

Research Article**Comparison of Fine Needle Aspiration Cytology of Non-Neoplastic Lesions of Breast with Histopathology**Kasture Jyoti¹, Bajaj Preeti^{2*}, Sonawane Sandip³, Patil Archana⁴, Ghadi Manjushree¹, Mahajan Suresh⁵¹Assistant Professor, Department of Pathology, Dr Vasanttrao Pawar Medical college, Hospital & Research Centre, Adgaon, Nashik-422003, Maharashtra.²Professor, Department of Pathology, Dr Vasanttrao Pawar Medical college, Hospital & Research Centre, Adgaon, Nashik-422003, Maharashtra.³Consultant Radiologist, Nashik-422003, Maharashtra.⁴Associate Professor, Department of Pathology, Dr Vasanttrao Pawar Medical college, Hospital & Research Centre, Adgaon, Nashik-422003, Maharashtra.⁵Professor & Head, Department of Pathology, Dr Vasanttrao Pawar Medical college, Hospital & Research Centre, Adgaon, Nashik-422003, Maharashtra.***Corresponding author**

Dr. Preeti Bajaj

Email: dr.prbajaj@gmail.com

Abstract: The objective of the study was to evaluate efficacy of FNAC (Fine needle aspiration cytology) in non-neoplastic lesions of breast. A total of 300 randomly selected cases of breast lumps over a period of 18 months from Jan 2010 to July 2012 were evaluated clinically and subjected to FNAC to find out spectrum of non-neoplastic lesions. Such cases were studied for cytohistological correlation. The smears were stained with leishman, papanicolaou, H&E and special stains like ZN & PAS wherever necessary. Out of 350 cases, 20 were inadequate aspirations (adequacy 94.3%). Out of 330 breast aspirations, 100 cases showed non-neoplastic pathology. The most commonly encountered lesions were acute mastitis or abscess (52%), followed by fibrocystic disease of breast (31%), followed by lactational breast (8%), simple cyst (4%) and 2% each of tuberculous mastitis and duct ectasia. One case of xanthogranulomatous mastitis was observed. Histopathological studies were possible in 60 cases which were therapeutic interventions. Discordant cases included 4 cases of fibrocystic disease which showed florid ductal hyperplasia on histology and a case of xanthogranulomatous mastitis misdiagnosed on cytology as benign breast disease. Cytohistological correlation of non-neoplastic lesions was seen in 90% cases. Sensitivity of cytology was 98.2 % and specificity was 100%, positive predictive value was 100%, negative predictive value was 93.2%. Our results were correlated with previous studies. From the study it can be concluded that FNAC of non-neoplastic lesions enjoyed utmost sensitivity & specificity and turned out to be cost effective procedure for diagnosis. Cytology helped in avoiding unnecessary surgery in 45% cases.

Keywords: FNAC, Breast lesions, Non-neoplastic lesions, Histological correlation.

INTRODUCTION

With growing awareness in the general population, a lady with a breast lump is one of the commonest presentations in outpatient departments.

In modern women the breasts have acquired an important emotional significance. When disease develops in the breasts, it results in anxiety for the patient and family. The breast lesions have been concealed by many women because of the cosmetic considerations and social stigma. Diseases of the breast are not only a medical problem but also a socioeconomic one.

Spectrum of lesions of breast is wide ranging from non-neoplastic lesions to high grade carcinomas [1, 2]. Most of the non-neoplastic lesions of breast presenting as breast lump appear neoplastic, making clinical diagnosis difficult. FNAC is accepted as the most sensitive, specific, accurate, safe and cost effective

procedure for diagnosing non-neoplastic lesions of breast preoperatively and avoiding unnecessary surgical interventions like diagnostic excision or incisional biopsy [3-5].

The objective of present study is to evaluate spectrum of lesions of breast in patients presenting with breast lump and evaluate efficacy of FNAC in non-neoplastic lesions of breast, to find cytohistological correlation in non-neoplastic lesions of breast.

MATERIALS AND METHODS

This was a prospective study done over a period of two years from July 2010 to June 2012. The female patients presenting with breast lump attending outdoor as well as indoor departments at Dr. Vasanttrao Pawar Medical College and Research Centre, Nashik were selected randomly. FNA were done on 350 randomly selected female patients presenting with breast lump. Of 350 total cases 20 cases had inadequate aspirates. Out

of 330 cases, 100 had non-neoplastic pathology. These 100 cases were included in the study

Informed consent and ethical approval was taken before the interventional procedures. Fine needle aspiration was performed with 23-25 gauge needle & 10 cc syringe [6]. The smears were fixed in alcohol for 30 minutes or with spray and stained with H & E, Papanicolaou stain and Giemsa. Special stains like ZN stain, PAS stain etc was done whenever necessary. Morphological evaluation was done for sample adequacy, cellularity, and diagnostic interpretation.

