

Cytological Evaluation of Breast Lesions with Focus on Cytohistological Correlation: A One Year Study

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Abstract

Breast disease are one of the commonly encountered condition in females. For the diagnostic work -up of these lesions, clinical examination was followed by FNAC pre-operatively and for confirmation histopathological examination has been done. *Aims:* to study cytology of breast lesions followed by cyto-histo correlation, to validate the accuracy of FNAC and histopathology. *Materials and Methods:* Data was collected from 68 cases during feb 2016 to jan 2017. *Results:* Out of 68 cases, 4 were unsatisfactory, 10 were non-neoplastic lesion, 40 were benign, 3 were atypical, 3 suspicious for malignancy and 8 were malignant categories as per cytology. Histologically 10 were non-neoplastic and 44 were benign and 10 were malignant. *Conclusion:* Cyto-histological correlation is the diagnostic tool in classifying the breast lesion and helps in overcoming the pitfalls of cytology.

Keywords: Breast; Ductal Carcinoma.

Introduction

Fine needle aspiration cytology in the study of breast lumps is an established method with high degree of accuracy [1,2]. The triple test, including physical exam, radiologic findings and cytologic evaluation, has demonstrated to be an excellent tool in the diagnosis of palpable lesions [3,6].

In addition, fine needle aspiration biopsy (FNAB) is a well established method for diagnosis of palpable lesions of the breast [4-9]. Bell has stated that accurate cytology was accurate, rapid and of value in the assessment and management of patients in office practice [10]. FNAC is a safe procedure with minimal complications [11]. Cytohistological correlation will therefore prove the diagnostic utility of FNAC and thus need for this study.

Breast lesions are commonly encountered in women. In order to make a reliable pre-operative diagnosis, cytology through fine needle aspiration is a first line diagnostic tool preceded wherever

necessary with mammography. Post-operative histopathological examination is the gold-standard wherever surgery is done as a part of the management.

Materials and Methods

Inclusion Criteria

All patients presenting as breast lump coming to the FNAC section of Department of Pathology, VIMS, Ballari from Feb 2016 to Jan 2017.

Exclusion Criteria

Non-Cooperative Cases

Design

The study is a prospective study conducted on all patients presenting as breast lump attending central diagnostic laboratory, FNAC section, Dept of pathology from the surgical outpatient clinic, VIMS, Ballari. After subjecting the patients to fine needle aspiration as a screening test the findings thus directed to appropriate medical and surgical management. A detailed histopathologic examination is done to complete cyto-histological correlation.

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Method

Fine needle aspiration is performed with a 23 gauge needle and the alcohol fixed smears are stained with haematoxylin and eosin followed by cytological evaluation. Appropriate medical treatment or surgical management with lumpectomy is done for benign lesions and modified radical mastectomy is done for all malignant neoplasms. Subsequent histological sections are subjected to a detailed histopathological examination.

Results

During the period from Feb 2016 to Jan 2017, 68 cases were studied from the patients attending the

outpatient clinic referred to the cytology laboratory of which 4 cases were unsatisfactory and did not come back for further evaluation. 10 (15.6%) are non-neoplastic. 44 (68.7%) were benign and 10 (15.6%) were malignant.

Among the total number of cases, benign lesions were maximum. Age group of patients ranged from 16-70 yrs. benign lesion. Sex wise 60 were female and 8 were male. Maximum number of patients presented with painless lump in the breast 36 cases (56.2%). 23 cases (35.9%) presented with lump with pain. 5 cases (7.8%) with nipple discharge. 35 cases (54.7%) were left laterality.

