



CYTOMORPHOLOGICAL SPECTRUM OF BREAST LUMPS: A ONE YEAR STUDY

Dr. Suvarna B Patil

Associate Professor, Department Of Pathology, GMC Akola, Maharashtra, India

Dr. Shweta M. Dhage*

Assistant Professor, Department Of Pathology, Gmc Akola, Maharashtra, India
*Corresponding Author

Dr. Pradeep S. Umap

Professor And Head, Department Of Pathology, Gmc Akola, Maharashtra, India

Dr. Jasleenkaur S. Oberoi

Junior Resident III, Department Of Pathology, Gmc Akola, Maharashtra, India

Dr. Shobhana J. Agrawal

Junior Resident III, Department Of Pathology, Gmc Akola, Maharashtra, India

ABSTRACT

Palpable breast lump is the most common clinical presentation. Breast cancer is the second most common cancer among women in India. The worldwide accepted protocol for diagnosis of breast lumps is the "Triple Assessment" a combined approach by the triad of clinical examination, mammography and FNAC. FNAC has a good sensitivity, specificity and accuracy in early diagnosis and management of breast lumps. The present study was carried out on 432 patients presenting with palpable breast lumps in the Cytopathology section over a period of one year from January 2019 to December 2019 with the aim of categorizing the breast lesions among females and males, studying age incidence & laterality. Fibroadenoma (44.9%), ductal carcinoma (11.8%), acute mastitis (6.4%) were the most common benign, malignant and inflammatory lesions respectively in the present study. FNAC for palpable breast lumps has proved to be an asset in the present study

KEYWORDS : Breast Lump, Fnac, Fibroadenoma, Ductal Carcinoma

INTRODUCTION:

Breast lump is the most common clinical presentation in most of the breast diseases. Breast cancer is the second most common cancer among women in India.^{1, 2} The worldwide accepted protocol for diagnosis of breast lumps is the "Triple Assessment" a combined approach by the triad of clinical examination, mammography and pathological diagnosis by Fine Needle Aspiration Cytology.³ FNAC is very reliable, safe, cost-effective and rapid method for diagnosis of breast lesions that can be easily carried out in outpatient department.^{1,4,5} In this diagnostic era, a pathologist can perform many molecular ancillary techniques like estrogen, progesterone receptor and proliferation antigen on FNA samples and so, FNAC helps in deciding the proper therapeutic interventions for the breast lumps specifically in malignant lesions.¹ As most of the breast lumps are benign in nature, the preoperative cytological diagnosis can decrease the unnecessary surgeries thus reducing the morbidity.⁶ FNAC has many benefits over breast lump biopsies.¹

FNAC has a good sensitivity, specificity and accuracy in the diagnosis of both neoplastic and non-neoplastic breast lumps thereby assisting in early diagnosis and further management.⁷ The present study was conducted to study the incidence and the various cytomorphological patterns of palpable breast lesions in patients by FNAC and subsequently to compare the results with those of other studies published in literature.

MATERIAL AND METHODS

The present study was carried out on patients presenting with palpable breast lumps in the Cytopathology section over a period of one year from January 2019 to December 2019 in Tertiary Care Hospital. A total of 432 cases were studied with detailed clinical history, clinical examination and imaging if available and consent was taken from all the patients. FNAC

was performed by using 5 ml plastic disposable syringe and disposable 23 guage needles. Three slides were made from aspirated material, two were fixed with isopropyl alcohol and stained with Haematoxyline & Eosin and Papaniculou stains, while third slide was air dried and stained with May Grunwald Giemsa stain. In suspected cases of Tuberculous mastitis, special stains like ZN and Fluorescence microscopy were also studied. FNA results were obtained after correlation with clinical history and radiological findings and then compared with findings of other studies in the literature.

RESULTS

A total of 2123 cases were obtained in the department of cytology over a period of 1 year between January 2019 and December 2019 out of which 432 cases (20.4%) were FNAC of breast lumps . All the 432 patients underwent a diagnostic FNAC in Cytopathology Section. In the present study, age range of patients varied from 9 to 85 years. Youngest patient (9 year old) was diagnosed with fibroadenoma and oldest (85 year old) was diagnosed with lobular carcinoma on FNAC. Majority of patients (28%) were noted in the age group of 21-30 years followed by the age group 31- 40 years (24.5%) as shown in table 1.

Table 1: Age wise distribution of patients

Age group	Number of patients	Percentage
0-10	01	0.2
11-20	86	19.9
21-30	121	28.0
31-40	106	24.5
41-50	48	11.1
51-60	31	7.1
61-70	32	7.4
71-80	07	1.6
Total	432	100.0

Figure 1: Age and sex wise distribution of patients

Out of 432 cases of breast lumps, 92.1% were found in females while 7.8% were found in males. Majority of female patients (27.5%) with breast lump were in the age group of 21-30 years while most of the male patients (2.7%) were in the age group of 61-70 years as shown in figure 1.