In this study histology was possible in 60 cases. The surgical specimens received were evaluated grossly, and trimming was done according to the procedure described by Rosai [7]. The sections were taken from representative areas. The tissue was fixed in 10% buffered formalin and then processed by the routine paraffin embedding techniques [8]. Sections were cut at 4-5 microns thickness and stained with hematoxylin and eosin. Correlation between cytological and histological diagnosis were done.

RESULTS

The present prospective study was carried out over a period of 24 month from July 2010 to June 2012. Fine needle aspirations were done on 350 randomly selected female patients presenting with breast lump. Out of 350 total cases 20 cases had inadequate aspirates. Therefore the adequacy of FNAC procedure was 94.3% (330/350). These 20 cases were excluded from further evaluation in the study.

Out of 330 cases, 230 were neoplastic and 100 were non-neoplastic cytologically. Histopathological

diagnosis was available in total 260 cases. Of which 60 were non-neoplastic and 200 were neoplastic.

Table 1: Distribution of different lesions of breast

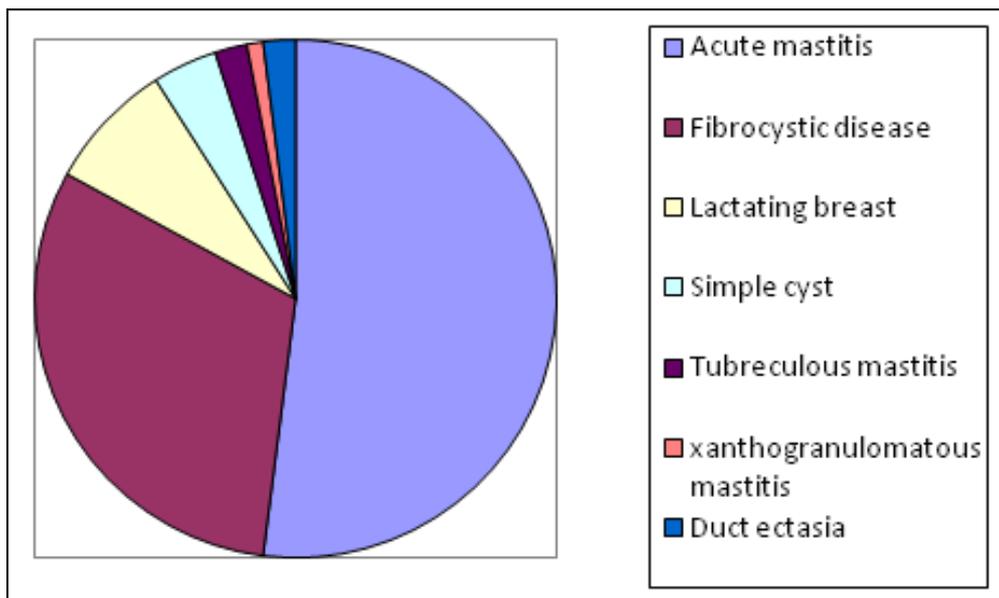
Types of lesions	No. of cases on cytology (%)	No. of cases in which histological Diagnosis available (%)
Non-neoplastic	100 (30.3)	60 (23.1)
Neoplastic	230 (69.7)	200 (76.9)
Total	330 (100)	260 (100)

Adequacy of FNAC procedure

Overall sampling adequacy of FNAC procedure was 94.3% (330/350 cases). In 20 cases out of 350, acellular smears were obtained. These cases were excluded for the further evaluation in the study.

Table 2: Distribution of cases of Non-Neoplastic lesions on cytology

Types of lesions	No. of cases on cytology	No of cases in which histology was possible
Acute mastitis or breast abscess	52	26
Fibrocystic disease	31	24
Simple cyst	04	2
Lactating breast	08	3
Tuberculous mastitis	02	2
Xanthogranulomatous mastitis	01	1
Duct ectasia	02	2
Total	100	60



Distribution of non-neoplastic lesions on cytology

Most frequently encountered lesions were acute mastitis or abscess (52%) and fibrocystic disease of breast (31%) followed by lactating breast, simple cyst,

tuberculous mastitis, duct ectasia and one case of Xantho granulomatous mastitis.

Table 3: Age wise distribution of Non-Neoplastic lesions of breast

Types of lesions	Age in years				
	11-20	21-30	31-40	41-50	50-above
Acute mastitis or breast abscess	4	28	12	4	4
Fibrocystic disease	0	13	11	5	2
Simple cyst	0	2	2	0	0
Lactating breast	1	5	2	0	0
Tuberculous mastitis	0	0	0	0	2
Xanthogranulomatous mastitis	1	0	0	0	0
Duct ectasia	0	2	0	0	0
Total (100)	6	50	27	9	8

No case was found below the age of 10 years. Acute mastitis and fibrocystic disease were commonest in 21-40 years age group. Minimum age noted in fibrocystic disease was 24 years and maximum was 60 years. Youngest patient of lactating breast was in 18 years of

age. Two cases of tuberculous mastitis are in 60 and 63 years age. A case of xanthogranulomatous mastitis was a young female of 19 years. Duct ectasia was noted in 30 years.

