

Original Research Article

Fine Needle Aspiration Cytology and Histopathology Correlation of Breast Lumps

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Abstract

Introduction: The present study was done to compare the diagnostic accuracy of Fine Needle Aspiration Cytology (FNAC) in differentiating the benign and malignant lesions of palpable breast lumps with histopathological correlation and also to study the accuracy of FNAC procedure. **Materials and Method:** A retrospective study was done for a period of one year from January 2017 to January 2018. Fine needle aspiration was carried out in Department of pathology by pathologist, slides were stained with May-grunwald Giemsa morphology was studied, lumpectomy, wide excision and modified radical mastectomies were received depending on diagnosis on cytology. FNAC and biopsy results were correlated. **Results:** The most common age group for benign lesions were between 11 to 40 years and for the malignant lesion was 41 to 70 years. Fibroadenoma was most common among benign neoplasms and infiltrating ductal carcinoma (IDC) constituted highest number of cases among malignant neoplasms. Total benign cases were 22 and malignant were 11, premalignant (2 fibrocystic disease with atypia and 1 atypical ductal hyperplasia), and granulomatous mastitis were 2 out of total 38 cases. **Conclusion:** FNAC of the breast lump is an OPD based diagnostic method for determining the nature of the breast lump. It is safe, minimally painful, without anesthesia. Requiring only syringe, needle, glass slides and fixatives. Repeat FNAC can be performed if necessary. Best screening method required for categorization of different lesions of breast which aids in prevention of cancer and proper management of lesions.

Keywords: Fine Needle Aspiration Cytology Correlation with Histopathology; Fibroadenoma; Infiltrating Ductal Carcinoma.

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Introduction

Breast cancer is the most common malignant neoplasm of a women. In India, breast cancer is around 30% of all cancers affecting women, and now

it replaced cervical cancer as most common cancer among Indian women. According to figures from the National Cancer Registry, one in every 25 Indian women is likely to suffer from breast cancer at some point of time [1]. Fine needle aspiration (FNA) cytology has become widely accepted as a reliable

diagnostic tool for diagnosing breast masses. It is a simple, quick, safe, less invasive, and less expensive method with high sensitivity and specificity. Our study aims to correlate fine needle aspiration (FNA) cytology of commonly encountered palpable breast lumps with histopathological examination.

Material and Methods

This retrospective study was done at the Department of Pathology of our institute for a period of one year, from January 2017 to January 2018. Patients with palpable breast lump over this period were included in the study. Axillary masses with histological features of breast pathology were excluded. FNAs were done by a pathologist with all aseptic precautions using 10 mL syringe and 22 Gauge needle. Samples were smeared onto glass slides and stained with May-Grunwald-Giemsa (MGG) after being air dried. FNA findings of studied smears were then compared with corresponding histopathology findings, obtained with lumpectomy, wide excision and modified radical mastectomy specimens.

Results

During the study period, a total of 38 FNA

cytology of breast lumps were done all were subjected to histopathological correlation, most of the benign lesions were seen in age group of 11-40 years and malignant lesions were seen in age group of 40-70 years [Table 1 & 2], out of all age group 63% (24 cases) were benign and 29% (11 cases) were malignant both on FNAC and histologic evaluation (Table 3). Left side predominance was noted (55.3%). The commonest benign lesion was fibroadenoma (44.7%) and Infiltrating ductal carcinoma (26.3%) was the most common malignant diagnosis, followed by fat necrosis (7.8%), granulomatous mastitis (5.2%), fibrocystic change with atypia (5.2%), lactating adenoma (5.2%), In situ papillary carcinoma (2.6%) and a typical ductal hyperplasia (2.6%) (Fig. 1).

Out of 11 malignant lesions 10 were infiltrating duct carcinoma and one was papillary carcinoma. Histopathological examination of lumpectomy done in cases of benign and inflammatory lesion, wide excision for fibrocystic and atypical ductal hyperplasia and modified radical mastectomies were received for malignant lesions and were well correlated with FNAC findings. Lumpectomy received in cases of granulomatous mastitis and fat necrosis which was clinically simulated carcinoma with typical peudorange appearance requiring histopathological examination to rule out malignancy which was then well correlated with FNA findings.