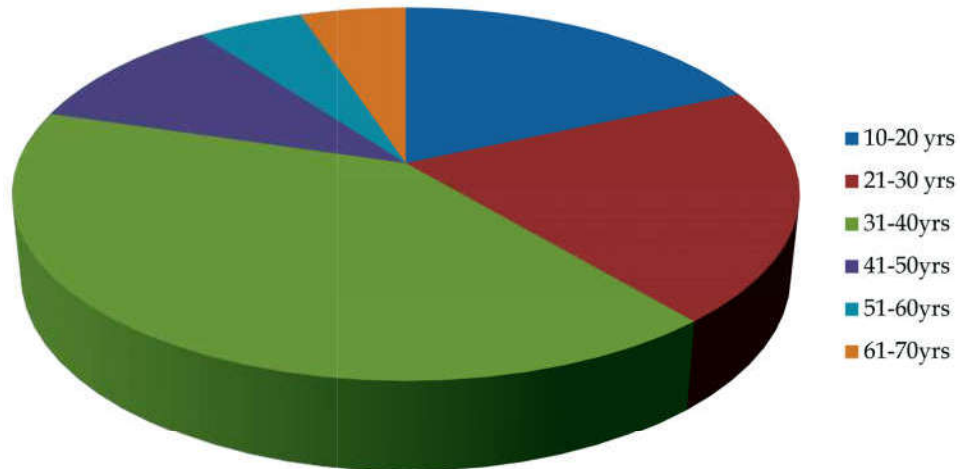
10 cases (15.6%) were bilateral presentation and the remaining were right sided presentation. Quadrant wise upper outer quadrant was maximum 41 cases (60.23)%.

Table 1: Cytological classification of cases

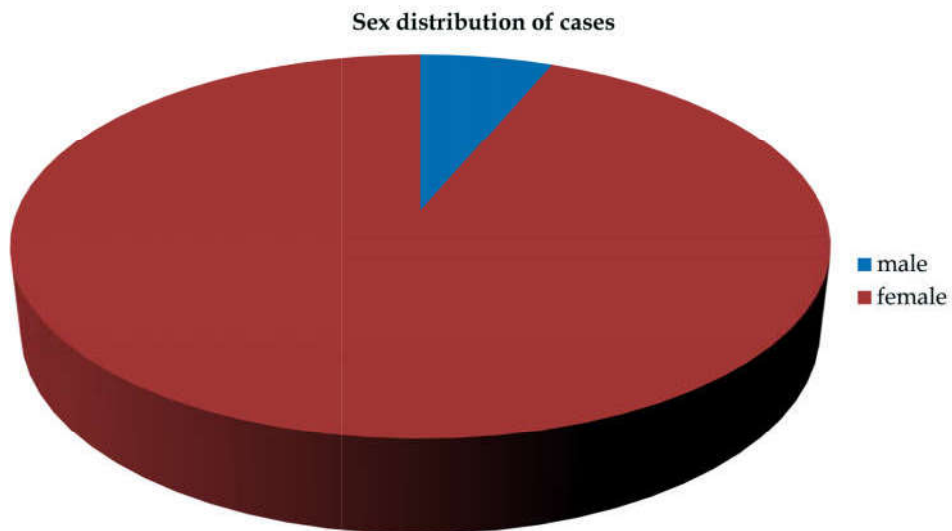
| Category | Percentage | No. of cases |
|---------------------------|------------|--------------|
| Unsatisfactory | 5.9% | 4 |
| Non-specific benign | 14.7% | 10 |
| Specific benign | 58.8% | 40 |
| Atypical | 4.4% | 3 |
| Suspicious for malignancy | 4.4% | 3 |
| Malignant | 11.8% | 8 |

