

Retrospective cytomorphological analysis of breast lesions in tertiary care hospital

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Abstract

Background: Breast cancer is the second most common cancer in Indian women. It has lower mean age of presentation and the studies suggest that, the number of newer cases is increasing. The study aimed to look into the frequency of breast cancer with histopathological correlation, in the tertiary care hospital. **Material and Methods:** A retrospective study of fine needle aspiration cytology for a period of 2 years was undertaken in the Department of Pathology. 315 samples from breast lumps presenting to the departments of surgery were included in the study. **Results:** The mean age of the evaluated patients was 36.23 (range, 10–90) years. Most of the patients with breast lesions were between age group 11–30 years (n = 165). Out of the 315 breast lumps fibroadenoma (n = 124) and benign breast lesion (n = 44) were the most frequently diagnosed benign breast lesions whereas ductal carcinoma (n = 39) was the most frequently diagnosed malignant breast lesion. Other lesions include proliferative breast disease (12.6%), benign breast lesion with atypia (5.07%), fibrocystic change (3.5%), cellular fibroadenoma (2.5%), galactocele and mastitis (2.2%), fibroadenosis (1.9%), gynecomastia (1.5%), abscess (1.2%) and phyllodes tumour (0.9%). Gynecomastia was the most frequently diagnosed lesion in men. 34 histopathological samples were available for correlation. 32 cytological reports correlated well with histopathological examination. **Conclusion:** In India, the number of new cases of breast cancer is increasing with a lower mean age at presentation compared to developed countries of the world. Thus vigorous implementation of effective public health programs that ensure mass awareness campaign, access to appropriate, affordable diagnostic tests and treatment is required.

Key Word: Retrospective, fibroadenoma, fine needle aspiration, infiltrating duct carcinoma.

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INTRODUCTION

Breast cancer has been one of the major health problems in India. It is among the ten most common causes of death in Indian population. Breast cancer is the second most common cancer (after cervical cancer) in India, with an estimated 115,251 (22.2% of all new cancer diagnoses) new diagnoses and the second most common cause of cancer-related deaths with 53,592 (17.2% of all cancer deaths) breast cancer deaths in 2008.¹ Patients are

examined in the OPD, workup and staging is done, and depending upon the stage of the disease, the patient undergoes surgery, chemotherapy, radiotherapy and hormonal therapy. Fine needle aspiration method has remained an important tool in diagnosing various breast lesions. It has high sensitivity, specificity, negative predictive value, and positive predictive value^{2,3}. Palpable breast lump, breast pain, and nipple discharge are common manifestations of benign, premalignant, or malignant lesions in the human mammary gland and surrounding tissues^{4,5}. Techniques used to diagnose breast lesions include clinical breast examination, breast imaging, and breast cytology^{1,5}. Fine-needle aspiration cytology is the most reliable component of this triple test assessment of breast lesions. The retrospective study was carried out in the Department of Pathology, Government Medical College Akola, during the period of two years from January 2015 to December 2016. The primary objective of this study was to determine the type and distribution of breast lesions diagnosed by

cytological evaluation with histopathological correlation. Samples were obtained from patients presenting to outpatient department of Surgery

MATERIAL AND METHODS

Medical records in the form of breast cytology reports from 315 consecutive patients were studied. As this study was a retrospective study, no ethical issues or consent from the patient was needed. Patients presenting to outpatient department of Surgery with palpable breast lump, nipple discharge, breast pain, nipple retraction, skin changes, or axillary lymphadenopathy were accessed from the records .The study was carried out in the Department of Pathology and the duration of study was from January 2015 to December 2016. Reports having patient age and sex, clinical summary, breast cytology sampling technique, microscopic findings, and conclusive breast cytology diagnosis were included in the study. Reports having major typographical errors, clinical history of breast cancer, cytological diagnosis of secondary breast diseases were excluded from the study. All data was analysed using Microsoft Excel 2013 and results described using summary statistics. Samples from the patients were collected by using 20-22 gauge needle. Aspirated material was expressed on a clean glass slide using 20 cc syringe. Another slide was placed on the material and spread by pulling apart to prepare a smear. The slide was immediately transferred to jar containing isopropyl alcohol. Staining was done with Haematoxyline and Eosin, May Grunwald Giemsa stain.

RESULTS

The mean age of the evaluated patients was 36.23 (range, 10–90) years. Most of the patients with breast lesions were between age group 11-30 years (n =165).The frequency of all diagnosed breast lesions is shown in Fig.1. Fibroadenoma (n=124) and benign breast lesion (n=44) were the most frequently diagnosed benign breast lesions whereas ductal carcinoma (n=39) was the most frequently diagnosed malignant breast lesion. Other frequently diagnosed breast lesions included benign proliferative breast disease (n=38), proliferative breast disease with atypia (n=16), fibrocystic disease (n=9).Three samples were found inadequate for interpretation