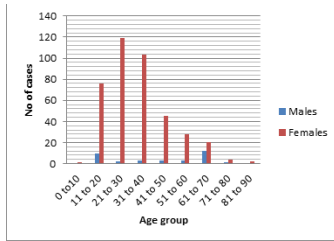
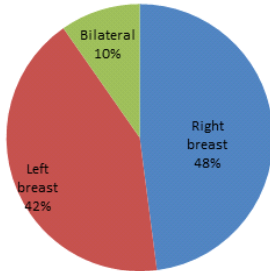


Figure 2: Side wise distribution of breast lumps



48% cases were having right breast lump, 42% cases were with left breast lump, while 10% cases presented with bilateral breast lumps as shown in figure 2.

Table 3: FNAC diagnosis of breast lesions

Breast lesions	Number of cases	%
Inflammatory	38	8.7
Benign	341	78.9
Malignant	53	12.2
Total	432	100

Out of all breast lump lesions, maximum 78.9 % cases were cytomorphologically diagnosed with benign lesions while 12.2% cases were diagnosed as malignant lesions and only 8.7% cases were diagnosed as inflammatory lesions.

Table 4: Distribution of inflammatory lesions diagnosed on FNAC

Inflammatory lesions	Number of cases	%
Acute mastitis	28	6.4
Chronic mastitis	03	0.6
Granulomatous mastitis	05	1.1
Tuberculous mastitis	02	0.4

Among inflammatory breast lesions, on FNAC majority of cases (6.4%) were diagnosed as acute mastitis (Figure 2-C) followed by granulomatous mastitis (1.1%) (Figure 2-D), chronic mastitis (0.6%) and only two cases were Tuberculous mastitis with positivity on both ZN stain and fluorescence microscopy as shown in table 4.

Table 5: Distribution of benign lesions diagnosed on FNAC

Benign lesions	Number of cases	%
Fibroadenoma	194	44.9
Benign phyllodes tumor	11	2.5
Fibroadenoma and phyllodes tumor	01	0.2
Fibrocystic disease	24	5.5
Gynaecomastia	30	6.9
Galactocele	14	3.2
Proliferative breast disease	67	15.5

Among benign breast lesions, on FNAC the majority (44.9%) cases were diagnosed as fibroadenoma (Figure 3-A) followed by benign proliferative breast disease (15.5%), gynae co mastia (6.9%), fibrocystic disease (5.5%), galactocele (3.2%), benign phyllodes tumor (2.5%) (Figure 3-E) and one female patient was having both fibroadenoma and phyllodes tumor with bilateral breast presentation (Table 5).

Table 6: Distribution of malignant lesions diagnosed on FNAC

Malignant lesions	Number of cases	%
Ductal carcinoma	51	11.8
Lobular carcinoma	01	0.2
Malignant phyllodes tumor	01	0.2

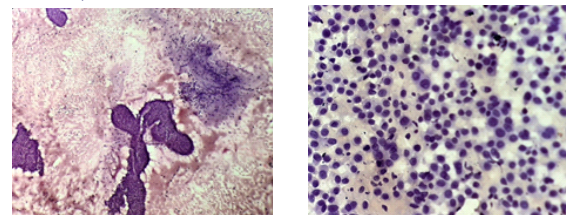
Among malignant breast lesions, on FNAC 11.8% cases were diagnosed with ductal carcinoma (Figure 3-B) out of which 2 patients were males. While we got only one case of each lobular carcinoma and malignant phyllodes tumor each, diagnosed on FNAC.

Table 7: Distribution of bilateral breast lesions

Breast lesions	Number of patients	%
Fibroadenoma	16	38.0
Proliferative breast disease	12	28.5
Benign Phyllodes tumor	01	2.3
Galactocele	02	4.7
Fibroadenoma with Phyllodes tumor	01	2.3
Fibrocystic breast disease	05	11.9

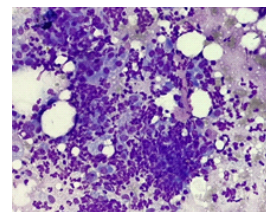
Among bilateral breast lesions, fibroadenoma (38%) was the most common lesion followed by proliferative breast disease (28.5%) and fibrocystic breast disease (11.9%) as shown in table 7.

Figure 3: Cytomorphological spectrum of breast lesions (A, B, C, D, E)

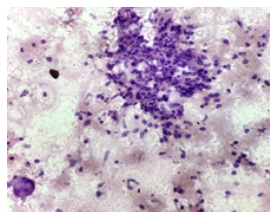


A) Fibroadenoma (HE, 100X)

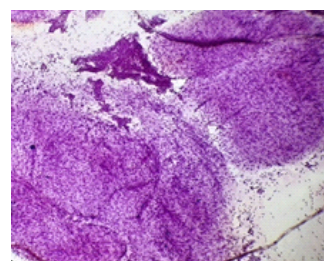
B) Ductal carcinoma (HE, 400X)



C) Acute mastitis (HE, 200X)



D) Granulomatous mastitis (HE, 100X)



E) Benign phyllodes tumor (HE, 100X)