Table 2: Histological diagnosis of cases studied

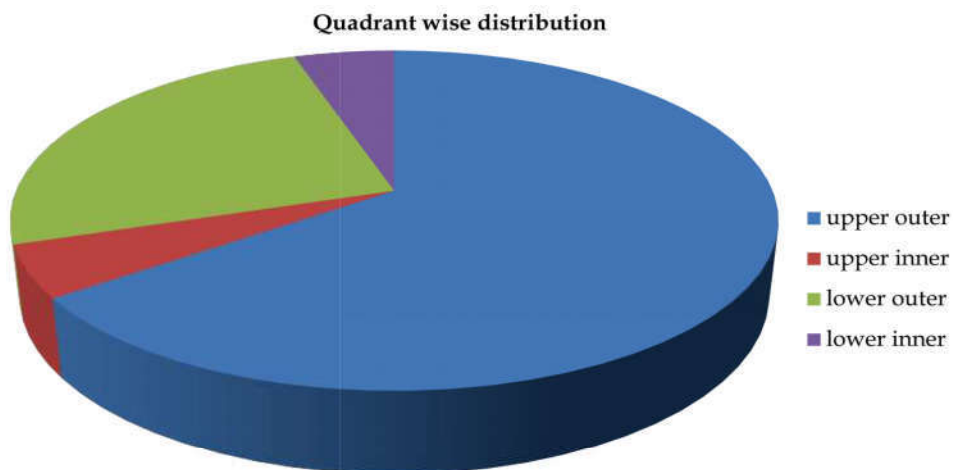
| Diagnosis | Percentage | No. of cases |
|---|------------|--------------|
| Non-neoplastic | | |
| 1. Acute mastitis | 4.69% | 3 |
| 2. Granulomatous mastitis | 7.8% | 5 |
| 3. Sub-areolar abscess | 3.1% | 2 |
| Benign | | |
| 1. Fibrocystic disease | 9.37% | 6 |
| 2. Fibroadenoma | 15.62% | 10 |
| 3. Gynaecomastia | 6.25% | 4 |
| 4. Fibroadenosis | 7.8% | 5 |
| 5. Galactocoele | 3.1% | 2 |
| 6. Lactational adenoma | 3.1% | 2 |
| 7. Tubular adenoma | 1.56% | 1 |
| 8. Atypical ductal hyperplasia | 3.1% | 2 |
| 9. Intraductal papilloma | 1.56% | 1 |
| 10. Pseudoangiomatous stromal hyperplasia | 4.7% | 3 |
| 11. Phyllodes tumour | 6.25% | 4 |
| 12. Ductal carcinoma -in-situ | 3.1% | 2 |
| 13. Sclerosing adenosis | 3.1% | 2 |
| Malignant | | |
| 1. Invasive ductal carcinoma (NOS) | 10.94% | 7 |
| 2. Malignant phyllodes | 1.56% | 1 |
| 3. Lobular carcinoma | 1.56% | 1 |
| 4. Colloid carcinoma | 1.56% | 1 |



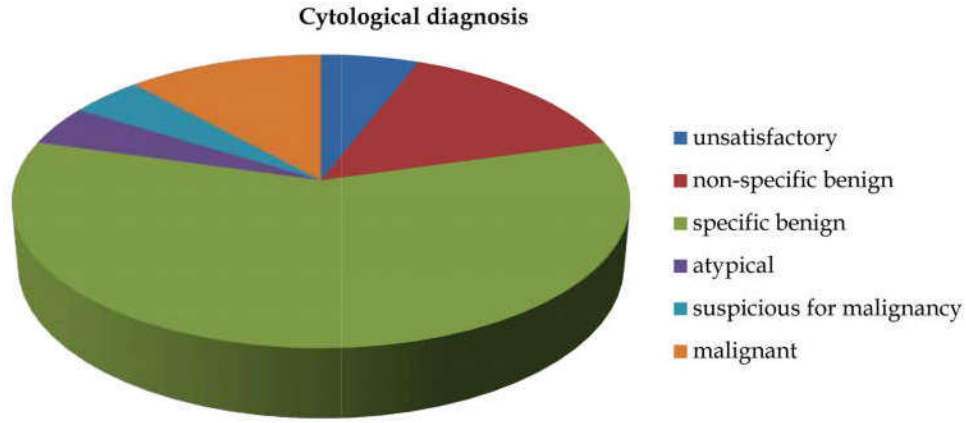
Maximum no. of cases were in the age group between 31-40yrs (40%)
Graph 1: Age -wise distribution of cases



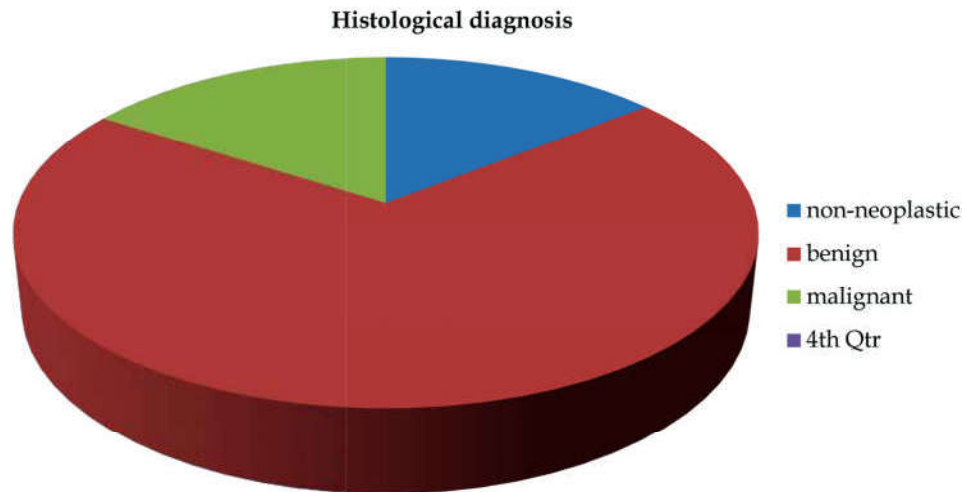
Maximum no. of cases were female (88.2%) 60 cases and the rest were male.
Graph 2: Sex wise distribution of cases



