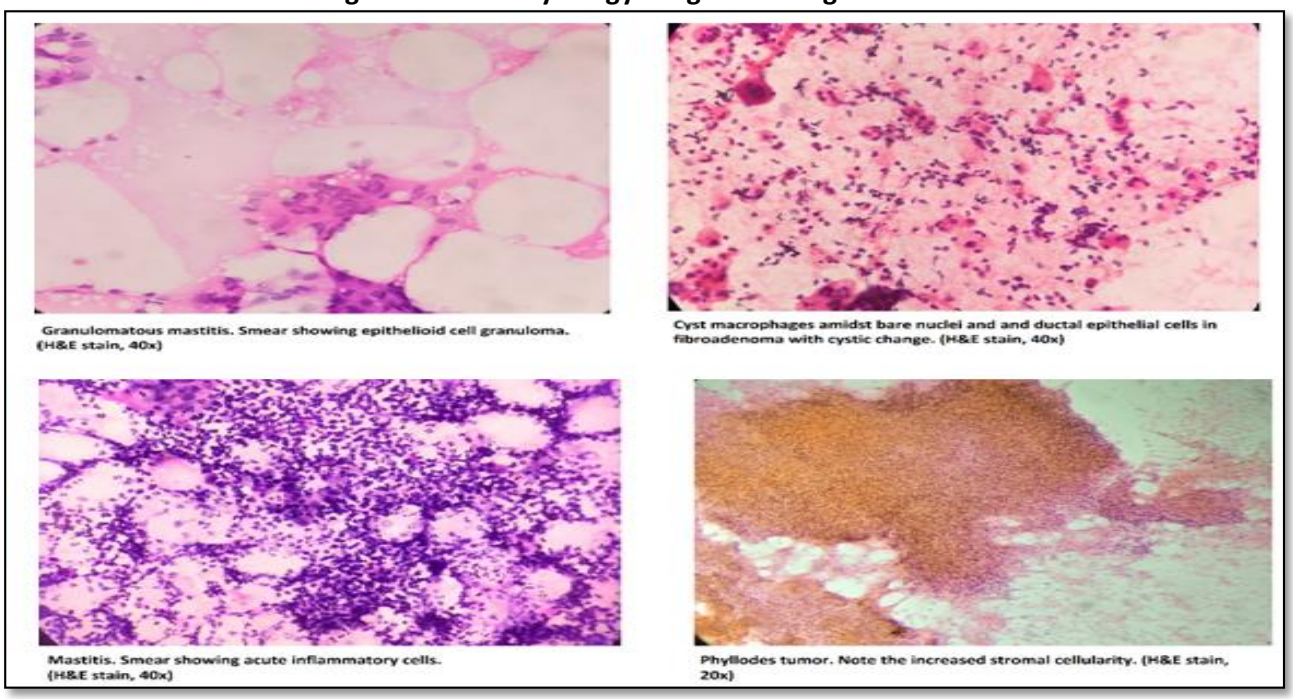
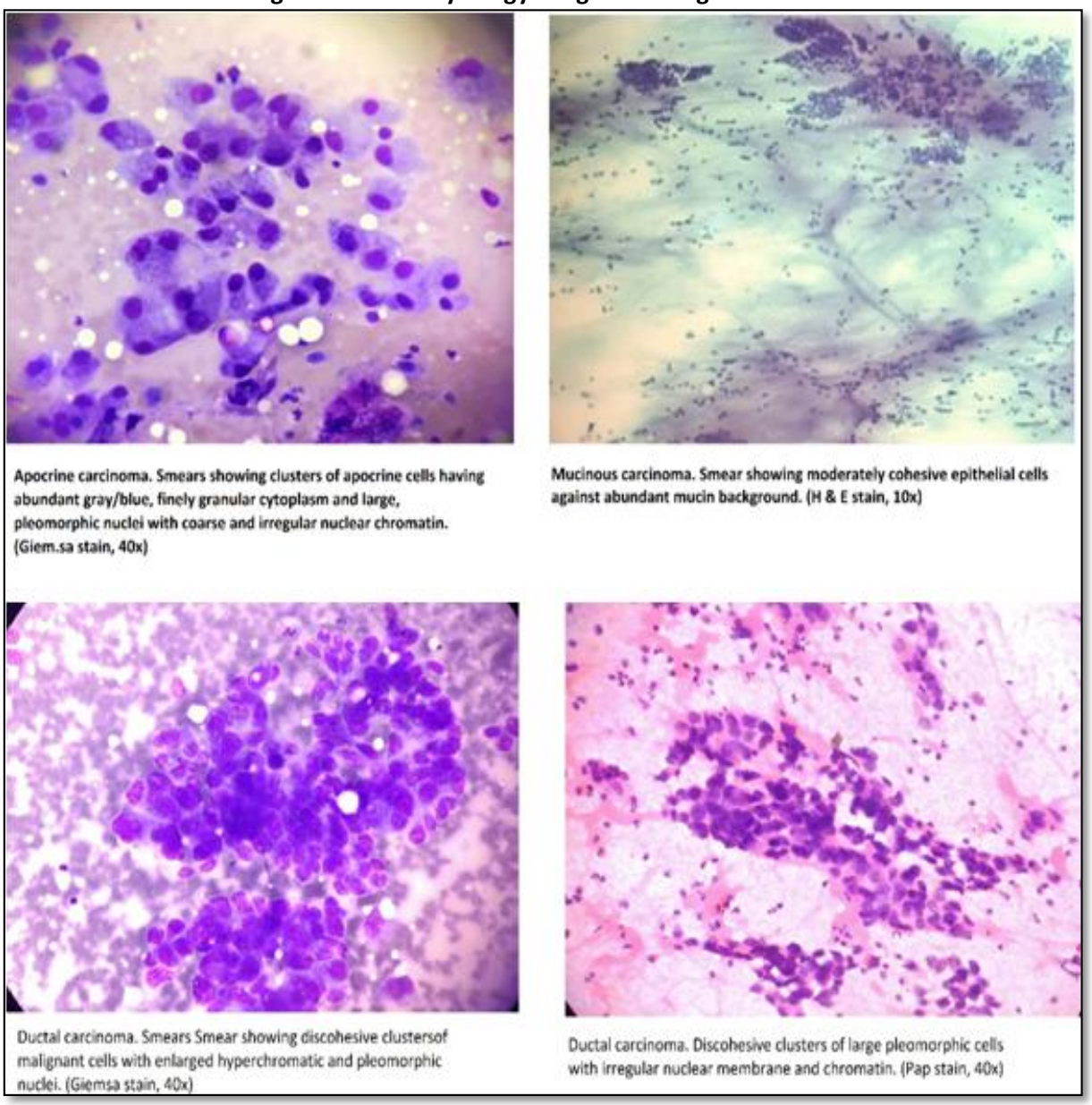


