Original Research Article

Study of fine needle aspiration cytology of breast lumps and their histopathological correlation among rural population of Vikarabad, TS

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1. Introduction

Breast lumps cause anxiety to the patients due to the underlying fear of malignancy. Although the majority of the lesions are benign, it is very important not only to exclude malignancy but also initiate and plan early treatment when malignancy is diagnosed.

According to a study, the recent trends of Breast cancer in India are as follows

1. Increase in the incidence among younger age group
2. Increase in the overall incidence of breast cancer.
3. Reduced survival rate among breast cancer patients when compared to the patients from other countries.

Benign lesions of the breast are common in the age group 17 to 30 years. Carcinoma breast is the second most common cancer in Indian females after cancer cervix. The incidence has jumped from 7% to 16% in 30 to 40 age group patients. With increasing incidence in younger age groups especially in 30 to 40 age group, there is an urgent need for early diagnosis and treatment of these
patients. False negativity of FNAC does occur; this could be caused by either “true” false-negative cases attributed to suboptimal sampling technique, poor localization of the mass or nonpalpable lesions or “false” false-negative cases due to interpretational errors.¹

Small tumour size, certain types of tumour and lesions difficult to palpate are causes of reduced sensitivity.²

Fine needle aspiration cytology is a good diagnostic tool in evaluating these patients, as it aids in early, accurate diagnosis of malignancy in these patients without subjecting them to the trauma of surgical excision biopsy.³,⁴ Further it also helps in evaluating the prognostic index in these patients (Nuclear grade, Mitotic activity, number of nucleoli, Hormone status).⁵

The present study was carried out with the aim of studying the effectiveness of FNAC in the diagnosis of malignant lesions of the breast and also to know the frequency of various lesions on FNAC and its Histopathological correlation, in a rural set up.

2. Materials and Methods

This is a retrospective study carried out in the department of Pathology, MIMS, Vikarabad. All the 95 cases of breast lump subjected to FNAC s between April 2019 to March 2020 were analyzed and correlated with their histopathology findings. Approval was obtained from Institutional Ethical Committee.

FNAC were done using 23 Gauge needle attached to a 10 cc disposable syringe. The smears were stained with Papanicolaou stain after fixation in 95% alcohol. Histopathological findings were noted in patients who underwent either biopsy or mastectomy. Statistical analyses were done to find out the accuracy of FNAC in diagnosing malignancy in the breast and compared to histopathology findings.

Inadequate samples were repeated twice or thrice, and the degree of success was improved with consecutive repeating approaches.⁶

3. Results

The cytological study of 95 FNAC of breast done between April 2019 to March 2020 showed that 76 cases were benign, 2 cases were atypical, 3 were suspicious of malignancy, 10 cases were diagnosed as malignant. The findings in 4 cases was unsatisfactory.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Cytology Findings</th>
<th>No of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benign</td>
<td>76</td>
<td>80%</td>
</tr>
<tr>
<td>2</td>
<td>Atypical</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>3</td>
<td>Suspicious of malignancy</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>4</td>
<td>Malignant</td>
<td>10</td>
<td>10%</td>
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<tr>
<td>5</td>
<td>Unsatisfactory</td>
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<td>5%</td>
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<tr>
<td>Total</td>
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<td>95</td>
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</table>

Table 1: Cytological diagnosis of Breast lumps

Of the 76 benign cases identified by FNAC majority were fibroadenoma -55, followed by fibrocystic disease -15, suppurative inflammation i.e abscess -4, and phyllodes tumor -1. The cytological spectrum of 10 malignant cases showed that 8 cases were IDC and 1 each of medullary carcinoma and lobular carcinoma. In our study the benign lesions of the breast were seen in the age group 17 to 55 years, whereas malignant lesions were observed mostly in the age group 35 to 75 years.

Histopathological correlation was obtained for 75 cases which underwent FNAC. Of these 75 cases 56 were diagnosed as benign by FNAC. In these cases Histopathology of 56 was fibroadenoma, 4 cases showed atypical ductal hyperplasia. 2 Cases diagnosed as atypical on FNAC, turned out to be fibrocystic disease with apocrine metaplasia on histopathology. 3 cases which were suspicious on cytology were diagnosed to be malignant lesions on histopathology the histopathology of 10 cases diagnosed by FNAC as malignant was the same in histopathology and there was no disparity. The three cases which were unsatisfactory on FNAC were biopsied and showed malignancy in 2 cases and benign histopathology in one case.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Histopathology Findings</th>
<th>No of cases</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Benign</td>
<td>56</td>
<td>74%</td>
</tr>
<tr>
<td>2</td>
<td>Atypical ductal hyperplasia</td>
<td>4</td>
<td>5%</td>
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<tr>
<td>3</td>
<td>Malignant</td>
<td>15</td>
<td>21%</td>
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<tr>
<td>Total</td>
<td></td>
<td>75</td>
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Table 2: Histopathological diagnosis of the Breast lumps

Fig. 1: Cytology of fibroadenoma
<table>
<thead>
<tr>
<th></th>
<th>Fibroadenoma</th>
<th>Fibrocystic disease</th>
<th>Phylloides</th>
<th>Atypical ductal hyperplasia</th>
<th>Malignant</th>
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</thead>
<tbody>
<tr>
<td>FNAC</td>
<td>55</td>
<td>15</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Biopsy</td>
<td>56</td>
<td>15</td>
<td>1</td>
<td>4</td>
<td>15</td>
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Infiltrating duct cell carcinoma - 12
Medullary carcinoma - 1
Lobular carcinoma - 2

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<td></td>
<td></td>
<td>Infiltrating duct cell</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>carcinoma Castle</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Carcinoma - 1</td>
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</table>

**Fig. 2:** Histopathology of fibroadenoma

**Fig. 3:** Histopathology of phylloides tumour

**Fig. 4:** Cytology of infiltrating duct cell carcinoma-breast

**Fig. 5:** Histopathology of infiltrating duct cell carcinoma

Table 3: Comparison of FNAC and Biopsy results
4. Discussion

FNAC is reported to be 98% accurate in diagnosing benign breast lesions and 85.7% accurate for malignant lesions. In our study the incidence of benign lesions is 80% with FNAC, and 74% in biopsy. In our study two cases were reported as suspicious of malignancy and advised biopsy to rule out malignancy, to prevent unnecessary radical surgeries. Two cases diagnosed as atypical on FNAC turned out to be fibrocystic disease with apocrine metaplasia on histopathology. The cases with unsatisfactory smears were biopsied and found to be fibroadenoma-1 case and malignant lesions-2 on histopathology. The false positive diagnosis is due to presence of apocrine metaplasia in our study. Technical inexperience and observer inexperience also account for false negative diagnosis in these cases. The overall sensitivity and specificity for FNA was 83 and 92% respectively.

There were no false-positive cases, indicating a positive predictive value of 100% for a diagnosis of malignancy.

Fine needle aspiration of persistent palpable dominant breast masses allows expeditious and potentially cost-effective management of most cases and decreases the necessity of open surgical biopsy for definitive diagnosis.4,7

5. Conclusion

Fine needle aspiration cytology is an accurate and time conserving method in diagnosing benign and malignant lesions of the breast. False positive diagnosis can be reduced by Tru cut needle biopsy in suspicious cases. The material can be used for molecular studies as well. It is a safe and accurate outpatient method for diagnosing palpable lesions of the breast.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare that there is no conflict of interest.

References


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