Table 4: Comparison of cytological and histological diagnoses of non-neoplastic lesions

Diagnosis	N= 60	No. of cases diagnosed by	
		Cytology	Histopathology
Acute mastitis or breast abscess	26	26	26
Fibrocystic disease	24	24	20
Simple cyst	2	2	2
Lactating breast	3	3	3
T.B.mastitis	2	2	2
Xanthogranulomatous mastitis	1	0	1
Duct ectasia	2	2	2

As most of non-neoplastic lesions diagnosed on cytology and treated conservatively, histopathology was available in only 60 out of 100 non-neoplastic cases, therefore cytohistological correlation was done in 60 cases.

As most cases of acute mastitis responded to antibiotics, histopathology was done in 26 out of 52 cases. Of which in 19 cases abscess were drained and in 7 cases biopsy was done. All 26 cases correlated with cytological diagnosis.

As most fibrocystic diseases treated conservatively, biopsy was done in 24 out of 31 patients. Out of 24 cases 20 showed cytohistological correlation. Four were discordant cases showing florid ductal hyperplasia on histology, which were missed on cytology.

A case of xanthogranulomatous mastitis clinically presented as breast lump, cytology showed scanty aspirate, benign ductal epithelial cells, few lymphocytes and misdiagnosed as benign breast lesion on cytology, after lumpectomy diagnosed as xanthogranulomatous mastitis on histopathology.

Out of 8 cases of lactating breast treated conservatively, only in 3 cases subsequent biopsy done and histological diagnosis was in concordance with cytology.

Out of 4 cases of simple cyst, only in two cases biopsy done and were in concordance with histology.

Biopsy was done in all cases of tuberculosis mastitis and duct ectasia and histological diagnosis found to be in concordance with cytology.

In the present study, cytohistological correlation of non-neoplastic lesions of breast was seen in 90% cases. Cytology helped in avoiding unnecessary surgical interventions in 40% of non-neoplastic cases.

DISCUSSION

As most of non-neoplastic lesions of breast presenting as breast lump appear neoplastic, making clinical diagnosis difficult [1, 4]. This study also evaluated efficacy of fine needle aspiration cytology in diagnosing non-neoplastic lesions of breast preoperatively and avoiding unnecessary surgical interventions [4].

Table 5: Utility parameters of fine needle aspiration cytology in diagnosing non-neoplastic lesions

	Histopathological positive cases	Histopathological negative cases	Total
Cytologically positive cases	55	4	59
Cytologically negative cases	01	0	01
Total	56	4	60

Age incidence

In non-neoplastic lesions the age range was from 17 to 63 years (Table No 3). Acute mastitis was commonest in 2nd to 4th decade and fibrocystic disease from 3rd to 4th decade (Table No 3).

The observations were in agreement with those of Notani [9] and Fisher *et al.* [10] study.

FNAC of Breast

Fine needle aspiration is a safe, atraumatic method for the diagnosis of lesions of breast and to be done as outpatient procedures. The risk of complications is extremely low [1]. Russ *et al.* [2] encountered only an occasional ecchymosis in his series of 257 breast FNACs. In the present study no complications have occurred. Berg and Robbins [11] concluded in their study that there was no reason to consider FNAC detrimental to patients.

Adequacy of FNAC procedure

In the present study, overall sampling adequacy of FNAC procedure was 94.3% (330/350 cases). Out of 20 acellular aspirations, in 8 cases subsequent biopsy were done and these included cases of hypertrophic adipose tissue (2 cases), fibroadenosis (2 cases), sclerosing adenosis (2 cases), one each case of mucinous carcinoma, infiltrating duct carcinoma with desmoplasia. In remaining 12 cases histology was not available. All the inadequate cases (20) were excluded from further evaluation in the study.

Table 6: Sampling adequacy of FNAC procedure in various studies

Various studies	Sampling adequacy of FNAC procedure
Russ <i>et al.</i> [2]	93%
Palombini <i>et al.</i> [4]	94.9%
Strawbridge <i>et al.</i> [3]	67.7%
Present study	94.3%

Russ *et al.* [2] studied 257 aspirations of which 93% samples found to be adequate for cytological interventions. All of inadequate aspirations were from

masses less than 2 centimeters. Three of 12 patients inadequate aspiration with histology possible had malignant lesions. One patient had no palpable mass, but calcification present on xeromammogram was considered malignant. In situ lobar carcinoma was noted on biopsy. Two patients had clinically benign masses. The combined clinical and cytological false negative rate for inadequate aspirations was 17%.