Upper outer quadrant was the most common quadrant for breast lesion in the present study (41 cases) 60%
Graph 3: Quadrant wise distribution of cases.



Maximum number of cases were benign 58.8% 40 cases
Graph 4: Cytological diagnosis of cases



Maximum number of cases was benign 68.75% (44) cases
Graph 5: Histological diagnosis wise distribution of cases

Table 3: Cytohistological correlation

| Sl. No | Cytological diagnosis | No of cases | Histological diagnosis no of cases | No of cases |
|--------|-------------------------------------|-------------|------------------------------------|-------------|
| 1. | Non -specific benign/non neoplastic | 10 | 1.NON NEOPLASTIC | 10 |
| 2. | Benign specific | 40 | 2. BENIGN | 44 |
| 3. | Atypical | 03 | | |
| 4. | Suspicious for malignancy | 03 | | |
| 5. | Malignant | 08 | 3. MALIGNANT | 10 |



Fig. 1. Cytology of folear abscess XH&E

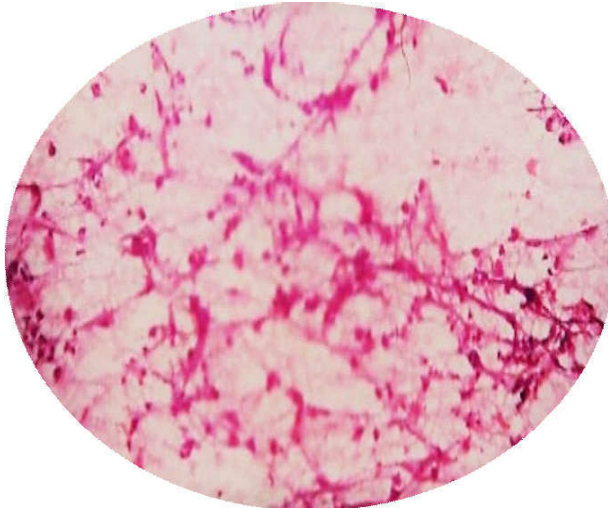


Fig. 2: Cytology of Acute mastitis 10XH&E

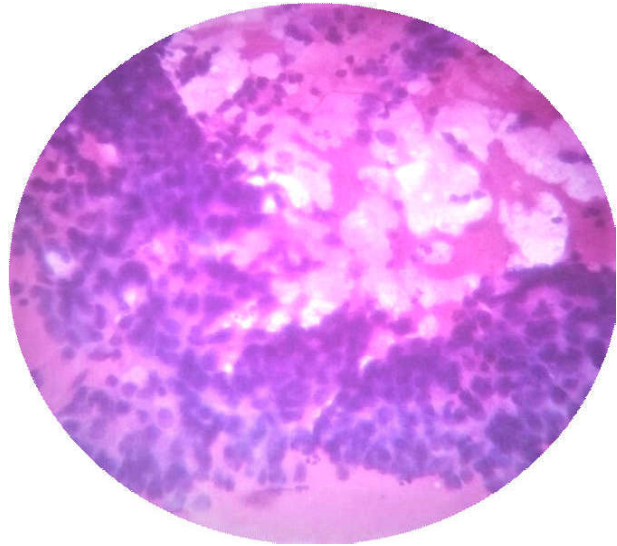


Fig. 5: Cytology of IDC 40XH&E

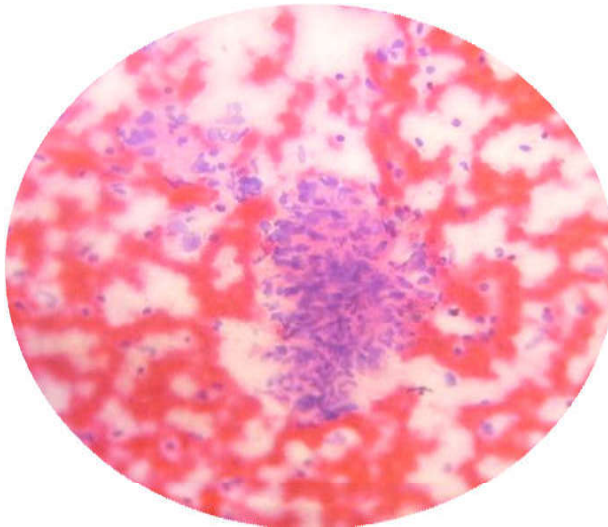


Fig. 3: Cytology Granulomatous mastitis 40XH&E