Table 7: Comparison Of Malignant Lesions

Malignant Lesions	Current Study %	Raza S. Hoda et al[4](%)	Bansi Gorasiya et al[5]	Faiyaz Ahmad et al[8]
Papillary Carcinoma	1			
Mucinous Carcinoma	1		1.87	
Apocrine Carcinoma	1			
Ductal Carcinoma	6	21.6	28.12	16.43

Figure 2: FNAC - Cytology Images Of Malignant Lesions



Apocrine carcinoma. Smears showing clusters of apocrine cells having abundant gray/blue, finely granular cytoplasm and large, pleomorphic nuclei with coarse and irregular nuclear chromatin. (Giem.sa stain, 40x)

Mucinous carcinoma. Smear showing moderately cohesive epithelial cells against abundant mucin background. (H & E stain, 10x)

Ductal carcinoma. Smears Smear showing discohesive clustersof malignant cells with enlarged hyperchromatic and pleomorphic nuclei. (Giemsa stain, 40x)

Ductal carcinoma. Discohesive clusters of large pleomorphic cells with irregular nuclear membrane and chromatin. (Pap stain, 40x)

Conclusion: Breast malignancy is the foremost cause of cancer related deaths in young females; hence early detection of breast cancer carries much importance. In this study, the cytomorphological findings of various benign and malignant breast lesions have been studied by FNAC. We have evaluated the efficacy of FNAC in diagnosing benign and malignant lesions on the basis of clinical history, physical examination, radiological findings and cytomorphology by microscopy.

In our study we have established the efficacy of FNAC as a primary diagnostic tool to differentiate between benign and malignant breast lesions by studying the cytomorphological findings.

Thus, we conclude that FNAC is a good diagnostic tool for breast lesions and it should be considered as a primary investigation of choice for suspected breast lesions considering its safety, simplicity and inexpensive characteristics.

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