Palombini *et al.* [4] noted 100 (5.1%) out of 1956 aspirations to be unsatisfactory. Sampling adequacy of their study was 94.9%. Histologically this was negative for malignancy in ten (58.8%) cases and positive in seven (41.2%). Ten (55.5%) of the 18 patients who repeated cytology had a diagnosis of a benign condition, five (27.8%) had a diagnosis of carcinoma, two were judged as cytologically suggestive, and one (5.55%) remained unsatisfactory. Sixty patients were lost to follow-up.

Strawbridge *et al.* [3] study on 3724 aspirations observed 1205 (32.3%) smears were acellular. Sampling adequacy was 67.7%. Because aspirations were performed upon all types of breast lesions, not only on discrete localised, easily palpable lesions but also on more diffuse granular thickenings, more characteristics of fibrocystic disease.

Non-neoplastic lesions of the breast**Table 7: Incidence of non-neoplastic lesions in total breast lesions in various studies**

Series	Non -neoplastic breast lesions %
Baptist <i>et al.</i> [12]	39.00%
Solanki <i>et al.</i> [13]	24.00%
Haque <i>et al.</i> [14]	20.00%
Ellis <i>et al.</i> [15]	22.30%
Singh <i>et al.</i> [16]	22.00%
Present study	30.3% (Table 1)

In present study, 30.3% (Table 1) cases belonged to non-neoplastic group. Our results are slightly lower as compared to Haque *et al.* [14] who reported 20% incidence of non-neoplastic group and also with Singh *et al.* [16], Solanki *et al.* [13] and Ellis *et al.* [15] who observed 22%, 24% and 22.30% incidence of non-neoplastic lesions respectively.

Baptist *et al.* [12] found 39% incidence of non-neoplastic breast lesions, which is higher as compared to other study reports and present study.

Acute mastitis or breast abscess

In the present study, incidence of acute mastitis was 52% of total lesions of breast (Table No 2). Baptist *et al.* [12] reported 31% incidence of inflammatory lesions, which was less than incidence of present study. Haque *et al.* [14] found 40% incidence of inflammatory

lesions. Cox *et al.* [17] observed 12% incidence of non-specific inflammation of breast. As infections are uncommon in developed countries, so the incidence found by Cox *et al.* [17] is on lower side than present study.

Aspirates from acute mastitis or breast abscess were fluid, semisolid or solid material. Cytology showed numerous acute inflammatory cells like polymorphs, lymphocytes, plasma cells, phagocytes histiocytes etc in the background. Subareolar abscess show keratinising squamous cells in background of acute inflammatory cells (Figure 1). Histopathology also showed numerous acute inflammatory cells (Figure 2).

As most of the inflammatory lesions are treated by incision and drainage and medical treatment, biopsy is not always done in all patients with acute mastitis; so the incidence varies from place to place. In the present study, histological diagnosis was available in 26 out of 52 cases of acute mastitis diagnosed on cytology. Of which in 19 cases abscess were drained and in 7 cases biopsy were done. Cytohistological correlation was seen in all 26 cases of acute mastitis (Table 4).

Age incidence of acute mastitis in present and various studies

In the present study, maximum incidence of acute mastitis was observed between 21-30 years. Few cases also observed between 31-40 years (Table 3). It is in accordance with Knight *et al.* [18] who also observed maximum number of cases between 20-35 years of age. Haagensen [19] reported the maximum age incidence in the reproductive life. This is because infections are commonly found in lactating breasts.

Fibrocystic disease of breast

In the present study, incidence of fibrocystic disease is 31% of total breast lesions (Table 2), which is higher in accordance with Haque *et al.* [14] and Sing *et al.* [16] who reported 13% and 22% incidence respectively. The present study aspirates were fluid mostly clear yellow, brown or blood stained. Cytology showed fluid background, cyst macrophages and fragments of ductal epithelial cells (Figure 3). Few cases showed sheets of ductal epithelial cells of apocrine type (Figure 4). Histopathology showed cystically dilated spaces and fibrosis (Figure 5). Four discordant cases showed florid ductal hyperplasia associated with fibrocystic disease on biopsy.

Age incidence of fibrocystic disease

In the present study, maximum incidence of fibrocystic disease observed between 21-40 years (Table No 3). Baptist *et al.* [12] reported maximum incidence of fibrocystic disease in 41-50 years. Ellis *et al.* [15] found maximum number of cases in age 18-67 years. Haagensen [19] observed maximum number of cases in 30-40 years of age. Peter Marcuse [20] observed maximum incidence in 4th and 5th decade.

Haque *et al.* [14] reported maximum number of cases in 5th decade.

Haagensen [19] points out that the breasts are constantly subjected to changing hormonal stimulation leading to physiological nodularity. As hormonal variations are common during premenopausal period, physiological nodularity is exaggerated leading to fibrocystic disease.

