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Clinicocytopathological study of breast lump in the non-malignant categories

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ABSTRACT

Background: Benign breast lesions are common clinical presentation in women. The early detection and diagnosis play an important role in the treatment of various breast lesions.

Aims and Objectives: The aim is to study various cytological changes in non-malignant breast lesions and its clinical correlation.

Materials and Methods: This is prospective, observational, analytical study in a consecutive 50 cases of breast lump at tertiary care hospital.

Results: A total of 50 breast lumps were studied for fine-needle aspiration cytology (FNAC). Among which, 48 patients were female and 2 were male. The age range was from 15 to 62 years. The common age group affected was in 21–30 years of age. The most common clinical presentation was breast lump followed by pain in the breast. The left side breast was more affected (56%) than the right side. Among non-malignant breast lesions, fibroadenoma (48%) was common diagnosis, followed by mastitis (28%), fibrocystic change (10%), papilloma (4%), gynecomastia (4%), lipoma (2%), simple cyst (2%), and benign phyllodes (2%). The cytological diagnosiswas correlated with histopathology which showed accuracy in 91.66%.

Conclusion: In our study, benign breast lesion of fibroadenoma was the most common benign breast lesion and the younger age group 21–30 years was found most commonly affected. FNAC is also very useful in diagnosing inflammatory lesions so that they can be treated as early as possible.

Key words: Benign breast lesions, breast lump, cytopathology breast

INTRODUCTION

To diagnose the breast lumps, triple approach of clinical examination, sonomammography, and fine-needle aspiration cytology (FNAC) of the breast is widely used method.[1,2] FNAC is widely accepted technique in the evaluation of breast lumps. The technique has gained wide acceptance in the past four decades and is increasingly being used to sample a wide variety of body tissues. The goal of breast lump aspiration cytology is to differentiate between malignant lesions from benign lesions and also from inflammatory conditions. It is used as a diagnostic purpose, for understanding the etiology of breast lump.[3] Many patients due to hesitancy for examining breast lump may present at advance stages. Nowadays due to growing awareness among the population, breast lump is one of the common presentation in clinics. breast lump is one of the common presentations in surgery outpatient department (OPD). FNAC is performed preoperatively to evaluate breast lump. Benign breast lesion comprises of heterogeneous group of lesions that may present with a variety of symptoms. Commonly seen benign lesions are epithelial and stromal proliferative lesions, inflammatory lesions, and cysts.

Aims and Objectives

The aims of this study are as follows:

1. To study cytomorphological features of breast lesions and its correlation with clinical findings.
2. To find accuracy of FNAC with histopathology in non-malignant breast lesions.

MATERIALS AND METHODS

This is prospective, observational, analytical study in a consecutive 50 cases of breast lump done at tertiary care hospital. The study was carried out from May 1st 2015 in our tertiary care hospital in western Maharashtra. All the patients attending surgical OPD having lump in the breast were taken for FNAC. The FNAC is carried out in the department of cytopathology. Detailed clinical history and physical examination were noted. The breast lump was examined for it location, site, laterality, consistency, and size. Nipple discharge and secondary changes were noted. Axilla onthe same side for lymph node enlargement was noted. Contralateral breast, nipple, and axilla were also examined. Other clinical data of the patient were obtained from hospital medical record department. The approval from the ethical committee of the institute was taken for the study.

Inclusive Criteria

All males and females having benign breast lumps were included in the study.

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Exclusive Criteria

On cytology, those who are having inadequate material and malignant lesions were excluded from the study. Written consent of patients was taken and the procedure was explained to them before taking FNAC. For procedure, 10-cc syringe and 23-gauze needle were used. All aseptic precautions were taken. Smears were prepared from the aspirated material from breast lump on glass slide. Slides were stained with Leishman's stain and hematoxylin and eosin Stain. The ZN stain (20%) and PAS stain were used wherever required. The surgically resected breast lump specimens were received in 10% formalin. Routine histomorphological study was done. The paraffin tissue sections were stained with hematoxylin and eosin. Histological slides were studied for final diagnosis. The data wereanalyzed. Other hematological investigations and sonomammography findings were correlated.

