

## Diagnostic role of FNAC in breast lesions

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### ABSTRACT

**Background:** Breast lump is most common presentation in most of the breast diseases, most of which are usually benign. Fine-needle aspiration cytology (FNAC) of the breast is a minimally invasive yet maximally diagnostic method.

**Aim:** To study the diagnostic accuracy of FNAC in breast lesions.

**Methods:** A retrospective hospital based study was conducted at department of Pathology, in a tertiary care Institute at Bhopal, India. Data was collected from the records of FNAC of breast lesions done in last three years. Analysis was done by SPSS software version 10, and Chi-square test was applied to find statistical significance.

**Results:** FNAC was done on 302 cases of breast lesions, of which 220 (72.8%) were benign, 42 (13.9%) malignant, 15 (5%) benign breast disease with atypia, 6 (2%) suspicious, 14 (4.6%) unsatisfactory, and 5 (1.7%) cases were reported as normal. Fibroadenoma was the most common benign lesion and ductal carcinoma was the common malignant lesion. There was significant association between benign breast lesions and age.

**Conclusion:** FNAC is a cost effective procedure that can be carried out at outpatient department. The cytological criteria for the diagnosis of breast disease into benign and malignant are highly safe, effective and reliable.

**Key Words:** FNAC, breast lesions, fibroadenoma, ductal carcinoma

### INTRODUCTION

Most common symptoms associated with breast lesions reported by women are pain, palpable mass, lumpiness without a palpable mass or nipple discharge.<sup>1</sup> Discrete palpable lump is a problem often presented to surgeons, gynecologists and general practitioners.<sup>2</sup> A breast mass is generally palpable when it exceeds 2cm in size. The likelihood of a palpable mass being malignant increases with age. Only 10% of breast masses under the age of 40 are malignant compared to 60% of masses over the age of 50 years.<sup>1</sup>

Investigation of a palpable breast lump involves 'Triple test' which analyses clinical and radiological findings in conjunction with pathologic features (FNAC) for diagnosis as well as to reduce the risk of missed diagnosis to < 1%.<sup>2</sup> The role of FNAC has been challenged of late by better overall results attained by core biopsies. Core biopsy is a robust and reliable diagnostic modality, but carries disadvantages in terms of a longer turn-around due to the tissue processing time, and patient

discomfort during the procedure, and may result in complications. FNAC has advantages over core-needle biopsy in that it uses a smaller needle and thus has a lower probability of causing hematoma and other complications.

Accuracy in FNAC can be increased by multiple sampling of appropriate sites by ultrasonography guidance and mammographic localization. FNAC can also be used to diagnose lesions of male breasts such as gynaecomastia and carcinoma, accessory axillary breasts and their lesions, and status of the axillary lymph nodes, thereby reducing the number of open breast biopsies. FNAC is also cost effective that can be carried out at outpatient department.<sup>3,4</sup> It is simple and time saving method, no anesthesia is required and operative risk of surgical biopsy could be avoided and can be repeated as and when necessary. The present study was undertaken to evaluate the diagnostic role of FNAC in a typical Indian set up.

### MATERIALS AND METHODS

A retrospective hospital based study was

conducted at the pathology department of a tertiary care hospital situated at Bhopal, India. Data was collected from the records of FNAC of breast lesions done in last three years duration from June 2009 to May 2012. All the fine needle aspiration (FNA) was carried out with a 22 or 23 gauge needle attached to a 20 cc airtight disposable syringe fitted in a syringe holding FNA gun which provided a better grip and a negative pressure to aspirate adequate sample. The sample was obtained by to and fro motion. Samples were smeared onto glass slides and fixed in 95% methanol along with one or two air dried smear for May Grunwald Giemsa (MGG) stain. In cystic lesions, after aspiration of fluids, the lesion was again aspirated. The fluid was centrifuged and smears are made from sediment. Wet-fixed smears were stained with Haematoxylin

and Eosin (H&E), and Papanicolaou stain; while air dried smears were stained with May Grunwald Giemsa stain (MGG). FNAC results were studied in detail for findings of benign breast lesions, suspicious and malignant lesions. Data was entered in SPSS software and analysis was done. Chi-square test was applied to find statistical significance of findings.

