



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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ABSTRACT

Introduction: Breast lumps are very common in patients presenting to the outpatient department. Most of them are benign lesions and the malignant lesions are diagnosed with the help of FNAC and ultrasonography. Carcinoma breast is the second most common cancer after cancer cervix.

FNAC is a safe, reliable, time saving and cost effective procedure useful in the diagnosis of carcinoma breast. It helps the surgeon in planning the treatment, and thereby reducing the delay in treatment.

The present study is done with the aim of studying the incidence of various breast lesions on FNAC and their Histopathological correlation among rural population of Vikarabad.

Materials and Methods: This is a retrospective study carried out in the Department of Pathology, MIMS, Vikarabad. 95 FNACs conducted in the department of Pathology from April 2019 to March 2020 were analysed. Of these 75 cases were subjected to histopathological examination.

Results: Of the 95 cases studied by Fine needle aspiration cytology, 76 were Benign and 10 were malignant. In 4 cases the aspirate was unsatisfactory and 2 cases were diagnosed as atypical. 3 cases were diagnosed as suspicious of malignancy. 75 cases were removed by either excision biopsy or Modified radical mastectomy and evaluated by histopathological examination the age group of the patients ranged from 18 to 70 years. Of the 76 cases diagnosed as Benign by FNAC, two cases showed atypical ductal hyperplasia on histopathology. Two cases diagnosed as atypical turned out to be fibrocystic disease with apocrine metaplasia. Three cases diagnosed as suspicious for malignancy were confirmed to be malignant lesions on histopathology. All the 10 cases diagnosed as malignant on FNAC were confirmed to be malignant on histopathology.

Conclusion: FNAC is a useful tool to diagnose malignant lesions of the Breast and they aid the surgeon in differentiating benign and malignant lesions. They help in quick and effective management of malignant lesion of the breast and thereby reduce the mortality in these patients.

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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

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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.

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

Table 1: Cytological diagnosis of Breast lumps

S.No.	Cytology Findings	No of cases	%
1	Benign	76	80%
2	Atypical	2	2%
3	Suspicious of malignancy	3	3%
4	Malignant	10	10%
5	Unsatisfactory	4	5%
	Total	95	

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.

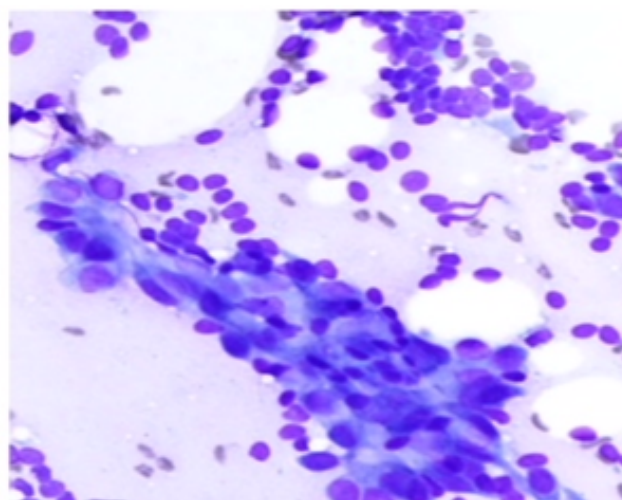


Fig. 1: Cytology of fibroadenoma

Table 2: Histopathological diagnosis of the Breast lumps

S.No.	Histopathology Findings	No of cases	%
1	Benign	56	74%
2	Atypical ductal hyperplasia	4	5%
3	Malignant	15	21%
	Total	75	

Table 3: Comparison of FNAC and Biopsy results

	Fibroadenoma	Fibrocystic disease	Phylloides	Atypical ductal hyperplasia	Malignant
FNAC	55	15	1	2	10 15
Biopsy	56	15	1	4	Infiltrating duct cell carcinoma -12 Medullary carcinoma-1 Lobular carcinoma-2

