

Study of Fine Needle Aspiration Cytology of breast lesion with histological correlation in a tertiary care centre at Rajkot, Gujarat, India

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Abstract

Introduction: Nationwide breast cancer has 2nd of the most frequently occurring cancer in females.

Method: A retrospective study was conducted at tertiary care centre, Rajkot for a period of 5 months. A total of 120 cases from all age group were enrolled. Clinical details of all the patients were taken. Classification of the patients was done based on diagnostic profile.

Results: While assessing the 120 patients we find 91 were benign and 29 were malignant on a cytological interpretation while we conclude additional 21 benign cases and only 8 malignant cases with the help of histopathological overlooking. Hence Sensitivity, Specificity, Positive Predictive Value and Negative Predictive value were 80%, 100%, 100% and 90.47% respectively. This study has given us accuracy of 93.1 %.

Conclusion: Breast cancer being the 2nd most common cancer in females as well as due to its raising cases in younger age group demands less invasive, less expensive and less time consuming diagnostic procedure which is

fairly fulfilled by FNAC as it gives off higher accuracy measures. Further FNAC correlation with histopathology proves its usefulness as a first line diagnostic procedure in any palpable lump on breast.

Keywords: Fine Needle Aspiration Cytology, Histopathology.

Introduction

Breast lesions are among those frequently noticed ones affecting females in many parts of the world. It contributes around 25% of total cancer cases come from breast cancers. And also has record to be responsible for 15% of all cancer deaths among females. Diagnosis of breast lump can be lifesaving if done timely and accurately. Fine-needle aspiration cytology (FNAC) is being implemented as a simple, safe, less expensive method. With so much of wide acceptance, it has made an image of a first-line diagnostic procedure.

Aims and Objectives

The aim of the study cytological features of breast lesions to detect nature (Benign and malignant) of the lesion and

to reach a provisional diagnosis. For deciding sensitivity and specificity diagnosis made by FNA procedure we correlate it with histopathological examination at our institute only. To guide treatment decisions and management plans and provide prognostic information and predict patient outcomes.

Materials and Methodology

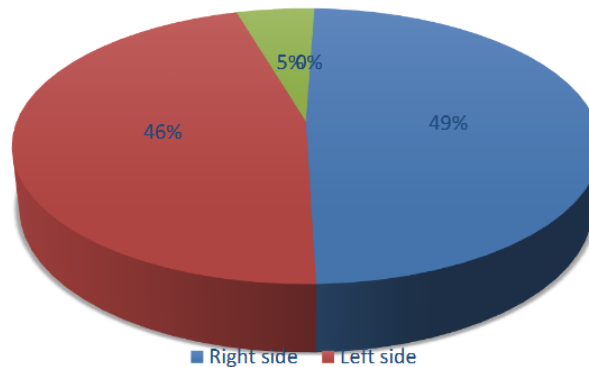
This was retrospective study carried out in Pathology department of PDU Medical College and Hospital, Rajkot. This study was done from 1st August 2024 to 31st December 2024. FNAC of breast lesions was done by using 22-24G needle with disposable syringes and smears are prepared and stained with H and E stain. Histopathological correlation was done wherever available on Tru-cut biopsies, excisional biopsies and surgical specimens received.

Results

Among 120 cases, 91 cases were benign (Neoplastic and Non Neoplastic) and 29 were malignant on cytology. Out of this 29 cases underwent histological examinations in which 21 were benign and 8 were malignant on cytology. Out of total, 19 cases were proved to be benign on histology also, but 2 cases were found malignant in histology out of 21 cases that were found benign in cytology, so that 2 cases were false negative. The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of present study were 80%, 100%, 100%, 90.47% and 93.1% respectively.

Age wise distribution of breast lesions (on cytology) are as follows:

Age	Benign(neoplastic + non neoplastic)	Malignant
11-20	20%	0%
21-30	41%	2%
31-40	16%	15%
41-50	10%	20%
51-60	7%	20%
61-70	4%	38%
71-80	1%	5%
81-90	1%	1%

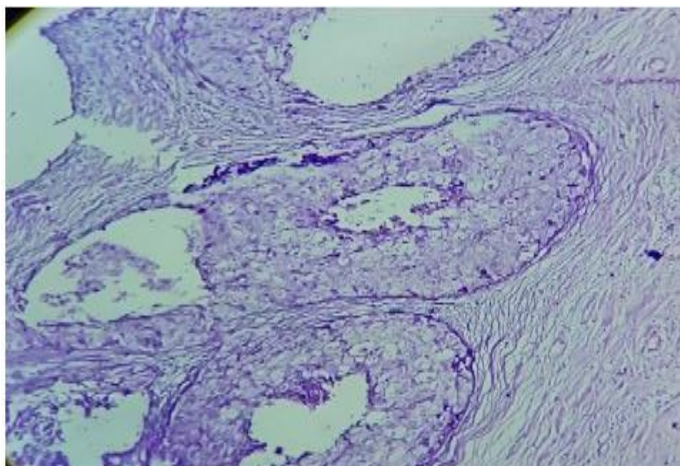


Lesions	Frequency	Percentage
Inflammatory	4	3%
Fibroadenoma	77	65%
Benign proliferative breast lesions	10	8.5%
Atypical ductal hyperplasia	10	8%
Invasive carcinoma - No special type	09	7.5%
Invasive ductal carcinoma	8	6%
Lobular carcinoma	2	2%