RESULTS

In this study fibroadenoma was observed commonly (48%) [Table 1], left breast was involved in (56%) cases [Table 2]. In our study the age 21-30 year (40%) was found the most affected age group [Table 3]. All the patients clinically presented with lump in the breast [Table-4]. The cytological microscopic findings were benign proliferative lesions showing ductal epithelial cells arranged in sheath, branching pattern lined with myoepithelial cells and background with many bare nuclei [Figures 1 and 2]. In fibrocystic change proliferative epithelium, cyst macrophages, few inflammatory cells were noted [Figure 3]. The smears of inflammatory lesions-mastitis showed ductal epithelial cells, neutrophils , lymphocytes, on eosinophilic background [Figure 4]. Granulomatous mastitis showed necrosis with aggregates of epitheliod cells [Figure 5].

Table 1: FNAC diagnosis of various breast lesions

Type of breast lesions	Total *n* (%)
Fibroadenoma	24 (48)
Fibrocystic change	05 (10)
Inflammatory lesions	14 (28)
Papilloma	02 (4)
Gynecomastia	02 (4)
Benign phyllodes	01 (2)
Lipoma	01 (2)
Simple cyst	01 (2)
Total	50 (100)

FNAC: Fine-needle aspiration cytology

Table 2: Site-wise distribution of breast lesions

Type of breast lesions	Right breast	Left breast
Fibroadenoma	11	13
Fibrocystic change	02	03
Inflammatory lesions	06	08
Papilloma	01	01
Gynecomastia	01	01
Benign phyllodes	00	01
Lipoma	00	01
Simple cyst	01	00
Total (%)	22 (44)	28 (56)

In our study, of 14 cases of inflammatory lesions, maximum cases of acute inflammation were seen (57.14%), followed by chronic inflammation, granulomatous mastitis, and tuberculous mastitis.

DISCUSSION

The breast is modified gland of skin appendages. It consists of epithelial and stromal tissue. Various non-proliferative and proliferative epithelial and stromal lesions are noted in breast lumps. These lumps are easily accessible for FNAC study which gives pre-operative diagnosis in various lesions. The significance of doing cytomorphological study of palpable breast lump is to give the clinician pre-operative diagnosis on the features of FNAC.[4] It will separate benign, malignant, and inflammatory breast lesions and will be helpful for further management of the patient. The clinical examination of breast lump, mammography, and FNAC are now considered the gold standard for diagnosing breast lesions. In our study, FNAC was carried out on 50 patients and their clinicocytopathological correlations were done.

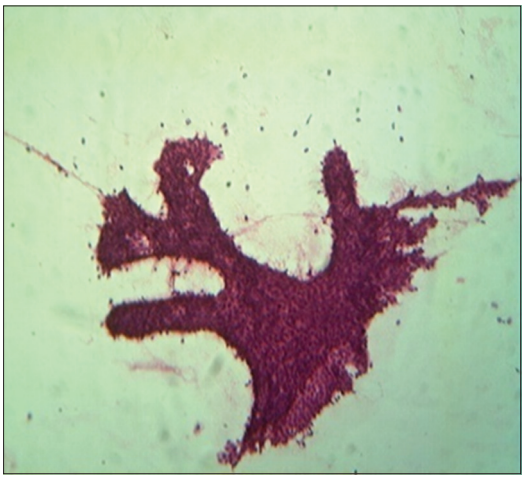

Figure 1: Fine-needle aspiration cytology showing epithelial proliferative lesion without atypia suggestive of fibroadenoma in low power view (×100) - Hematoxylin and Eosin stain

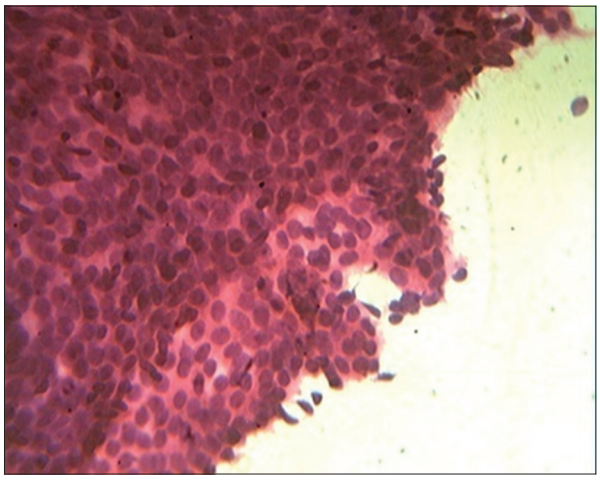

Figure 2: Fine-needle aspiration cytology showing epithelial proliferative lesion without atypia suggestive of fibroadenoma in high power (×400) - Hematoxylin and Eosin stain