Tuberculous mastitis

In the present study, incidence of tuberculous mastitis was found to be 2% in total breast lesions (Table No 2), which was in accordance with Dharkar *et al.* [21], Chaudhary *et al.* [22], Mukerjee *et al.* [23], Haque *et al.* [14] who observed 3.5%, 3.0%, 1.2% and 1.0% respectively. Ikad and Perkin [24] and Haagensen [19] observed 0.025% and 0.062% incidence of tuberculosis of breast respectively.

Shinde *et al.* [25] observed that incidence of tuberculosis was 1.0% in India.

In the present study, the two cases of tuberculous mastitis are of 60 and 63 years age (Table 3). This age incidence was more compared to age incidence reported by Haque *et al.* [14] in 30-35 years of age group while Mukerjee *et al.* [23] observed maximum number of cases in 20-30 years of age.

In both cases we observed caseating epitheloid cell granuloma with Langhan's type of giant cells (Figure 9 & 10) as described by Mukerjee *et al.* [23].

Mammary duct ectasia

In the present study, incidence of mammary duct ectasia was found to be 2% in total breast lesions (Table 2), which was in accordance with Haque *et al.* [14] and Haagensen *et al.* [19] who reported 1.5% and 1.8% respectively. Thomas *et al.* [27] observed 5.5% incidence of duct ectasia.

Aspiration showed creamy, thick, cheesy material. Cytology showed paucicellular smear with few ductal cells in tight clusters. Background showed amorphous material and chronic inflammatory cells. Histopathology showed dilated, thick walled ducts, with accumulation of fatty detritus in the lumen.

Lactating breast

In the present study, incidence of lactating breast was 8 % of total breast lesions (Table 2). The age range was observed between 18-26 years (Table 3). All the findings are in accordance with Haagensen [19] study that reported maximum incidence in 21-30 years and found that infections were common in lactating breast.

Cytology showed cellular smears with background of abundant lipid secretions. Cells arranged in poorly

cohesive, mainly dispersed cells of acinar type having abundant fragile cytoplasm and rounded vesicular nuclei and central nucleoli. Single bipolar nuclei were rarely seen. Histopathology showed increased proliferative activity with marked cytoplasmic vacuolization.

Xanthogranulomatous mastitis

An interesting rare case of xanthogranulomatous mastitis was 19 years female clinically presented as breast lump (Table 2, 3, 4) and cytology showed scanty aspirate, benign ductal epithelial cells & few lymphocytes (Figure 6) and misdiagnosed as benign breast disease on cytology. After lumpectomy, histopathology showed many foamy histiocytes and moderate lymphocytic infiltration and was diagnosed as xanthogranulomatous mastitis (Figure 7 & 8).

Cozzutto *et al.* [28] studied the cytomorphological and histopathological features of xanthogranulomatous mastitis were in concordance with present study. Koo *et al.* [26] reviewed sixteen cases of xanthogranulomatous mastitis to determine the characteristic clinicopathological features. They observed Xanthogranulomatous mastitis was associated with fat necrosis in five cases (31%), multinucleated giant-cell reactions in six cases (38%), and cholesterol crystals in five cases (31%).

Correlation between cytological and histopathological diagnosis of non-neoplastic lesions

As non-neoplastic lesions are easily diagnosed on FNAC and most of lesions treated conservatively, only in few cases required biopsy and lumpectomy. Therefore, histopathological diagnosis was available in only 60 out of 100 non-neoplastic cases (Table 1).

As most cases of acute mastitis responded to antibiotics, histological diagnosis was possible in 26 cases only (Table 2, 4). Of which in 19 cases abscess were drained and in 7 cases biopsy were done.

As most fibrocystic diseases treated conservatively, biopsy was done in 24 out of 31 patients. Out of 24 cases 20 showed cytohistological correlation (Table 4). Four were discordant cases showing florid ductal hyperplasia on histology, which were missed on cytology.

A case of xanthogranulomatous mastitis clinically presented as breast lump and cytology showed scanty aspirate, benign ductal epithelial cells & few lymphocytes and misdiagnosed as benign breast disease on cytology (Table 4), after lumpectomy showed many foamy histiocytes and lymphocytic infiltrate and diagnosed as xanthogranulomatous mastitis on histology.

Out of 8 cases of lactating breast treated conservatively, only in 3 cases subsequent biopsy was done and histological diagnosis was in concordance with cytology (Table 4).

Out of 4 cases of simple cyst, only in two cases histology available and cytology found to be in concordance with histopathology (Table 4).

Biopsy was done in all cases of tuberculous mastitis and duct ectasia and histological diagnosis found to be in concordance with cytology (Table 4).

In the present study, cytohistological correlation of non-neoplastic lesions of breast was seen in 90% cases. Cytology helped in avoiding unnecessary surgery in 40% of non-neoplastic cases (Table 2).