Table 8: Age wise Distribution of various breast lesions

	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90
Inflammatory lesions	0	1	20	9	4	3	1	0	0
Fibroadenoma	1	64	65	48	15	0	1	0	0
Proliferative breast lesions	0	6	21	22	10	4	4	0	0
Gynaecomastia	0	10	2	2	1	3	11	1	0
Fibrocystic disease	0	0	2	8	11	2	1	0	0
Galactocele	0	2	8	3	1	0	0	0	0
Benign phyllodes tumor	0	1	1	6	1	1	1	0	0
Fibroadenoma and phyllodes tumor	0	1	0	0	0	0	0	0	0
Ductal carcinoma	0	0	2	8	5	18	12	4	2
Lobular carcinoma	0	0	0	0	0	0	0	0	1
Malignant phyllodes tumor	0	0	0	1	0	0	0	0	0

Majority of inflammatory breast lesions (20/38) were noted in the age group of 21-30 years. Among benign lesions, maximum cases of fibroadenoma (65/194) were noted in 21-30 years age group while majority of proliferative breast disease (22/67) were noted in 31-40 year age group. Maximum cases of gynaecomastia in males were noted in older age group of 61-70 years. Most of the cases of fibrocystic disease were seen in middle age group of 41-50 years while cases of galactocele were commonly seen in younger age group of 21-30 years. Patients of benign phyllodes tumor were mainly seen in 31-40 years while one case of malignant phyllodes tumor was 33 year old only. Majority of ductal carcinoma cases were found in the older age group of 51-60 years while lobular carcinoma was diagnosed in 85 year old female (Table 8).

A total of 34/432 cases were male patients out of which 30 cases were of gynaecomastia, 2 cases were diagnosed as ductal carcinoma (one with metastasis to axillary lymph node), 1 case each of acute mastitis and proliferative breast disease.

DISCUSSION

There has been increasing use of FNAC of breast lump as preoperative diagnostic tool because of awareness among the clinicians of its role. It is well tolerated and readily accepted by patients as they get report within a short span. We studied a total of 432 cases of breast lump and above results were obtained. These results were compared with various studies in the literature.

In the present study, maximum patients (28%) were observed in 21-30 year age group followed by 31-40 years (24.5%) while in the studies done by Ahmad F et al³ (30.7%), Badge S A et al¹ (45%) the most common age group was 31-40 years. This disparity in the observation may be explained on the basis of decreasing age incidence of breast lumps over the last few decades and also on the basis of increasing awareness among females of all age groups for breast lumps. In the present study, right breast (47.9%) involvement showed slight predominance over left breast (42.3%) while Ahmad F et al³ noted left breast involvement predominant. The percentage of benign lesions in the present study was 78.9%. This was similar to the findings made by Bukhari et al, Rocha et al, Feichter et al, and Singh et al¹⁸⁻¹¹. While the malignant lesions in the present study were 12.2% which was similar to findings of Pradhan et al¹² but slightly less as compared to the studies done by Badge S et al¹, Bukhari et al³, Rocha et al⁹. In the present study, inflammatory lesions were the least common similar to the findings of Dr Jayanandhini M et al⁶. In the present study, fibroadenoma was the most common benign lesion which was similarly noted by the study conducted by Badge S et al¹, Dr Jayanandhini M et al⁶, Bell et al¹³. Whereas among malignant lesions, ductal carcinoma was the most common in present study similar to finding by Badge S A et al¹ and Mohammad et al¹⁴. In this study, among inflammatory lesions acute mastitis was the most common lesion which also observed by Dr Jayanandhini M et al⁶. This observation may probably be due to poor hygiene in the low socioeconomic

strata during lactation phase in this geographical area.

Overall, in the present study, the most common benign lesion (fibroadenoma) was seen in younger age group of 21-30 years while Badge S A et al¹ noted it in age group of 31-40 years and malignant lesions in our study were common age group of 51-60 years while Badge S A et al¹ observed most malignant lesions in 41-50 years.

CONCLUSION

FNAC is a safe, simple, reliable and cost-effective, well tolerated preoperative procedure done in outpatient department yielding accurate diagnosis of inflammatory, benign and malignant breast lesions. Most of the breast lumps are benign and fibroadenoma is the commonest while among malignant lesions, ductal carcinoma is the prevalent breast lesion. Among inflammatory category, acute mastitis is the common presentation. Benign lesions are predominantly seen in younger age group while malignant lesions are seen in older age group with few exceptions of young patients. Suspected cases of Tuberculous mastitis can also be positively diagnosed on FNAC. So, this simple and time saving procedure is a boon for both clinicians and anxious patients as malignancy in suspicious cases gets ruled out within no time. As overall incidence of malignancy is rapidly increasing all over the world and hence in developing countries like India, a safe & rapid diagnostic tool like FNAC for palpable breast lumps has proved to be an asset. In India, vigorous implementation of National Public Health Programmes and mass awareness in society with affordable diagnostic procedures like FNAC is being implemented on war footing in all Medical Institutes.

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