



STUDY OF CYTOMORPHOLOGICAL ANALYSIS OF PALPABLE BREAST LUMPS BY FNAC IN A TERTIARY CARE HOSPITAL

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ABSTRACT Breast carcinoma is the leading cause of morbidity and mortality due to cancer in women. More than 1 million cases of breast carcinoma are occurring worldwide annually. FNAC of palpable breast lumps is having a very high sensitivity, specificity and accuracy. The present hospital based observational study was done in pathology department of YCM Hospital, Pune over a period of three years and from January 2015 to December 2017 to assess the distribution of various cytomorphological patterns of clinically palpable breast lumps by fine needle aspiration cytology technique. In the present study FNAC was done on 629 consecutive cases of palpable breast lumps referred to the pathology department. After doing FNAC, three alcohol fixed smears were prepared. First smear was stained with ZN stain by Kenyon's modified method using 20 % H₂SO₄, second with routine Hematoxylin Eosin stain while third one was air dried and studied with Leishman's stain. All malignant cases were sent for biopsy to confirm the diagnosis. All data regarding mastitis, benign and malignant lesions was collected and analyzed statistically. Out of 629 cases 362 (57.55 %) patients were found benign and 95 (15.10%) were malignant, 82(13.03%) cases were diagnosed having inflammatory lesions. Fibroadenoma was the most common benign lesion found in 185 (51.10%) patients. Malignant breast lesions were found in 95 (15.10%) cases, among which Ductal adenocarcinoma 71 (74.73%) cases was commonest type. Fine-needle aspiration cytology is a rapid and effective method for the primary categorization of palpable breast lumps into benign, malignant, inflammatory lesions.

KEYWORDS : Breast Lumps, Fine-needle aspiration cytology (FNAC).

Introduction:

Carcinoma of the breast is the second most common malignancy after cancer cervix. ¹ More than 1 million cases of breast carcinoma are occurring worldwide annually. Breast carcinoma is the leading cause of morbidity and mortality due to cancer in women. Breast lumps are quite common in Indian women. Breast lumps mostly occurs in reproductive years in women. ²

FNAC of breast is frequently used to evaluate the breast lump. FNAC of breast lumps is having a very high sensitivity, specificity as shown by a study done by Khatun et al. ³ Advantage of FNAC is that it can prevent unnecessary surgery also and can provide a diagnosis with only 10-30% of the cost of surgical biopsy. ⁴ FNAC became more reliable to diagnose malignant lesion and so reduced the use of surgical biopsy and frozen section histology by about 80%. ⁵ The present study was undertaken to evaluate the frequency distribution of different cytomorphological lesions in FNAC of palpable breast lumps.

Material and Methods:

The present study was hospital based observational study, done in pathology department of YCM Hospital, Pune over a period of three years and from January 2015 to December 2017. FNAC was done on 629 consecutive cases of palpable breast lumps referred to pathology department. In each case along with detailed history and clinical examination, variables like patient's age, gender, clinical symptoms, and location of swelling, gross examination of aspirate and cytomorphological patterns were studied. After explaining the procedure in detail, written informed consent was taken from every patient. Aspiration was done using 22-23 gauge needle and 10ml plastic syringe with a detachable syringe holder. In each case, two alcohol fixed smears were prepared, first smear was stained with Z- N stain by Kenyon's modified method using 20 % H₂SO₄, second with routine Hematoxylin Eosin (H.E.) stain while third one was air dried and studied with Leishman's stain. All malignant cases and some suspicious benign cases were sent for biopsy to confirm the diagnosis and further work up for additional information of hormone receptor and oncogene studies if required. Out of these 629 patients, 82 were diagnosed having inflammatory breast lesion i.e. Mastitis, 362 patients were having benign Breast lesions and 95 patients had Malignant lesions. All data regarding breast lesions was collected and analyzed statistically.

Result:

Table no 1: Distribution of breast lesions according to type of lesion.

Year	Benign Breast lesions	Malignant	Infective/ Inflammatory	Others	Total Breast FNAC
2015	110	30	24	26	190
2016	116	33	26	27	202
2017	136	32	32	37	237
Total	362(57.55%)	95 (15.10%)	82(13.03%)	90(14.30%)	629

Table 2: Distribution of breast lesions according to site of lump.