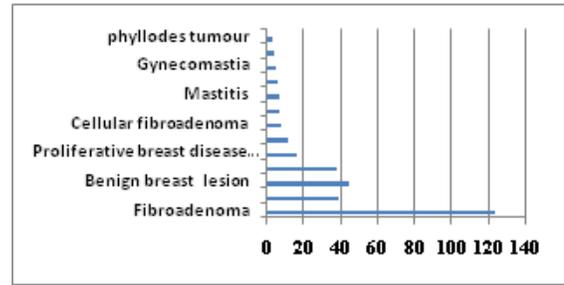


Figure 1: Shows frequency of breast lesions

Of the 312 diagnosed breast lesions, 92.30 % (n =288) were neoplastic and 7.70 % (n=24) were non-neoplastic. Of the neoplastic breast lesions, 86.45 % (n=249) were benign and 13.54 % (n=39) were malignant. Thus, the benign-to-malignant ratio was 6.3:1. Figure 2 shows agewise distribution of breast lesions. Histopathological specimens were available in 34 cases. Out of these 32 correlated well with cytological diagnoses. In one case, diagnosis of fibroadenoma was given on cytology however it was confirmed as benignphyllodes tumour on histopathology .In another case report of benign breast lesion with atypia was given. On histopathological examination it was diagnosed as infiltrating duct carcinoma.

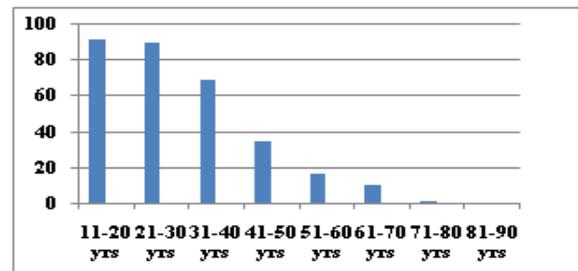


Figure 2: Shows age wise distribution of breast lesions

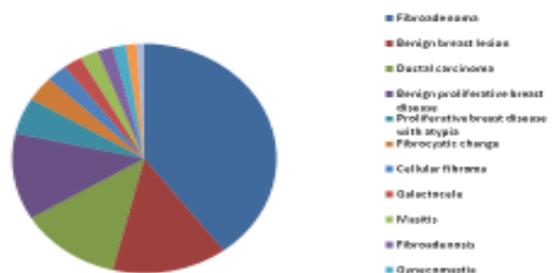


Figure 3: Shows distribution of various breast lesions

DISCUSSION

The retrospective study of fine needle aspiration of breast lesions was carried out in the department of Pathology. Aim of the study during January 2015 to December 2016. Of the total diagnosed breast lesions, 86.45% were benign, which is in correlation with the findings by Bjerregaard and Kung'u⁶ and Panjvani *et*

*al*⁷. Fibroadenoma (39.4%) was the most frequently diagnosed lesion. It was the commonest benign tumour in women aged 11–58 years, followed by benign breast lesion (14.0%), proliferative breast disease (12.6%), benign breast lesion with atypia (5.07%), fibrocystic change (3.5%), cellular fibroadenoma (2.5%), galactocele and mastitis (2.2%), fibroadenosis (1.9%), gynecomastia (1.5%), abscess (1.2%) and phyllodes tumour (0.9%). Gynecomastia was the most frequently diagnosed lesion in men, consistent with both prospective and retrospective studies^{7,8,9,10}. In our study 32 out of 34 cytological results, correlated well with histopathological examination. Thus histopathology cytological correlation is found to be 94%. As per the statistical evidence, it was found that women of the middle age group, third-to-fifth decade (30 – 59 years), are at a higher risk of developing breast cancer. Similar findings are also reported in studies from India and other Asian countries.^{11,12} However, reports from the western world show that the female breast carcinoma is predominantly seen in the fifth and sixth decade. In the present study ductal malignancy was the diagnosis in 39 cases. It was found more commonly in age group 41-50 (18 cases), followed by age group 51-60 (10 cases). Youngest patient in this category was 33 year old and the oldest patient was of 85 years. 9 patients (23%) of the breast cancer patients are in the fifth and sixth decade. In our study 9 (23%) breast cancer patients were below 40 years of age. Similar findings have also been reported by Bogarapu *et al*¹³, Saxena *et al*¹⁴ had reported 22% and Nigam *et al*¹⁵ had 31.69%. Siddiqui M¹⁶ Siddiqui K¹⁷ Baloch TA¹⁸ Aftab ML¹⁹ and Aslam MN²⁰ have also found the disease to be commonest in the middle age group (30–59 years). Navneet Kaur *et al*²¹ found maximum (71.3%) cases in the 35–54 years age group while Ramchandra Kamath²² found maximum cases between 50–54 years. Balasubramaniam SM²³ found the disease common in 39–59 years age group. In the present study the most common histopathological type found was in infiltrating ductal carcinoma. The same histopathological type has also been found commonest by others including Aftab ML¹⁹ Siddiqui M¹⁶ Baloch TA¹⁸ Batool M²⁴ Aslam MN²⁰ Qureshi S²⁵ and Klonoff-Cohen.²⁶

CONCLUSION

Breast cancer has been one of the major health problems in women in India. The number of newly diagnosed cases is increasing in spite of improvement in health facilities. These patients also have lower mean age of presentation. In order to reduce the burden of the disease multi sectoral approach and strategies aiming at early detection and effective management of the disease

is needed. Thus effective public health programs that ensure mass awareness campaign, access to appropriate, affordable diagnostic tests and treatment should be implemented vigorously.

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