Table 1: Age Wise Distribution

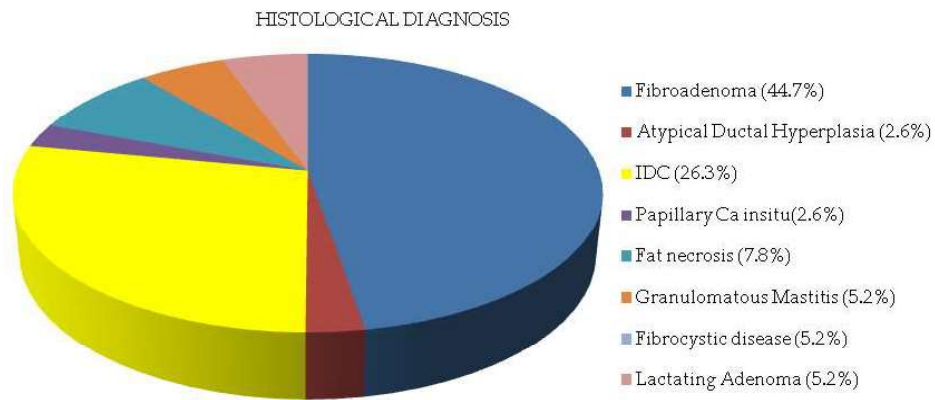
Age Group	No of Cases
10-20	9 (23.7%)
21-30	6 (15.8%)
31-40	10 (26.3%)
41-50	4 (10.5%)
51-60	7 (18.4%)
61-70	2 (5.3%)
Total	38

Table 2: Age Wise Distribution of Benign and Malignancy Lesion

Age Group	Benign/Inflammatory	Pre Malignant	Malignant
11-20	9	0	0
21-30	4	1	1
31-40	8	1	1
41-50	1	1	2
51-60	2	0	5
61-70	0	0	2
Total	24 (63.2%)	3 (7.9%)	11 (28.9%)

Table 3: Side Wise Distribution

Side	No of Cases
Right Side	9 (23.7%)
Left Side	21 (55.3%)
Bilateral	2 (5.3%)
Not Known	6 (15.8%)
Total	38



Graphic 1: Histological Diagnosis

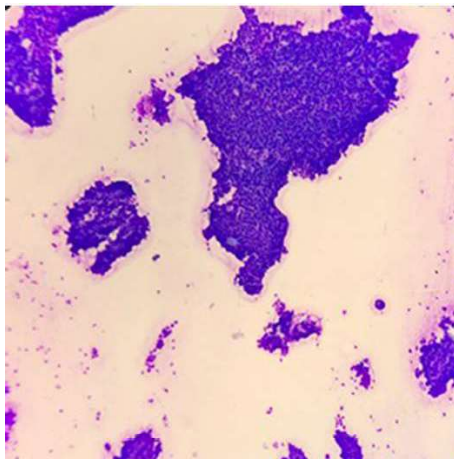


Fig. 1: FNAC in Fibroadenoma

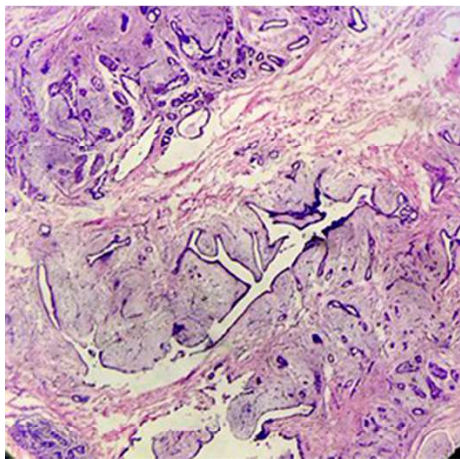


Fig. 2: Histopathology of Fibroadenoma.