Table 3: Age-wise distribution of various breast lesions

Age group (years)	Fibroadenoma	Fibrocystic change	Inflammatory lesions	Papilloma	Gynecomastia	Benign phyllodes	Lipoma	Simple cyst
<10	0	0	0	0	0	0	0	0
11–20	04	0	0	0	2	0	0	0
21–30	16	1	1	1	0	0	0	1
31–40	4	1	12	1	0	0	0	0
41–50	0	2	1	0	0	1	1	0
51–60	0	1	0	0	0	0	0	0
>60	0	0	0	0	0	0	0	0

Table 4: Clinical presentation of breast lesions

Signs and symptoms	*n* (%)
Lump in breast	50 (100)
Pain	19 (38)
Fever	15 (30)
Nipple discharge	5 (10)
Axillary lymphadenopathy	2 (4)

Table 5: Correlation of FNAC with histopathological diagnosis

Benign breast lesions	On FNAC	On biopsy	Correlated (%)
Fibroadenoma	19	17	89.47
Fibrocystic disease	5	-	-
Gynecomastia	2	-	-
Lipoma	1	1	100
Benign phyllodes	1	1	100
Papilloma	2	2	100
Simple cyst	1	1	100
Total	24	22	

FNAC: Fine-needle aspiration cytology

In our study the age 21-30 year (40%) was found the most affected age group [Table 3]. Our study correlate with Farkhanda *et al* .,[3] Chandanwale *et al*.[5] and Malik *et al*.[6] Out of 50 cases studied ,48 cases were female and 2 cases were males. The male cases were diagnosed as gynaecomastia. The observations in the study done by Singh *et al*.[7] showed female preponderance. The left side lesions are found to be more common (76%). In our study [Table 2] left side lesions were found to be more common (56%). In a study conducted by Bagale *et al.*, 95% cases were detected in left breast.[8] In benign breast lesions fibroadenoma remains the commonest lesion (48%) followed by fibrocystic breast diseases (10%)as showed [Table 1]. A study done by Hammed *et al*. showed 46.0% of cases of fibroadenoma.[4] The findings were seen in study done by Chandanwale *et al*. showed 49% cases of fibroadenoma. [5] Various inflammatory lesions were seen in the breast. Various cytomorphological diagnoses were acute mastitis, chronic mastitis, granulomas, and tuberculosis. Tuberculosis of the breast is usually rare. A study conducted by Rathi *et al*. showed 1.6% incidence of tuberculous mastitis.[9] Tuberculous mastitis in our study was 10%, which was in accordance with a study of Chandanwale *et al*.[5] and Amr *et al*.[10] The investigations like ZN stain were done to confirm tuberculosis. Fibrocystic disease was found as the second most common lesion in our study (10%). Inflammatory lesions were 14% in our study. It is in accordance with Amr *et al*.[10] and Baptist *et al*.[11]

Table 6: Cytomorphological features of inflammatory lesions

Type of inflammatory lesions	*n* (%)
Acute inflammation	8 (57.15)
Chronic inflammation (other than tuberculosis)	4 (28.57)
Granulomatous mastitis (other than tuberculosis)	1 (7.14)
Tuberculous mastitis	1 (7.14)
Total cases	14 (100)