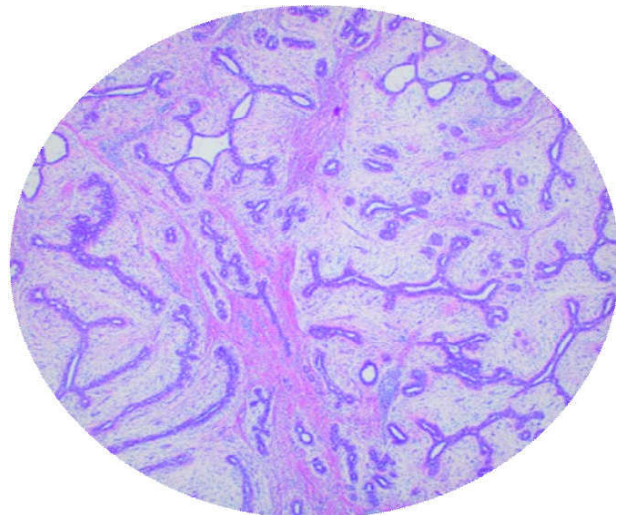


Fig. 6: Histology Fibroadenoma 40XH&E

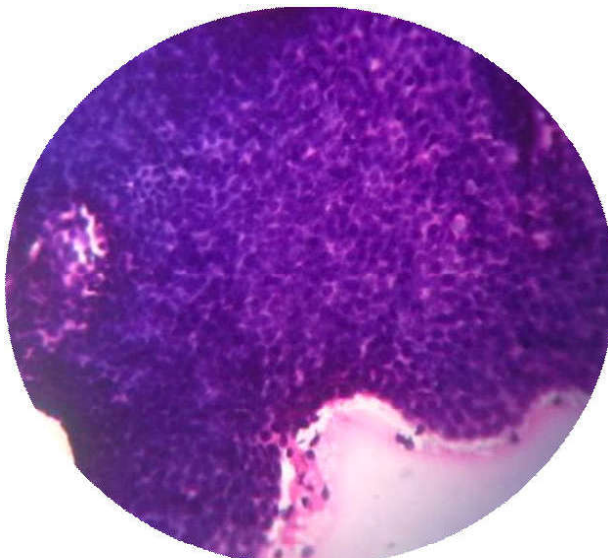


Fig. 4: Cytology of Fibroadenoma 40XH&E

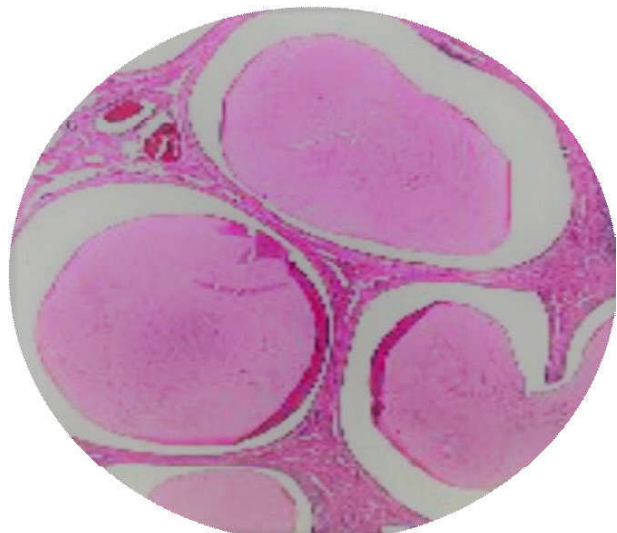


Fig. 7: Histology Galactocele 40XH&E

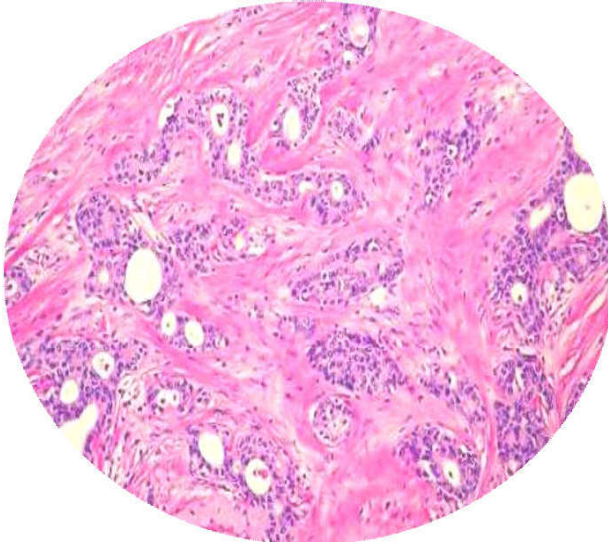


Fig. 8: Histology Invasive ductal carcinoma 40XH&E

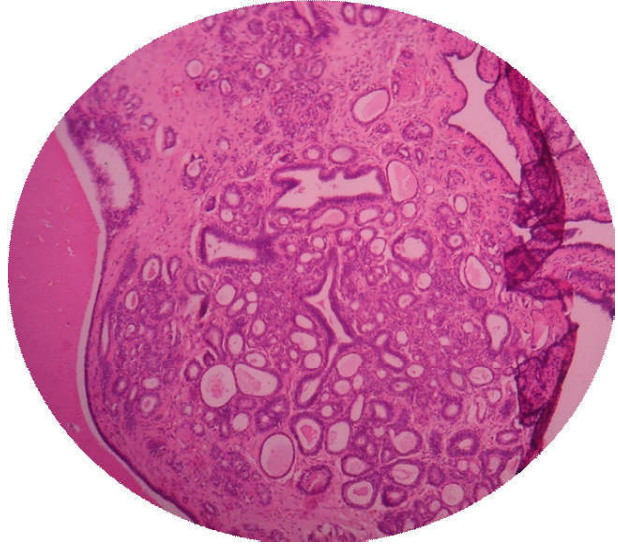


Fig. 11: Histology of Fibrocystic disease 10XH&E

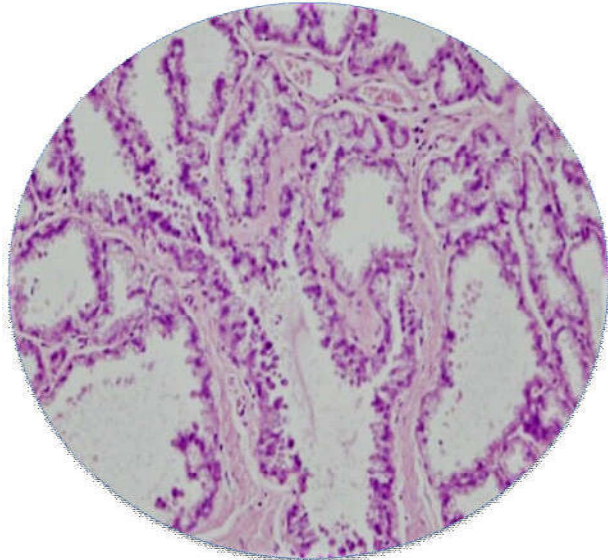


Fig. 9: Histology Lactational adenoma 40XH&E

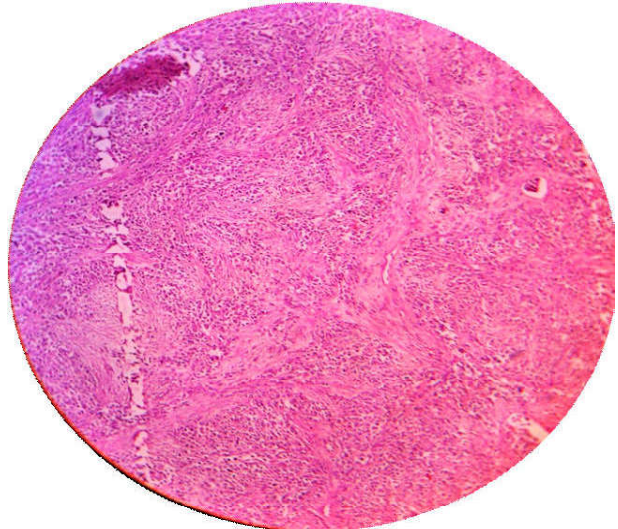


Fig. 12: Histology of Lobular carcinoma 10XH&E