## RESULT

Of 302 cases of breast lesions that underwent FNAC, 220 (72.8%) cases were benign, 42 (13.9%) malignant, 15 (5%) benign breast disease with atypia, 6 (2%) suspicious, 14 (4.6%) unsatisfactory and 5 (1.7%) cases were reported as normal. (Table-1)

**Table:1** Association between age and FNAC categories of Breast lesions

Age	FNAC Categories										Total			
	Benign		Malignant		Benign breast disease with atypia		Suspicious		Unsatisfactory		Normal			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
10-20 yrs	35	89.7	0	0.0	2	5.1	0	0	2	5.1	0	0.0	39	
21-30 yrs	98	81.6	3	2.5	8	6.6	2	1.6	5	4.1	4	3.3	120	
31-40 yrs	65	78.3	10	12.0	3	3.6	2	2.4	2	2.4	1	1.2	83	
41-50 yrs	12	40.0	11	36.6	2	6.6	0	0.0	5	16.6	0	0.0	30	
>50 yrs	10	33.3	18	60.0	0	0.0	2	6.6	0	0.0	0	0.0	30	
Total	220	72.8	42	13.9	15	4.9	6	1.9	14	4.6	5	1.6	302	

Chi-Square Tests			
	Value	df	Asymp Sg. (2-sides)
Pearson Chi-Square	110.87	20	< 0.0001
Ukelihood Ratio	100.56	20	.000
No. of valid cases	302		

Out of 220 cases of benign breast lesions, fibroadenoma 101(45.91%) was the most common diagnosis followed by fibroadenosis 44(20%), fibrocystic change 28 (12.73%), inflammatory 23 (10.45), granulomatous disease 8 (3.64%), fat necrosis 4 (1.82%), phyllodes 3 (1.36%); and lipoma, gynaecomastia, epidermal inclusion cyst, necrotizing lesion constituted 9(4.09%). Of the 42 cases of malignant lesions, ductal carcinoma 33(78.57%) was the commonest followed by

lobular carcinoma 2(4.76%), and 7(16.67%) consisted of papillary carcinoma, adenocarcinoma, and secondaries.

Benign breast lesions were more common in the age group of 21-30 years in while malignant breast lesions were common in the age group of >50 years (table 1). Benign breast lesions was a significantly associated with age, whereas, correlation could not be established between age and malignancy.

## DISCUSSION

We have evaluated the pattern of breast lesions as diagnosed through FNAC and observed that benign lesions constituted 72.8% of cases, and 13.9% were malignant. Fibroadenoma was the

most common diagnosis in benign lesions. Among the malignant lesions, ductal carcinoma was the commonest diagnosis. Similar observations were made by other researchers.<sup>5,6,7</sup> Fibroadenosis was the second common diagnosis among the lesions followed by fibrocystic changes. However, few studies have reported fibrocystic disease as the common diagnosis followed by fibroadenoma.<sup>8,9</sup>

We have observed that malignant lesions formed 14% of the total FNAC case investigations. Similar incidence of carcinoma was found in different authors.<sup>5,7</sup> But a study done by Mohammed Bdour et al., had reported much higher incidence of carcinomas (41%).<sup>10</sup> High diagnostic accuracy of FNAC in differentiating different breast lesions were also being highlighted in these studies.<sup>5,7,10</sup>

We have searched the relationship between age and type of breast lesions and found that benign breast lesions were more common in the age group of 21-30 years, while malignant breast lesions were common in the age group of >50 years. Statistical significant relationship between the two have also been reported earlier.<sup>5,8</sup>

## CONCLUSION

The benign breast lesions were far more common than the malignant breast lesions. 'Triple test' which analyses clinical and radiological findings in conjunction with pathologic features is most useful method to accurately diagnose the lesion. FNAC is a reliable tool for conclusive diagnosis of a breast lesion.

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