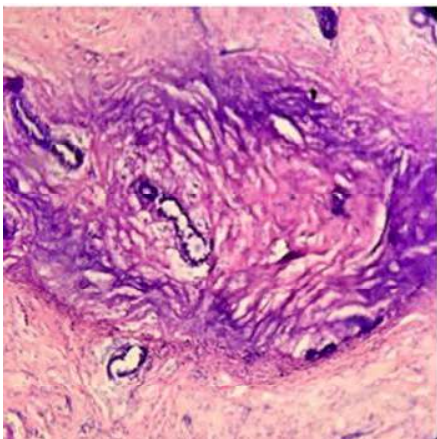


Fig. 3: Radial Scar

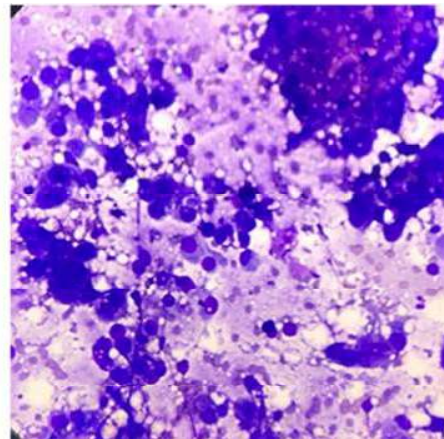


Fig. 4: FNAC of Carcinoma Breast

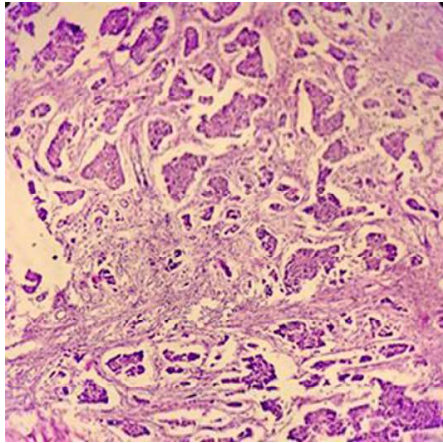


Fig. 5: Histopathology of Infiltrating Duct Carcinoma Breast.

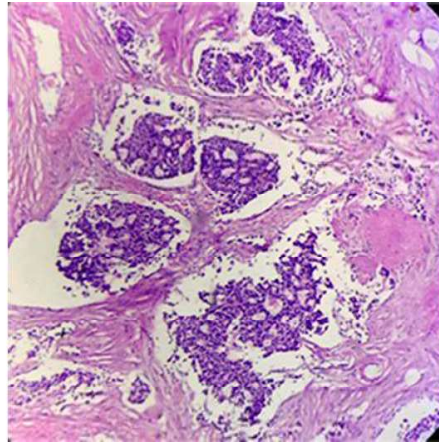


Fig. 6: Atypical Ductal Hyperplasia of Cribriform Type

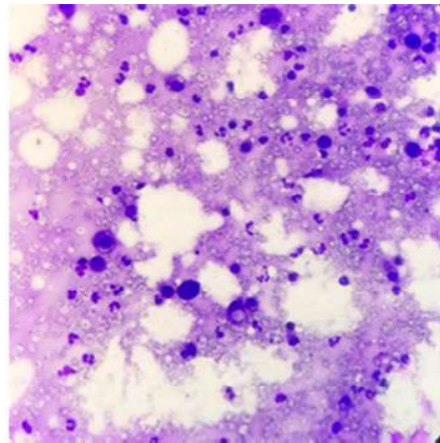


Fig. 7: Macrophages and Inflammatory Cells in Fat Necrosis.