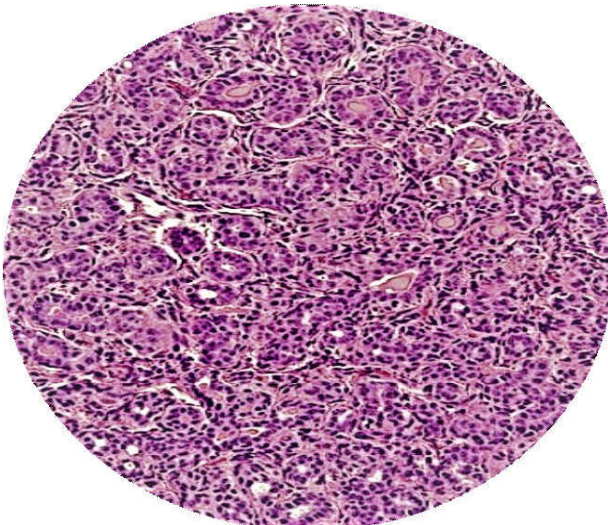


Fig. 10: Histology Tubular adenoma 40XH&E

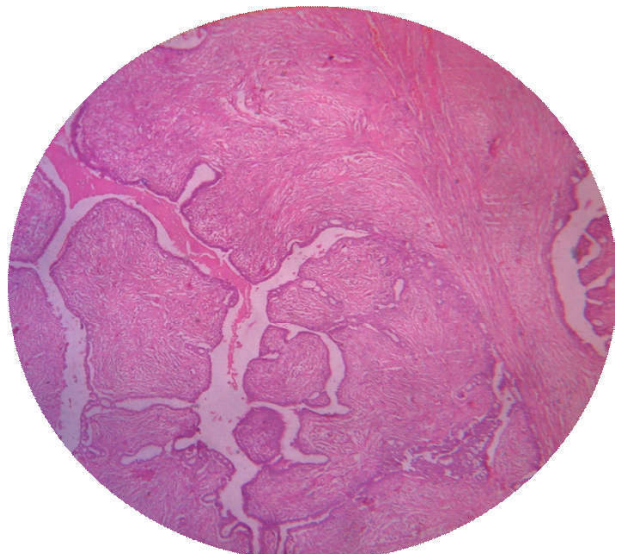


Fig. 13: Histology of Phyllode tumor 10XH&E

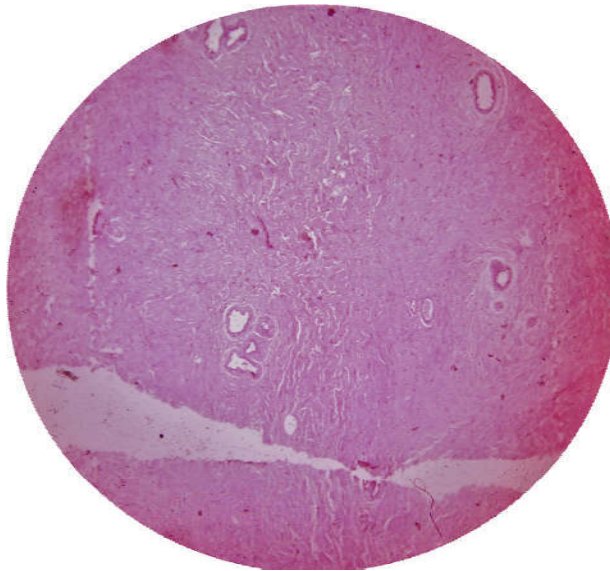


Fig. 14: Histology of Pseudoangiomatous stromal hyperplasia 10XH&E



Fig. 15: Cytology of Malignant phyllodes 40XH&E

Of the atypical category in cytology two case turned out to be benign and one case malignant on histology. Among suspicious for malignancy category in cytology one case turned out to be malignant and two cases were benign on histology.

