

EVALUATION OF THE ROLE OF FINE-NEEDLE ASPIRATION CYTOLOGY IN DIAGNOSIS OF BREAST LESIONS AND CORRELATION WITH HISTOPATHOLOGICAL EXAMINATION

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Received: 14 May 2023, Revised and Accepted: 22 September 2023

ABSTRACT

Objectives: The aim of this study is to assess the accuracy of fine needle aspiration cytology (FNAC) in the diagnosis of breast lesions in correlation with histopathological findings.

Methods: This is a retrospective study for a period of 1 year of all the cases of breast lesions that were referred to the pathology department for FNAC and these patients were subjected to excisional biopsy/incisional biopsy/mastectomy.

Results: In duration of 1 year of study, we received a total of 76 cases with complaints of breast lump. The frequency of benign breast lesions was higher in the range of 20–40 years and the frequency of malignant lesions was higher among the age group of 41–60 years. Out of 76 cases, 40 (52.6%) cases were of fibroadenoma, two (2.6%) cases were of abscess, two (2.6%) cases were of fibrocystic disease, two (2.6%) cases were of lactating adenoma and 30 (39.5%) cases were of a malignant lesion. Among the total of 76 cases, 46 cases were non-malignant and 30 cases were malignant on cytological examination. Forty-six non-malignant cases diagnosed on FNAC were correlated with histopathology examination. Two false negative cases were reported which were diagnosed as benign breast lesions turned out to be malignant on histopathological examination. Out of 30 diagnosed malignant lesions on FNAC, all were consistent with histopathology examination. In our study, the incidence of benign breast lesions is 57.9%, and malignant breast lesions are 39.5%, respectively.

Conclusion: Our study states that reporting and findings of FNAC were closely correlated with the histopathological diagnosis in accordance with National Cancer Institute guidelines. FNAC has significant diagnostic value in differentiating breast lumps for further operative management. Awareness of breast cancer is a must and much needed in developing country like India which can be achieved by proper education, prevention, early detection, and proper management of breast lesions.

Keywords: Breast, FNAC, Histopathology

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INTRODUCTION

Breast carcinoma is one of the most common carcinomas among the women.

Fine needle aspiration cytology (FNAC) is part of a TRIPLE APPROACH for the diagnosis of breast lumps, that is, (a) Clinical examination, (b) Imaging, and (c) Biopsy (FNAC and core biopsy) [1].

FNAC is most widely used for breast lumps and replacing excisional or incisional breast biopsy. The main advantage of FNAC is that it can be done in out patient department without anesthesia [2]. Thus FNAC is considered valuable diagnostic technique because of its simplicity, reliability, cost- effectivity, and with minimal complications [3]. In our study, we will determine the accuracy of FNAC in breast lesions which can whether replace invasive techniques such as incisional and excisional biopsies as a primary diagnostic modality.

Aims and objective

The aim of this study is to assess the accuracy of FNAC in the diagnosis of breast lesions in correlation with histopathological findings.

Study type

Retrospective and observational type of study.

Duration

January 1st, 2022 to December 30, 2022.

Study sample size

In our study, 76 cases were studied.

Inclusion criteria

All female patients presented with breast lumps/lumps undergoing FNAC followed by excisional biopsy or incisional biopsy or mastectomy.

Exclusion criteria

The following criteria were excluded from the study:

- Patient with recurrent malignancies
- Patient who underwent FNAC but did not undergo subsequent biopsy or lumpectomy
- Patient undergoing chemotherapeutic treatment
- Male patient with breast lesion.

METHODS

In this study total of 76 female patients were selected who presented with breast lump, referred to the department of Pathology in Parul Sevashram Hospital, Vadodara for a period of 1 year from January 1, 2022 to December 30, 2022.

Approval was sought from the Institutional Ethical Committee before start of the study. written consents were taken from the patients after explaining the details of the procedure. The FNAC was carried out using 22–24 gauge needles. Minimum 0.2 cc of material was aspirated and at least 4 smears were prepared. One smear was air dried and stained with

Giemsa stain and the rest of them were fixed with methanol and stained with hematoxylin, eosin, and papanicolaou stain. smears were carefully examined for microscopic examination for cytopathological diagnosis.

These patients were subjected to excisional biopsy/incisional biopsy/mastectomy. Gross examination and sectioning of tissue/specimen were done. The tissue obtained was fixed, processed, and stained by hemaroxvlin and eosin techniques followed hv microscopic examination for histopathological diagnosis.

RESULTS

In 1 year of study, we received a total of 76 cases with complaint of breast lumps. Here, a total of three types of lesions were identified; (1) Inflammatory breast lesion, (2) Benign breast lesion (fibroadenoma, fibrocystic disease of breast, and lactating adenoma), and (3) Malignant breast lesion.

In this study, it was found that eight cases were between the age group of 11–20 years, 16 cases were among the age group of 21–30 years, 14 cases were from the age group of 31–40 years, 22 cases were found in the range of 41–50 years and 16 cases were among the age group of 51–70 years. The frequency of benign breast lesions was higher in the range of 20–40 years and the frequency of malignant lesions was higher among the age group of 41–60 years (Chart 1).

Out of 76 cases, 40 (52.6%) cases were of fibroadenoma, two (2.6%) cases were of abscess, two (2.6%) cases were of fibrocystic disease, two (2.6%) cases were of lactating adenoma and 30 (39.5%) cases were of the malignant lesion (Table 1 and Chart 2).