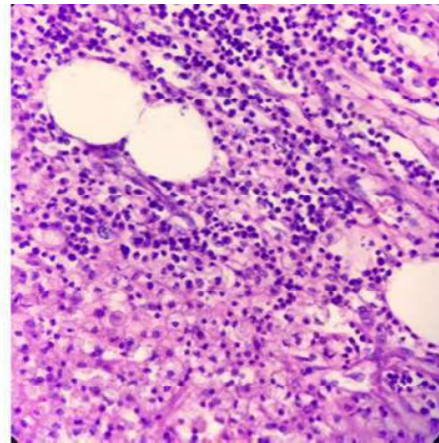


Fig. 8: Histopathology of Fat Necrosis

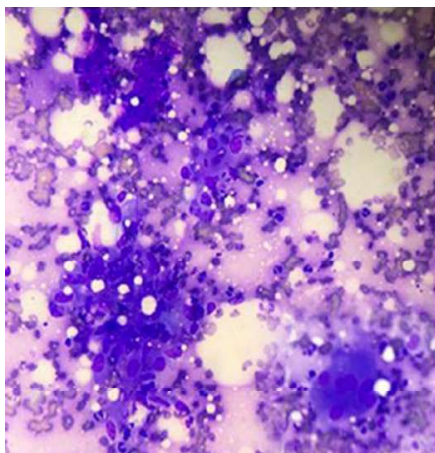


Fig. 9: FNAC of Granulomatous Mastitis

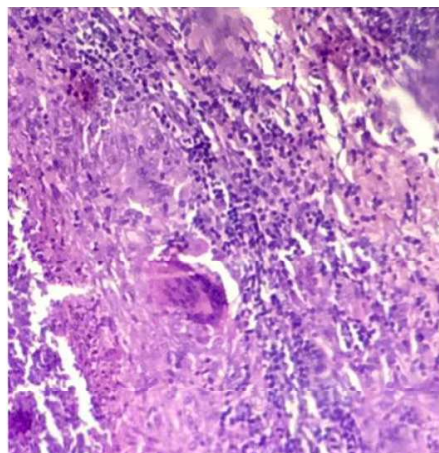


Fig. 10: Histopathology of Granulomatous Mastitis.

