



A STUDY OF CYTOHISTOPATHOLOGICAL CORRELATION OF PALPABLE BREAST LUMPS AT TERTIARY CARE HOSPITAL

Pathology

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ABSTRACT

INTRODUCTION Breast carcinomas are one of the leading causes of cancer in women. A routine clinical assessment is not at times enough to determine if a suspicious lump is benign or malignant. Fine Needle Aspiration Cytology (FNAC) is one of the important components of 'triple approach', which has been widely accepted for the preoperative diagnosis of breast lesions.¹ **AIMS AND OBJECTIVE** This study was undertaken to analyse the age group, sex distribution and site predilection, cytological spectrum and correlation of cytopathology & histopathology of breast lesions. **MATERIAL AND METHOD** This study was done retrospectively on a total of 110 patients attending hospital for a period of 5 months from January 2021 to May 2021 in BJ medical college, Civil Hospital Ahmedabad. FNAC was done with 22 G needle attached to 10 mL disposable plastic syringe and airdried smears were stained with Giemsa stain and 95% ethanol fixed smears were stained with Papanicolaou and H&E (Hematoxylin and Eosin) stain. A total of 40 cases were followed-up by histopathologic examination. **Result** Among the 110 cases studied, 106 (96.36%) cases were females and 4 (3.63%) cases were males. The incidence of breast lesions was maximum in the range of 21 to 30 years of age (34.54%). Among 110 cases, 6 were unsatisfactory, 4 were benign proliferative lesion with atypia 79 were benign, 1 was suspicious and 20 were malignant on cytology. Out of this, 40 cases underwent for histopathological examination, in which 29 were benign and 11 were malignant cases. **Conclusion** Fine needle aspiration cytology is a very important preliminary diagnostic tool in palpable breast lumps and results show high degree of correlation with final HPE report.

KEYWORDS

FNAC, Fibroadenoma, Ductal Carcinoma, Cyto-histopathological correlation

INTRODUCTION

A palpable breast lump is a common diagnostic problem to both general practitioners and surgeons. Excisional biopsy was accepted practice in the past, but presently needle biopsy makes it possible to reduce surgical excision of benign breast lesions to a minimum. The main purpose of fine needle aspiration cytology (FNAC) of breast lumps is to confirm cancer pre-operatively and to avoid surgery in specific benign conditions.²

Breast carcinomas are one of the leading causes of cancer in women. Fine Needle Aspiration Cytology (FNAC) is one of the important components of 'triple approach', which has been widely accepted for the preoperative diagnosis of breast lesions. FNAC is a quick, reliable and simple diagnostic method. It is one of the important components of triple approach, which has been widely accepted for the preoperative diagnosis of breast lesions which includes clinical examination, imaging and FNAC.³

FNAC diagnosis given in following categories:

1. Unsatisfactory/insufficient sample
2. Benign breast lesion: fibroadenoma, benign epithelial hyperplasia, gynecomastia, fibrocystic disease, traumatic, abscess
3. Atypical ductal hyperplasia
4. Suspicious for malignancy
5. Malignant lesion

However, the aspiration cytology is not a substitute for conventional surgical histopathology as a definitive diagnosis is not always possible by cytology, but categorization of disease and differential diagnosis can be provided in the majority of cases. With this in mind, an attempt was made to subjectively evaluate the breast tumors in FNAC material and to compare it with histopathological details.²

AIMS AND OBJECTIVES

- i) Study the cytological spectrum of all breast lesions.
- ii) Study the age group, sex distribution and site predilection of various breast lesions.
- iii) Correlate histopathology and cytology of breast lesions.

MATERIAL AND METHOD:

This study was done retrospectively on a total of 110 patients attending

hospital for a period of 5 months from January 2021 to May 2021 in BJ medical college, Civil Hospital Ahmedabad. FNAC was done with 22 G needle attached to 10 mL disposable plastic syringe and airdried smears were stained with Giemsa stain and 95% ethanol fixed smears were stained with Papanicolaou and H&E (Hematoxylin and Eosin) stain. Histopathological correlation was done wherever possible on Tru-cut biopsies, excisional biopsies, and surgical specimens received and a total of 40 cases were followed-up by histopathologic examination.

INCLUSION CRITERIA

All age group of patients, both sexes presented with breast lump in OPD and IPD cases of breast lesions were included, Histopathological correlation was done wherever possible.

EXCLUSION CRITERIA

Nonpalpable breast lumps, Patients who were not willing for the procedure.