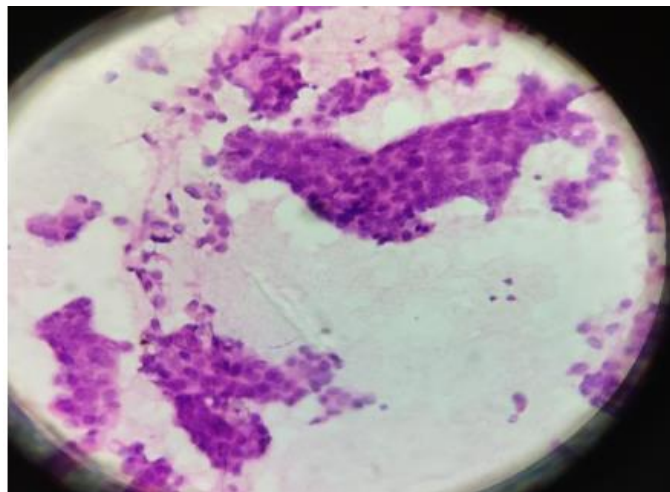
Histo-cytocomparison

Diagnosis cytology	Malignant on histology	Benign on histology	Total
Malignant	08	00	08
Benign	02	19	21
Total	10	19	29

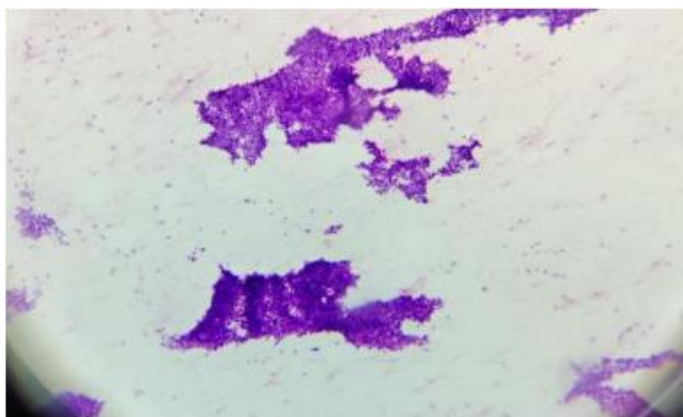
So, here 02 cases were diagnose as a false negative & false positive were 00.



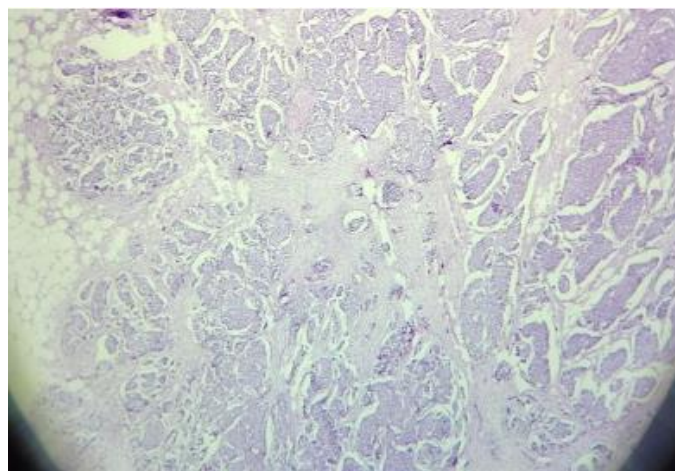
Ductal carcinoma in situ (Histology): showing Malignant cells are found within the duct not invading into surrounding tissue. H&E STAIN (40X).



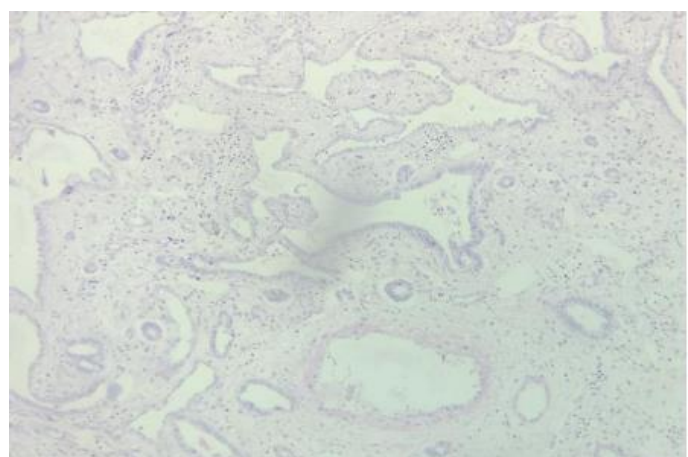
Ductal carcinoma of breast (cytology): Smear shows pleomorphic ductal cells arranged into sheets and clusters. H&E STAIN (40x)



Fibroadenoma (cytology): Smear shows mono layered sheet of benign ductal cells. H&E STAIN (10x)



Invasive Ductal carcinoma of Breast (Histopathology): Histopathological image shows obliteration of stroma by proliferating and back to back arranged glands. H&E STAIN (40x)



Fibroadenoma (Histopathology): Histopathological image shows more glandular than stromal proliferation. H&E STAIN (10x)

Discussion

The use of FNAC is justified owing to the procedure which has so many advantages in terms of less expensive, less invasive, with showing less complications, and for giving an early preoperative diagnosis. In this study, from 14 to 82 years of age is being considered into. 21–30 years age group harbours maximum numbers of benign cases, which is also reflected similarly in a study done by Shanmugasamy et al.⁷ and Gupta.³ The most common age group was second

decade for benign breast lesions and sixth decade for malignant breast lesions. Most commonly involved quadrant is upper outer, which is also seen in a study done by Kosthi et al.⁸

Conclusion

The FNAC is very mindful, competent and cost effective primary alternative to more expensive, much invasive and time consuming other approaches. Thus for the decisive invasive and noninvasive management of breast lump FNAC can be considered as a part of first line diagnostic work up. The FNAC is an important test in palpable breast lump, the result shows a high degree of correlation with a final histological report.

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