Among the total of 76 cases, 46 cases were non-malignant and 30 cases were malignant on cytological examination. Forty-six non-malignant cases diagnosed on FNAC were correlated with histopathology examination. Two false negative cases were reported which were diagnosed as benign breast lesions turned out to be malignant on histopathological examination. Out of 30 diagnosed malignant lesions on FNAC, all were consistent with histopathology examination. In our study, the incidence of benign breast lesions is 57.9% and malignant breast lesions are 39.5%, respectively.

DISCUSSION

Breast lump is one of the most common presenting complaints of women at surgical outpatient departments of hospitals in our country. Hence, prevention and early detection of breast carcinoma are very important in reducing mortality [4]. The application of FNAC was introduced by Martin and Ellis in 1930. It plays an important role in evaluating breast lesions in developing country like India [1]. FNAC is an easy procedure, costing less money, reliable along with rapid diagnosis resulting in the least complications during the procedure [5]. The main role of FNAC is to diagnose breast lesions and reduce unnecessary surgeries, which is why it is accepted as the first-line diagnostic procedure in patients with breast lesions [5].

In this retrospective study, a total of 76 cases for FNAC were studied. Out of these 30 cases were diagnosed as malignant and the remaining 46 cases were diagnosed as benign breast lesions. Two cases that were diagnosed as benign breast lesions on FNAC turned out to be malignant on histopathological examination proving to be sensitivity of 95.6%. Rest 30 cases that were diagnosed as malignant on FNAC were also confirmed by histopathological examination proving to be specificity of 100%. Maximum number of benign cases is represented between the age group of 20 and 40 years. The maximum number of malignant cases belongs to the age group of 40–60 years. Among the benign patients, a maximum number of patients were diagnosed fibroadenoma.

Common presenting symptoms include palpable breast lump, nipple discharge, pain, and redness. Triple assessment of breast lump comprises clinical examination, radiological findings, and pathological

Table 1: Cytological diagnosis of breast lesions

Breast lesion type	Number of cases	Percentages
Breast abscess	02	2.6
Fibroadenoma	40	52.6
Fibrocystic disease	02	2.6
Lactating adenoma	02	2.6
Malignant lesion	30	39.5
Total	76	100

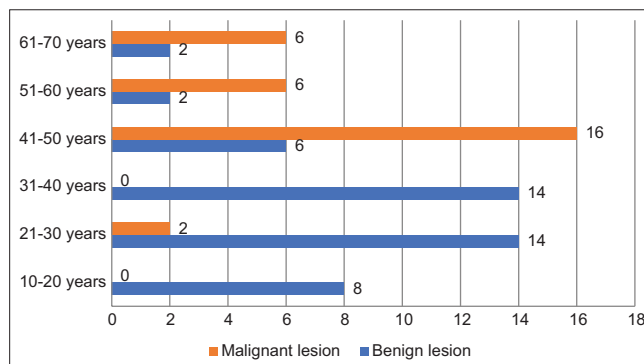


Chart 1: Age-wise distribution of breast lesions

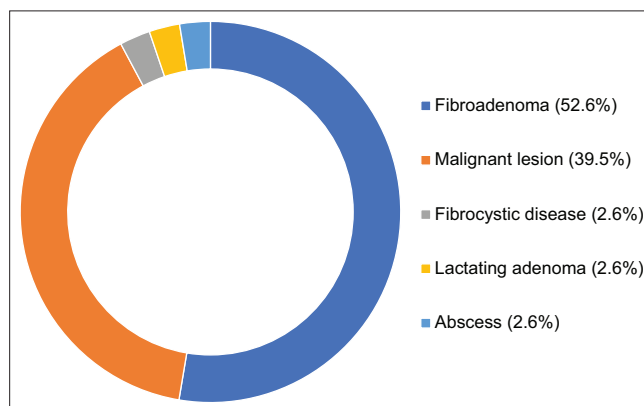


Chart 2: Distribution of various breast lesions

examination. Thus one of the best approaches to evaluating breast lump is the cytological examination before going to surgery [6].

CONCLUSION

Our study states that reporting and findings of FNAC were closely correlated with the histopathological diagnosis in accordance to National Cancer Institute guidelines. FNAC has significant diagnostic value in differentiating breast lumps for further operative management. The advantage of FNAC is that it is a very simple and easy procedure which can be carried out in outpatient departments, dispensaries, and peripheral health centers as it is readily accepted by the patients. It is a very cost-effective procedure and the report can be delivered to the patients quickly for further management. FNAC is widely accepted by pathologists and surgeons due to its high sensitivity and specificity. Awareness of breast cancer is a must and much needed in developing country like India which can be achieved by proper education, prevention, early detection, and proper management of breast lesions.

ACKNOWLEDGEMENT

PALAK PATEL (PG Resident), HARSH PANDYA (Assistant Professor), AVANI DANGAR (PG Resident), DRASHTI PATEL (PG Resident) KRISHNA KANT SHIROMANI (Professor).

AUTHORS CONTRIBUTION

Palak Patel: Paper formulation, Avani Dangarand Drashti Patel: Data collection, Harsh Pandya and Krishna Kant Shiromani: Guide.

CONFLICTS OF INTEREST

None.

AUTHORS FUNDING

Not Required.

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