RESULT

Table 1: Age distribution among breast FNAs

Age Groups (Years)	Benign	Malignant	Suspicious	Inflammatory	Benign proliferation with Atypia
11-20	15	-	-	1	-
21-30	28	1	1	6	2
31-40	13	5	-	3	2
41-50	13	6	-	1	1
51-60	3	7	-	1	-
>60	-	1	-	-	-
Total	72	20	1	12	5

Among the 110 cases studied, 106 (96.36%) cases were females and 4 (3.63%) cases were males. The incidence of breast lesions was maximum in the range of 21 to 30 years of age (34.54%). Among 110 cases, 6 were unsatisfactory, 4 were benign proliferative lesion with

atypia 79 were benign, 1 was suspicious and 20 were malignant on cytology. Out of this, 40 cases underwent histopathological examination, in which 29 were benign and 11 were malignant cases. Of the benign lesions, 38.96% cases were reported in the third decade. One malignant case was reported in this age group. Maximum malignant lesions 30 % and 35 % were reported in the fifth and sixth decade retrospectively.

Right sided lesion was seen in 52 cases, left sided lesion in 50 cases and bilateral lesion in 8 cases.

Table-2: Cytological diagnosis of breast lesion FNAC

Diagnosis	No of Cases
Unsatisfactory	6
Fibroadenoma	41
Benign Breast lesion	11
Fibrocystic Disease	9
Inflammatory	3
Granulomatous Inflammatory	9
Suspicious for malignancy	1
Proliferative lesion with Atypia	5
Gynecomastia	4
Malignant Ductal Carcinoma	20
Total	109

In benign breast lesions, Fibroadenoma constituted the largest disease group with maximum incidence in the third decade, followed by fibrocystic disease. Apart from these, one case of phyllodes tumor and one case of cellular fibroadenoma were reported.

Table 3: Cyto-Histological correlation of breast lesions

Cytological Diagnosis	No. of cases	Histopathological Diagnosis		False Positive	False Negative
		Benign	Malignant		
Benign	28	28	-	-	-
Suspicious	1	1	-	-	-
Malignant	11	-	11	-	-
Total	40	29	11	-	-

There were 11 cases (27.5%) diagnosed as malignant lesions histopathologically from which all cases showed malignant features cytologically. The 1 case (2.5%) which was diagnosed as suspicious for malignancy cytologically was confirmed benign histopathologically. There were 29 cases (72.5%) diagnosed as benign lesions histopathologically. All cases were diagnosed as benign even cytologically.

From the above observations, sensitivity, specificity, positive predictive value, negative predictive value of fine needle aspiration cytology in the diagnosis of breast lesions were assessed. The sensitivity, specificity, positive predictive value and negative predictive value of FNAC were 100%, 100%, 100%, and 100 % respectively.

Table 4: The diagnostic accuracy of FNAC in 40 histologically correlated cases

FNAC Result	Histopathological Diagnosis		Total
	Positive	Negative	
Positive for malignancy	11(TP)	-	11
Negative For malignancy	-	29(TN)	29
Total	11	29	40

DISCUSSION

These study shows that these 110 cases of Breast lump Histopathology and cytopathology study share several features common with other published series.

As regard to distribution of tumors Fibroadenoma (56.16%) was the most common of benign cases diagnosed followed by fibrocystic disease (12.32%). These findings were comparable to that Trisha et al., who also reported that majority of the breast lesions show cases of Fibroadenoma (70.53%) and Fibrocystic disease (13.51%).⁶ The

maximum number of malignant lesions (30%) was reported in the fifth decade and 35% was reported in Sixth decade, 46.6 % were reported in fifth decade in Shushma et al.²

Table 5: Analytic comparison of sensitivity specificity, positive predictive value and negative predictive value with other studies

Authors	Sensitivity	Specificity	PPV	NPV
Present Study	100%	100%	100%	100%
Trisha et al. ⁶	97.18%	98.74%	97.18%	98.74%
Pandey A et al. ⁹	98.3%	98.8%	98.3%	98.9%
Dowerah et al. ¹⁰	100%	100%	100%	80%
Mehra et al. ¹¹	93.8%	100%	100%	91.4%

CONCLUSION:

The overall accuracy of cytology in the diagnosis of breast lesions was reported to be 85 to 100% as shown in table 5.^{6,9,10,11} These unavoidable limitations of FNAC can be further reduced by wider use of 'triple test' which in addition to FNAC includes physical examination and mammography as other components. There are many studies that the triple test was 100% accurate in the diagnosis of palpable breast lesions when all three elements were concordant.⁶ In this study benign breast lesions are common than malignant lesions. The simplicity, rapidity, high sensitivity, high specificity and cost effectiveness of FNAC makes it possible to evaluate of both neoplastic and non-neoplastic breast lesions. That helps the clinicians for early diagnosis and specific management thus reducing morbidity and mortality and has reduced the rate of open biopsies and hence the surgical workload.

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