Discussion

The patients in our study were between 16 and 70 years of age with maximum incidence in the age-group of 31-40yrs (25 cases). The age of all benign cases ranged from 16 to 70 years with a majority of cases being 31-40years. The age of malignant cases ranged from 31-70 yrs with a majority falling in 51-60 yrs.

Hussain et al [15], and khemka [16] et al studied 50 patients and they also found that the maximum number of patients were in the age group of 31-40 years. Khemka et al., observed that benign lesions of breast were more commonly seen in the younger age groups with maximum number of patients found in the age group of 30-34yrs. Ganiat et al., reported maximum number of patients with malignant lesions in the fourth to seventh decade of life.

Among all four quadrants, upper outer quadrant was the most common quadrant for breast lesion in the present study (41 cases) 60%. Hussain et al., and khemka et al., also observed upper and outer quadrant as the commonest site.

Out of 68 cases, 37cases (54.7%) were left laterality. 11 cases (15.6%) were bilateral presentation and the remaining were right sided presentation 20 cases (29.4%).

Hussain et al., reported left breast involvement in 27 patients (54%) and right breast involvement in 23 cases (46%) and concluded that left breast involvement is more common than the right one.

Maximum number of patients presented with painless lump in the breast 38 cases (56.2%). 25 cases (35.9%) presented with lump with pain. 5 cases (7.8%) with nipple discharge

In this study, cytologically 68 cases were studied, of which 4 cases were unsatisfactory (5.9%). Similar inadequacy rate was achieved by Zajdela et al., and Jayaram et al., in their studies on breast masses. Non specific benign category which included non neoplastic lesions were 14.7%, Benign lesions were 58.8%, Atypical lesions were 4.4%, Suspicious for malignancy were 4.4% and malignant cases were 11.8%

Yeoh et al. [12], studied 1533 breast masses on FNAC and found that 70.4% cases were benign and 4.4% cases were malignant, similarly ganiat et al [13] studied 757 cases on FNAC and found that maximum number of cases were benign (50.2%) which was followed by malignant cases (31.4%), suspicious malignant cases (9.5%) and inflammatory cases (benign nonspecific) (7.4%).

Histological diagnosis was available for the 64 cases among which 10 cases (15.6%) were malignant and 44 cases (68.75%) were benign (maximum) and 10 cases (15.6%) were non-neoplastic. The percentage of benign cases in our study was closer to that of yeoh et al

In the present study, 44 cases (68.7%) were benign with maximum number of cases of fibroadenoma (10/64), followed by benign breast lesion with non-

specific descriptive diagnosis (10/64) of which granulomatous mastitis (5/64) was common. Lastly malignant cases were (10/64). Aslam [14] also documented fibroadenoma as the most common benign lesion in their study.

Cytohistological correlation: cytohistological correlation was possible in 64 cases (90.6%). Of the atypical category in cytology two cases turned out to be benign and one case malignant on histology. Among suspicious for malignancy category in cytology one case turned out to be malignant and two cases were benign on histology. Correlation was 100% among nonneoplastic, 91% among benign lesions and 83% among malignant lesions. Grey zones in cytology are atypical and suspicious for malignancy cases were the discrepancy can be solved by histological examination alone.

Conclusion

Our study proves again that FNAC is a pre-operative diagnostic tool showing 90.6% of histological correlation with 100% specificity and 91% sensitivity for benign lesions and 83% sensitivity and 100% specificity for malignant case. However, histopathology is the confirmatory tool in diagnosing all types of breast lesions with 100% sensitivity and specificity which again substantiates the role of histopathological examination in being a guiding light into the grey zones of cytology.

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