Franzen and Zajicek [29] observed 94.7% cytohistological correlation of non-neoplastic lesions. Sing *et al.* [16] observed 87.1% cytohistological correlation of non-neoplastic lesions of breast.

Table 8: Cytohistological correlation of non-neoplastic lesions in various studies

Sl. No	Various studies	Cytohistological correlation of non-neoplastic lesions
1.	Franzen and Zajicek [29]	94.7%
2.	Singh <i>et al.</i> [16]	87.1%
3.	Present study	90%

Utility parameters of fine needle aspiration cytology in diagnosing malignant lesions

Table 9: Utility parameters of FNAC in diagnosing non-neoplastic lesions in various studies

Parameters	Palombini <i>et al.</i> [4]	Zajdela <i>et al.</i> [30]	Wollenberg <i>et al.</i> [5]	Present study
Sensitivity	95.7%	91.9%	65%	98.2%
Specificity	89.6%	95.8%	100%	100%
Positive predictive value	95.9%	97.4%	89.6%	100%
Negative predictive value	-	-	-	93.2%

The sensitivity of breast FNAC ranges from 90-95% and positive predictive value of a malignant diagnosis is approximately 99% [1]. In the present study inadequacy rate of FNAC was 5.7%. Previous studies have shown the percentage of inadequate material to vary between 5-30 [2- 4].

In the present study, sensitivity of fine needle aspiration cytology in diagnosing non-neoplastic lesions was 98.2 %, specificity was 100%, positive predictive value was 100% and negative predictive value was 93.2%.

Palombini *et al.* [2] observed sensitivity of FNAC of breast lesions was 95.7%, specificity was 89.6%.positive predictive value was 95.9% and diagnostic accuracy of FNAC was 94%.

Zajdela *et al.* [30] observed sensitivity of FNAC of breast lesions was 91.9%, specificity was 95.8%.positive predictive value was 97.4% and diagnostic accuracy of FNAC was 93.3%.

Wollenberg *et al.* [5] observed diagnostic accuracy of FNAC of breast lesions. They observed sensitivity was 65%, specificity was 100%, positive predictive value was 89.6% and overall diagnostic accuracy was 91.3%.

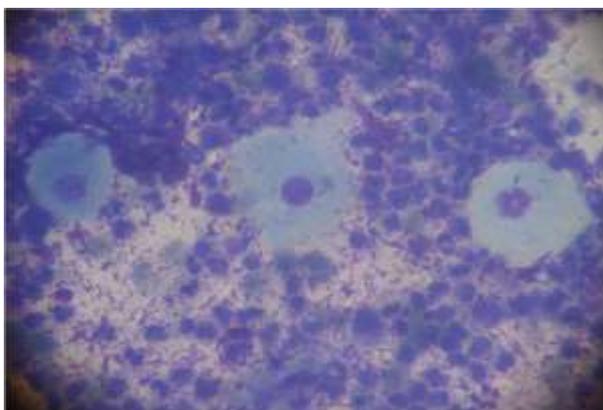


Figure 1: FNA photomicrograph showing keratinizing squamous cells in background of acute inflammation in subareolar abscess (Giemsa X 400)

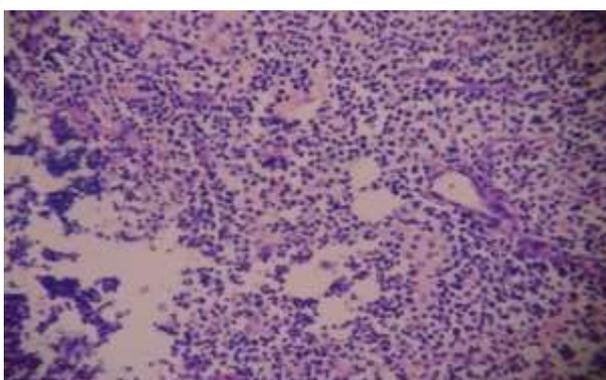


Figure 2: Photomicrograph showing ductal cells, polymorphs, lymphocytes, plasma cells, phagocytes & histiocytes in acute mastitis (H & E X400)

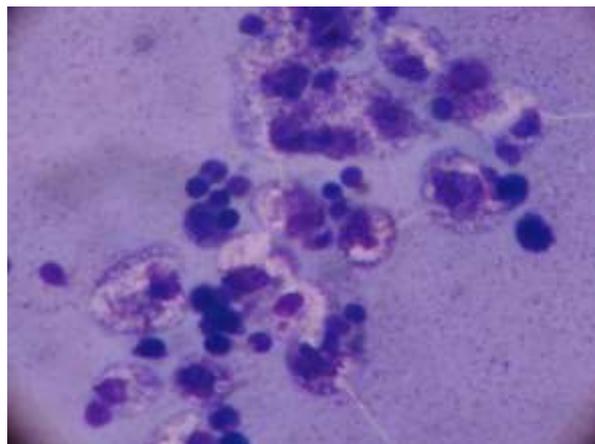


Figure 3: FNA photomicrograph showing fluid background, cyst macrophages & ductal epithelial cells (Giemsa X 400)

