wjpmr, 2017,3(9), 348-350

SJIF Impact Factor: 4.103

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH
www.wjpmr.com

Research Article
ISSN 2455-3301
WJPMR

AN ANALYSIS OF BREAST LESIONS BY FNAC IN SHREE BALAJI MEDICAL COLLEGE AND HOSPITAL CHROMPET, CHENNAI

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Article Received on 16/08/2017 **Article Revised on 07/09/2017** **Article Accepted on 28/09/2017**

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 evaluate the pattern of breast lesions by FNAC **Methods**: A retrospective hospital based study was conducted at department of Pathology, SBMCH, Chrompet, chennai. Data was collected from the records of FNAC of breast lesions done in last 6 months. **Results:** FNAC was done on 70 cases of breast lesions, of which 50 (71.4%) were benign, 15 (21.4%) malignant, 2 (2.85%) benign breast disease with atypia, 2 (2.85%) suspicious, 1 (1.5%) unsatisfactory. 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.

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

INTRODUCTION

Breast carcinoma is the most common malignant neoplasm and the leading cause of death from cancer in women, with more than 1 million cases occurring worldwide annually.[1] To differentiate benign from malignant lesions is one of the major goals of FNAC.

Most common symptoms associated with breast lesions presented by women are pain, palpable mass, lump or nipple discharge. Discrete palpable lump is a problem often presented to surgeons, gynecologists and general practitioners. A breast mass is generally palpable when it exceeds 2cm in size.[2] The likelihood of a palpable mass is 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.[2]

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%.[3] 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 coreneedle biopsy in that it uses a smaller needle and thus has a lower probability of causing hematoma and other complications.[4]

The most commonly used categorization is a five-tier system, with categories ranging from insufficient materials (C1), benign (C2), atypical (C3), suspicious of malignancy (C4), or frankly malignant (C5).[5] FNAC can also be also used to diagnose lesions of male breasts such as gynecomastia and carcinoma, accessory axillary breasts and their lesions, and status of the axillary lymph nodes, thereby reducing the number of open breast biopsies.[6]

Under this categorization, C1 is inadequate aspirate smear due to hypocellularity, aspiration, smearing or staining errors. Most often, it is the degree of cellularity of the epithelial cells that is inadequate. The exact definition of what constitutes an inadequate aspirate remains an enigma, and this subjective issue is best determined by the interpreter of the aspirate, whether or not a confident diagnosis could be made basing on the quantity of the materials aspirated. C2 category is for smears that are usually cellular, showing the characteristic patterns of different benign lesions. No atypical or malignant features are present. Usually duct configurations, myoepithelial cells, and bipolar nuclei

are visible. Inflammatory background is commonly encountered. In contrast, C3 and C4 are the grey zones. C3 presents the characteristics of a benign smear and yet there are features that are not usually seen in clearly benign specimens such as cellular crowding, pleomorphism, and discohesive. C4 is reserved for aspirate where atypical features are obvious but factors such as poor preservation, hypocellularity, or components of a benign smear are present, thus precluding a firm malignant diagnosis to be made. C5 category consists of cellular aspirate with evidently malignant cytological features.[7,8,9]

MATERIAL AND METHOD

A retrospective hospital based study was conducted at the department of pathology, SBMCH, Chennai. Data was collected from the records of FNAC of breast lesions done in last six duration from September 2016 to

February 2017. All the fine needle aspiration (FNA) was carried out with a 22 or 23 gauge needle attached to a 20 cc disposable syringe. 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, 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.

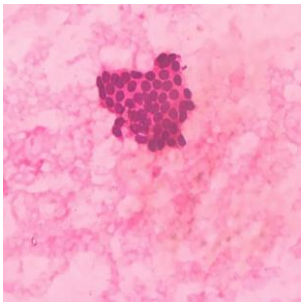
RESULTS

FNAC was done on 70 cases of breast lesions, of which 50 (71.4%) were benign, 15 (21.4%) malignant, 2 (2.85%) benign breast disease with atypia, 2(2.85%) suspicious, and 1(1.15%) unsatisfactory. Fibro adenoma was the most common benign lesion and ductal carcinoma was the common malignant lesion. There was significant association between benign breast lesions and age. Majorities were pre-menopausal females and commonest age group was 31-40 years. (Table- 1).

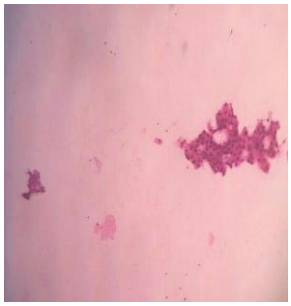
Out of 50 cases of benign breast lesions, Fibro adenoma 29 (58%) was the most common diagnosis followed by fibroadenosis 10 (20%), fibrocystic change 3 (6%), inflammatory 1 (2%), granulomatous disease 1 (2%), fat necrosis 2 (4%), phyllodes 1 (2%); and lipoma, epidermal inclusion cyst, necrotizing lesion constituted 3(6%). Of the 15 cases of malignant lesions, ductal carcinoma 9 (60%) was the commonest followed by mucinous (colloid) carcinoma 4 (26.6%), and 2 (13.3%) consisted of lobular carcinoma, papillary carcinoma, and secondaries. Benign breast lesions were more common in the age group of 31-40 years followed by 21 – 30 years 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.

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

Age	FNAC Categories										Total
	Benign		Malignant		Benign Breast Disease With Atypia		Suspicious		Unsatisfactory		
	No.	%	No.	%	No.	%	No.	%	No.	%	
11-20 yrs	4	8	0	0	0	0	0	0	0	0	4
21-30 yrs	17	34	1	6.6	0	0	0	0	0	0	18
31-40 yrs	25	50	1	6.6	1	50	1	50	0	0	28
41-50 yrs	3	6	3	20	0	0	0	0.0	1	1	7
>50 yrs	1	2	10	66.6	1	50	1	50	0	0.0	13
Total	50	71.4	15	21.4	2	2.8	2	2.8	1	1.15	70

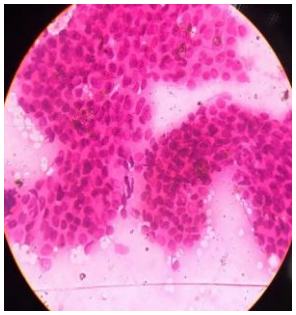


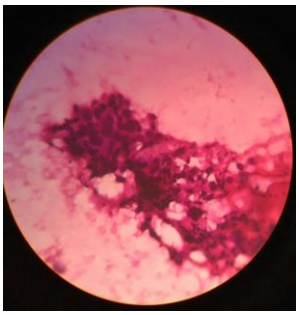
Fibroadenona



Fibroadenosis

Cohesive clusters of duct epithelial cells admixed with apocrine cells in a background of bare nuclei (at low power view)





(1) Smear positive for malignancy (2) Smear positive for malignancy

DISCUSSION

We have evaluated the pattern of breast lesions as diagnosed through FNAC and observed that benign

lesions constituted 71.4% of cases, and 21.4% 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. 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. We have observed that malignant lesions formed 21.4% of the total FNAC case investigations. Similar incidence of carcinoma was found by different authors. High diagnostic accuracy of FNAC in differentiating different breast lesions were also being highlighted in these studies. 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 31-40 years, while malignant breast lesions were common in the age group of >50 years.

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. FNAC is well recognized for its high accuracy and efficacy rate in investigation of breast lump.

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