FNAC: Fine-needle aspiration cytology

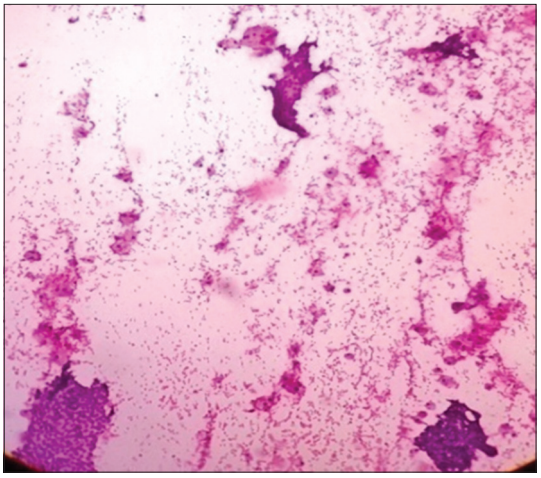

Figure 3: Fine-needle aspiration cytology showing epithelial proliferation without atypia and cyst macrophages suggestive of fibrocystic change (×100) - Hematoxylin and Eosin stain

All the patients clinically presented with lump in the breast [Table 4]. Second most common symptom was pain in 19 cases (38%) and fever in 15 cases (30%). Nipple discharge was seen in 10 % cases. Similar findings were noted by Godwin *et al*.[13]

In our study out of 24 cases of FNAC who has undergone biopsy 22 were showed correlation with histopathological diagnosis (91.66%) [Table 5]. The 2 cases of fibroadenoma were not correlated with biopsy findings which showed atypical ductal hyperplasia. Overall accuracy was found to be 91.66% in our study. The overall accuracy of FNAC in diagnosis of breast lesion is reported were 91.2-97.40%[5,14]. Our findings correlated with study conducted by Singh *et al.*, who found diagnostic accuracy of FNAC as 92.3%,[7] Tiwari *et al.* who found that diagnostic accuracy of FNAC is 90%.[1 5] The acute inflammation was seen in 8 (57.15%) cases [Table 6]. The cases of inflammatory etiology

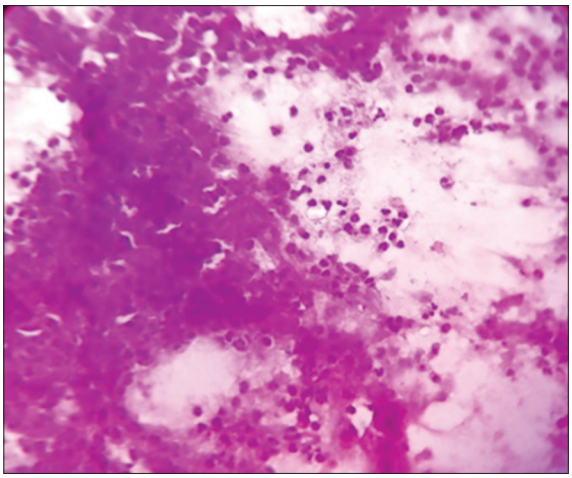

Figure 4: Fine-needle aspiration cytology smear showing acute mastitis (×100) - Hematoxylin and Eosin stain.

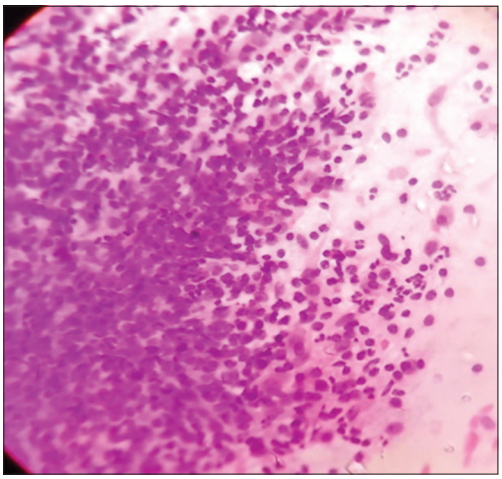

Figure 5: Fine-needle aspiration cytology smear showing granulomatous mastitis (×100) - Hematoxylin and Eosin stain

were treated with antibiotics or as per etiology and showed well response to it .In these cases biopsy was not required.

CONCLUSION

In our study, fibroadenoma was the most common benign breast lesion. The younger age group 21–30 years was found most commonly affected. FNAC is also very useful in diagnosing inflammatory lesions so that they can be treated as early as possible. FNAC reduces significant mortality and morbidity by making early diagnosis.

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