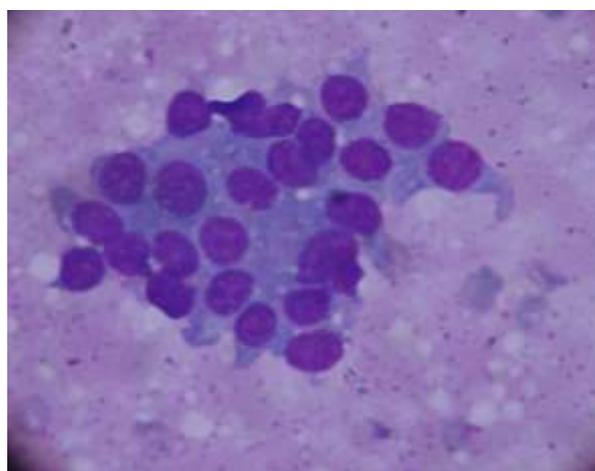


Figure 4: FNA photomicrograph showing apocrine differentiation in fibrocystic disease (Giemsa X400)

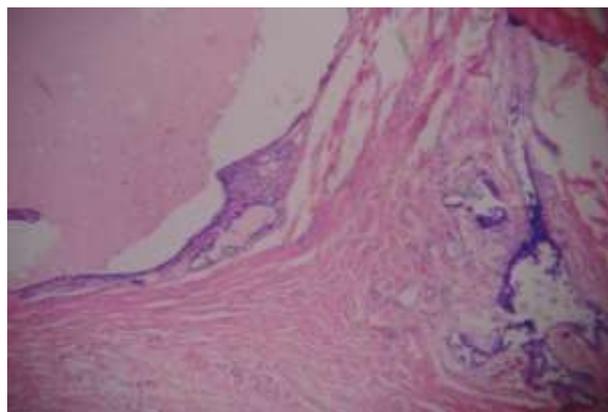


Figure 5: Photomicrograph showing cystic dilatation and fibrosis in fibrocystic disease (H & E X100)

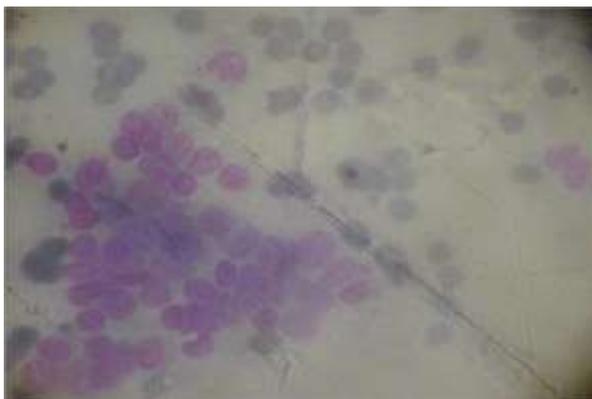


Figure 6: FNA photomicrograph showing ductal epithelial cells & lymphocytes in Xanthogranulomatous mastitis (Giemsa X400)

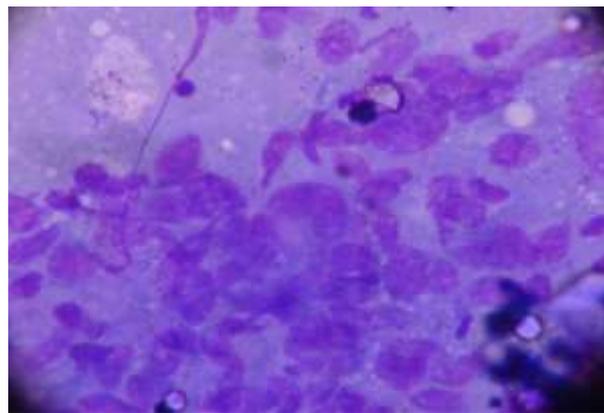


Figure 9: FNA photomicrograph showing epithelioid cell granulomas (Giemsa X400)