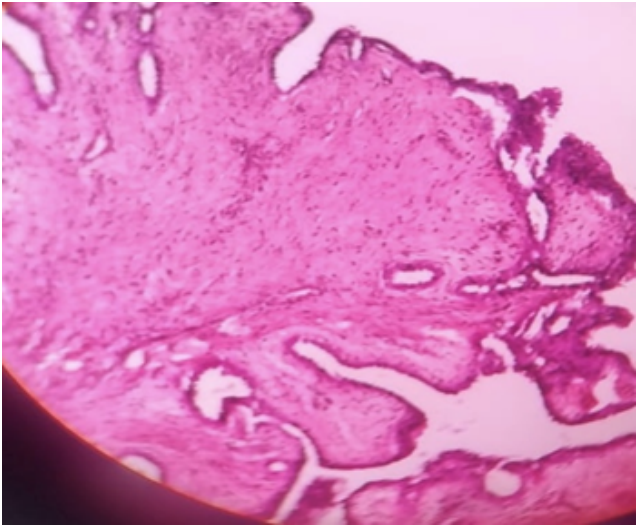


Fig. 2: Histopathology of fibroadenoma

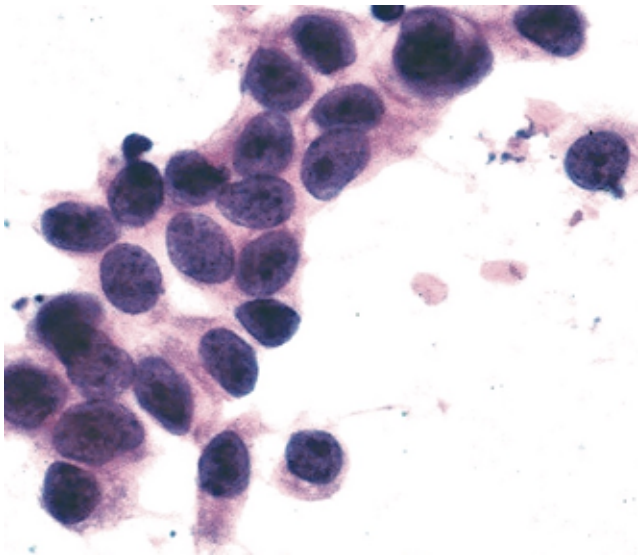


Fig. 4: Cytology of infiltrating duct cell carcinoma-breast

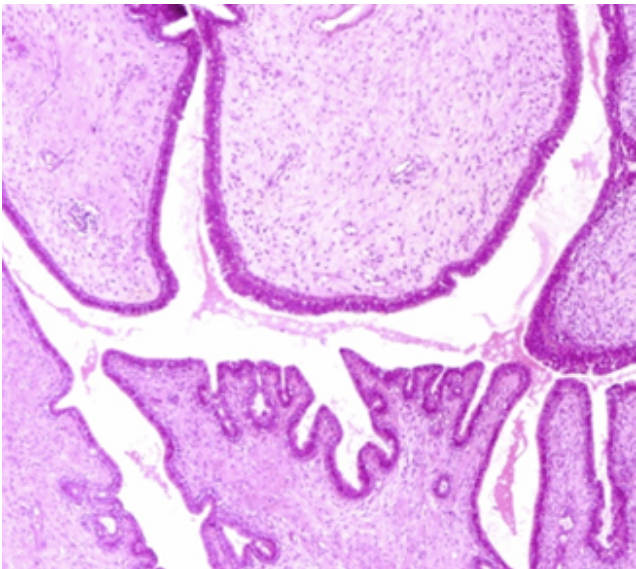


Fig. 3: Histopathology of phylloides tumour

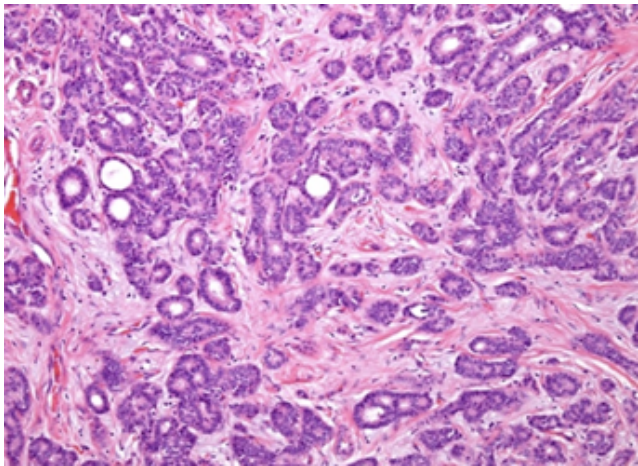


Fig. 5: Histopathology of infiltrating duct cell carcinoma

4. Discussion

FNAC is reported to be 98% accurate in diagnosing benign breast lesions and 85.7% accurate for malignant lesions.² 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 out Patient 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

1. Mendoza P, Lacambra M, Tan PH, Tse GM. Fine Needle Aspiration Cytology of the Breast: The Nonmalignant Categories. *Pathol Res Int*. 2011;2011:1–8. doi:10.4061/2011/547580.
2. Brown LA, Coghill SB. Fine Needle Aspiration Cytology of the Breast: Factors Affecting Sensitivity. *Cytopathology*. 1991;2(2):67–74. doi:10.1111/j.1365-2303.1991.tb00389.x.
3. Rosa M, Mohammadi A, Masood S. The value of fine needle aspiration biopsy in the diagnosis and prognostic assessment of palpable breast lesions. *Diagn Cytopathol*. 2012;40(1):26–34. doi:10.1002/dc.21497.
4. Day C, Moatamed N, Fimbres AM, Salami N, Lim S, Apple SK. A retrospective study of the diagnostic accuracy of fine-needle aspiration for breast lesions and implications for future use. *Diagn Cytopathol*. 2008;36(12):855–60. doi:10.1002/dc.20933.
5. Hindle WH, Payne PA, Pan EY. The use of fine-needle aspiration in the evaluation of persistent palpable dominant breast masses. *Am J Obstet Gynecol*. 1993;168(6):1814–9. doi:10.1016/0002-9378(93)90695-f.
6. Bukhari MH, Arshad M, Jamal S, Niazi S, Bashir S, Bakhshi IM, et al. Use of Fine-Needle Aspiration in the Evaluation of Breast Lumps. *Pathol Res Int*. 2011;2011:1–10. doi:10.4061/2011/689521.
7. Mahajan NA, Bhale CP, Mulay SS. Fine needle aspiration cytology of breast lesions and correlation with histopathology- A 2 year study. *Int J Health Sci Res*. 2013;3(2):55–65.

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