Site/Type	Right	Left	Bilateral	Total
Benign	147	148	67	362
Malignant	41	45	09	095
Total	188(41.13%)	193(42.24%)	76(16.63%)	457

Table 3: Distribution of Malignant Breast lesions based on Microscopic type

Sr. No.	Microscopic type	Number	Percentage
1	Ductal adenocarcinoma	71	74.73%
2	Lobular adenocarcinoma	10	10.53%
3	Colloid Carcinoma	08	8.44%
4	Medullary carcinoma	02	2.10%
5	Metaplastic carcinoma	02	2.10%
6	Other (Malignant Phylloides tumor)	02	2.10%
7	Total	95	100%

Table no 4: Distribution of Malignant Breast lesions Age wise

Sr. No.	Age group (in Yrs.)	Number	Percentage
1	20-30	06	6.31%
2	31-40	31	32.65%
3	41-50	32	33.68%
4	51-60	12	12.63%
5	61-70	08	8.42%
6	71-80	06	6.31%
	Total	95	100%

Table no.5: Distribution of Malignant Breast lesions on Grade wise

Sr. No.	Microscopic Grade	Number	Percentage
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1	Low Grade (Well differentiated)	43	45.27%
2	Intermediate Grade (Moderately differentiated)	41	43.16%
3	High Grade (Poorly differentiated)	11	11.57%
	Total	95	100%

Table no. 6: Distribution of Benign Breast lesions based on Microscopic type

Sr. No.	Microscopic type	Number	Percentage
1	Fibroadenoma	185	51.10%
2	Fibroadenosis	097	26.79%
3	Fibrocystic disease	040	11.05%
4	Phylloides tumor	005	1.38%
5	Benign Solitary/Simple cyst	035	9.68%
	Total	362	100%

Table no.7: Distribution of Benign Breast lesions Age wise

Sr. No.	Age group (in Yrs.)	Number	Percentage
1	10-20	017	4.69%
2	20-30	089	24.59%
3	31-40	142	39.23%
4	41-50	045	12.43%
5	51-60	037	10.23%
6	61-70	024	6.63%
7	71-80	008	2.20%
8	Total	362	100%

Discussion:

In the present study age of patients ranged from 12-80 years with a mean age of 34.4 years for breast lump presentation. Ahmed et al in his study reported the age range of 15-85 years with a mean of 37 years.⁴ Dennison et al reported 18- 92 years range with a mean age of 59.3 years for breast lump presentation.⁷ In this study the breast lesions presented in the right breast were 188 (41.13%) and the left breast were 193(42.24%) and 76(16.63%) cases involved both. Kumar observed a deviation from our results with a little predominance of right breast (51.4%).⁸ Regarding malignant cases we observed 41(43.16%) cases involved the right side, 45(47.37%) involved the left and 9(6.66%) involved both. Rupom et al found 58.18% of malignant lesion in the right breast.⁹ It may be due to smaller number of cases (55) for which their result did not correspond with ours. Regarding inflammatory lesions of the breast, this study found total 13.03% cases.

Regarding fibrocystic disease (FCD) of breast, we found 40 cases (11.04%) in our study. Kumar in his study found 41.2% fibrocystic disease.⁸ Bukhari et al found 90 FCD (21.17%) in their study.¹⁰ The number of FCD in our study is much lower than the above mentioned studies. The possible reason may be that, since it is not a population based study, we may not get the exact scenario. Fibroadenoma was the major cause 185 (51.10%) of the breast lump in our study. This finding was higher than the finding of (28%) Ahmed et al.⁶ The higher rate may be due to increased awareness among young women regarding the breast lump in our country. Our study showed near similar rate of fibroadenoma when compared to the study of Rahman et al.¹¹

In malignant lesions in female breast, we found 95 carcinoma cases (15.10%), among which 71 cases (74.73%) were ductal adenocarcinoma and 10 cases (10.52%) were lobular carcinoma. Study done by Rupom et al showed 13.74% of malignant cases on FNAC.⁹ Pradhan and Dhakal also reported 15.5% malignant cases among their 2246 cases which are close to our study.¹²

In the present study, maximum numbers of cytological benign lesions were seen in the age group ranging from 31 to 40 years. This was similar to the findings by Khemka et al who had maximum cytological benign cases in the age group 20-40 years.¹³ Macintosh et al had majority of benign cases in the age group 27-77 years.¹⁴ In our study maximum malignant lesions were seen in the age group 31-50 years. Malignant lesions were common in the age groups 63-79 years in the study done by Macintosh et al.¹⁴ During aspiration, we found 9 of 50 breast carcinoma patients with palpable lymph nodes, 3 of them showed features of metastatic duct cell carcinoma and others were reactive nodes.

Conclusion:

FNAC is simple, rapid and painless and easy to perform as OPD

procedure. FNAC is patient-friendly, cheaper than imaging studies and surgical biopsy. FNAC is a very rapid and effective method to diagnose the palpable breast lumps into different categories like benign, malignant, atypical, suspicious, and unsatisfactory categories. Benign breast lumps are common than malignant lesions. Fibroadenoma and fibrocystic disease are more common benign breast disease. In malignant lesions intra ductal carcinoma is commonest. Due to rapid diagnosis by FNAC morbidity or mortality due to breast cancer can be reduced. FNAC helps in avoiding unnecessary surgical intervention.

Acknowledgement:

We would like to sincerely thank the technicians of the various sections like microbiology, cytology, histopathology & RNTCP programme in pathology lab.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

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