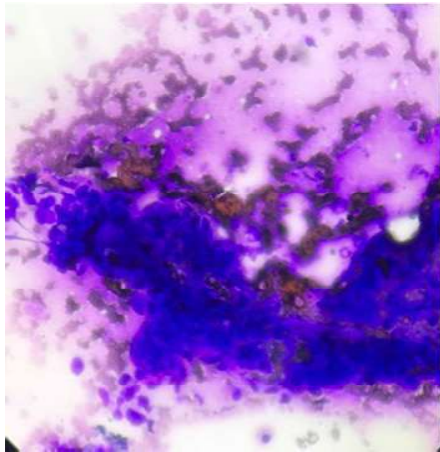


Fig. 11: Fnac of Papillary Carcinoma Breast

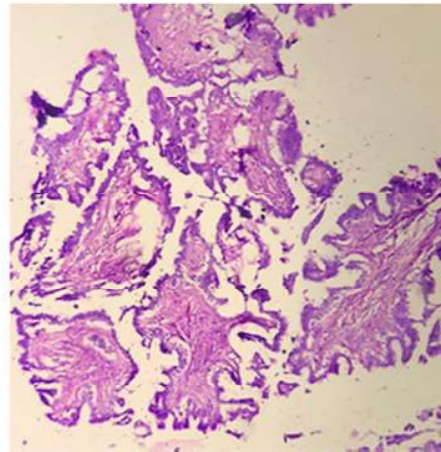


Fig. 12: Histopathology of papillary Carcinoma Breast

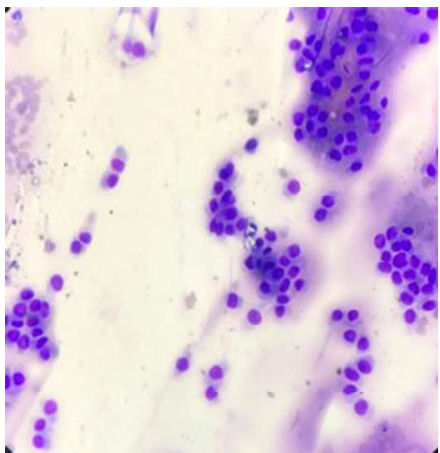


Fig. 13: FNAC of fibrocystic Disease of Breast with Atypia

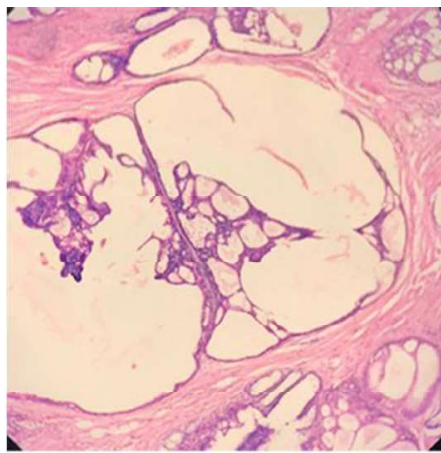


Fig. 14: Histopathology of Fibrocystic Disease of Breast with Atypia

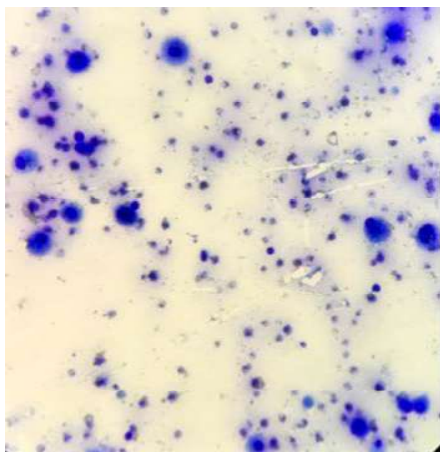


Fig. 15: Fnac of Fibrocystic Disease of Breast Cyst Macrophages.

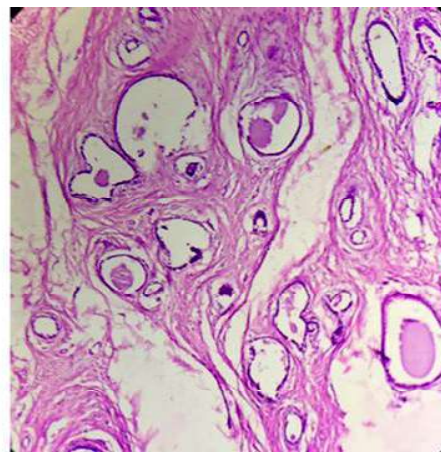


Fig. 16: Histopathology of Fibrocystic Disease of Breast Showing Cyst.

Discussion

The fine needle aspiration cytology (FNAC) has achieved great importance in diagnosis and management of palpable breast lesions. Due to simplicity, safety, and diagnostic accuracy, this procedure has become a widely used adjuvant diagnostic technique in management of breast lumps. So our study found none inadequate smears compared with other previous studies [2]. (Figure 2).

Fibroadenoma is the commonest benign lesion similar to other studies by Fergusons and Shrestha et al. [3,4]. Shrestha et al. and Singh et al. reported that invasive ductal carcinoma was most common malignancy occurring in age group 41-60 years which is similar to our study [4,5].

Most common malignant neoplasm seen in our study was infiltrating duct carcinoma NOS which was well correlated by histopathological features and was similar to study by Sreedevi CH [11], Khema A et al. [6].

Two cases of fibrocystic with atypia and one case of atypical ductal hyperplasia was seen in age group of 21 to 50 years. which is considered as premalignant lesions. Investigators have in fact examined the risk of breast cancer among women with various forms of fibrocystic disease. Particularly high risks have been associated with atypical epithelial hyperplasia [6].

The FNA cytologic diagnostic features of lactating adenoma showed moderately cellular abundant foamy background material, small groups and single epithelial cells with uniform nuclei, fine chromatin and prominent nucleoli. Cytoplasm was finely vacuolated or wispy; many nuclei appeared stripped of their cytoplasm similar to study conducted by Grenko RT [7].

In situ papillary carcinoma is characterized histopathologically by the presence of fibrovascular stroma lined by monomorphic tumor cells with low or intermediate grade nuclei. Papillae are devoid of myoepithelial cells except at the periphery of lesion, on cytology we could identify few papillae but tumor cells were more often in sheets. histopathological features were similar to findings by Sumanta Kumar Pal et al. [8].

Breast tuberculosis is a rare disease with an overall incidence of 3.59% in India, it is a diagnostic challenge as it closely mimics carcinoma of breast [9]. In our study only two cases of granulomatous mastitis were reported and were AFB negative, but patients responded well to antitubercular treatment.

Early screening and diagnosis of breast lesions and categorization into different groups of breast pathology is important. This can be helpful in prevention of cancer and in accurate management of the patients. Early diagnosis helps to prevent patients discomfort and anxiety [10].

Conclusion

FNAC is simple, safe, cost-effective, and accurate method for initial diagnosis and guiding treatment of breast masses. Increased awareness of FNAC as earliest diagnostic tool have led to early diagnosis of Ductal carcinomas and hence increase number of malignancies as compared to previous years.

Conflict of Interests: The authors declared that there is no conflict of interests.

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