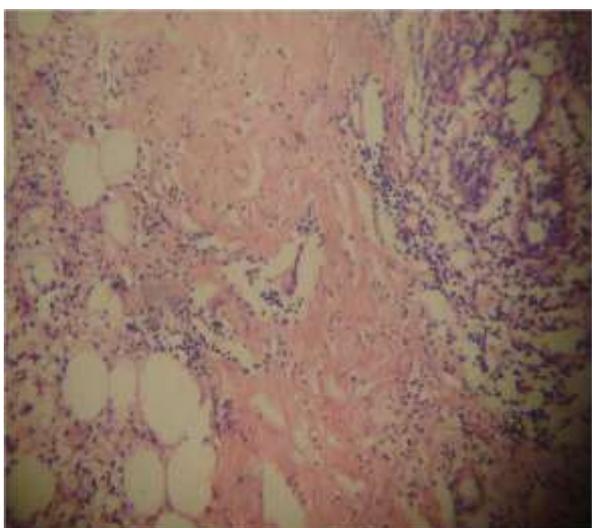


Figure 7: Photomicrograph showing lymphocytic infiltrate and foamy histiocytes in xanthogranulomatous mastitis (H & E X100)

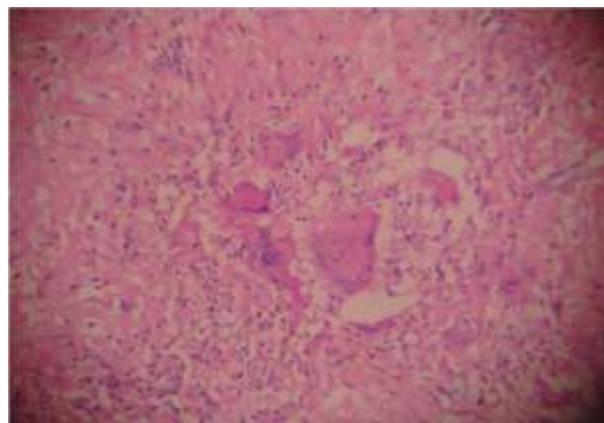


Figure 10: Photomicrograph showing caseous necrosis & epithelioid cell granuloma with Langhans giant cells (H & E X100)

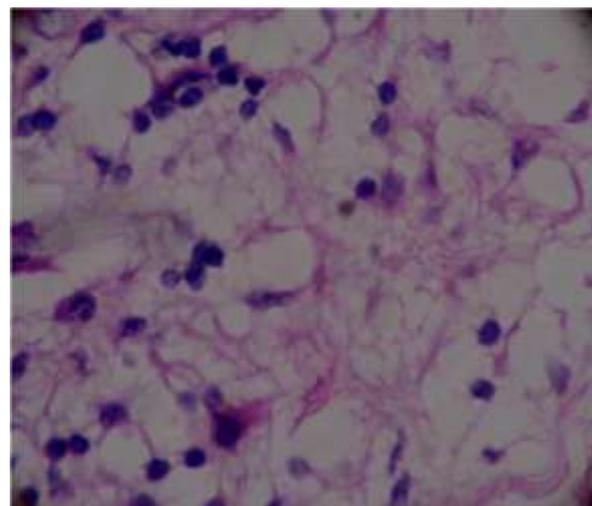


Figure 8: Photomicrograph showing foamy histiocytes in xanthogranulomatous mastitis (H & E X400)

CONCLUSION

The present study was carried out to study spectrum of lesions of the breast, assess efficacy of FNAC in diagnosing non-neoplastic lesions preoperatively to avoid unnecessary surgical interventions.

Fine needle aspiration was performed on total 350 randomly selected female patients presenting with breast lump from July 2010 to June 2012. Of which 20 cases had inadequate aspirates (sampling adequacy of FNAC procedure was 94.3%). Out of 330 cases, 230 were neoplastic and 100 were non-neoplastic cytologically.

Histological diagnosis was available in total 260 cases. Of which 60 were non-neoplastic and 200 were neoplastic. Correlation between cytological and histological diagnosis of non-neoplastic lesions was observed.

- Incidence of non-neoplastic lesions in total breast lesions was 30.3%
- Youngest patient was 17 years and oldest patient was 63 years old. Acute mastitis and fibrocystic disease were commonest in 21-40 years age group.

- Most frequently encountered non-neoplastic lesions were acute mastitis or abscess (52%) and fibrocystic disease of breast (31%).
- Acute mastitis clinically presented as lump with pain in breast, fever and nipple discharge. Fibrocystic disease mainly presented as pain and lump in breast and rarely as nipple discharge and retraction.
- A case of xanthogranulomatous mastitis was an interesting and rare case.
- Cytohistological correlation of non-neoplastic lesions of breast was seen in 90% cases.
- The positive influence of FNAC on the management of non-neoplastic lesions was perhaps best highlighted in the low rate of surgical intervention. Cytology helped in avoiding unnecessary surgical interventions in 40% of non-neoplastic cases.
- Sensitivity of cytological scoring system was 94.9 % and specificity was 100%, positive predictive value was 100%, negative predictive value was 97.1% and diagnostic accuracy was 98.17%.
- FNAC is accepted as most sensitive, specific, accurate, safe and cost effective for diagnosing lesions of breast preoperatively and avoiding unnecessary surgical interventions like diagnostic excision or incisional biopsy.
- Most of our findings correlated with other previous studies.

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