

FINE NEEDLE ASPIRATION CYTOLOGY OF BREAST LUMPS WITH CLINICAL AND HISTOPATHOLOGICAL CORRELATION: A 2 YEAR STUDY IN GWALIOR, INDIAJyoti Priyadarshini Shrivastava¹, Alok Shrivastava² Rajesh Gaur³**HOW TO CITE THIS ARTICLE:**

Jyoti Priyadarshini Shrivastava, Alok Shrivastava, Rajesh Gaur "Fine Needle Aspiration Cytology of Breast Lumps with Clinical and Histopathological Correlation: A 2 Year Study in Gwalior, India". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 56, July 13; Page: 9729-9734, DOI: 10.14260/jemds/2015/1404

ABSTRACT: BACKGROUND: Breast Lump is the commonest presenting symptom in various types of Breast lesions ranging from inflammation to carcinoma. Some lesions are common in young females while others in elderly age group. Early presentation and prompt diagnosis is essential to relieve anxiety of non-neoplastic conditions, and in case of carcinoma, it can save the patient from metastases. Breast carcinoma is the most common malignant tumour and the leading cause of death from cancer in women. Now-a-days, FNAC is being performed as a pre-operative test to evaluate breast lump. FNAC is simple OPD procedure, safe, economical and reliable. **AIM AND OBJECTIVE:** The main objective of this hospital based study was to find out the prevalence and pattern of breast lumps in female and male patients in Greater Gwalior region. **METHODS:** A total of 500 patients presenting with lump in Cytopathology section of Department of Pathology, G. R. Medical College were included. The study was done over a period of 2 years from 1st Oct. 2012 to 30th Sept. 2014. History and Clinical findings were recorded. Patients with palpable lump were only included in the study. Fine needle aspiration was done. MGG stained slides were examined by cytopathologist. Histopathology was done in suspicious cases. **RESULTS:** Out of 500 cases, 360 cases (74%) were benign, 20% malignant and 6% Inflammatory. Fibroadenoma was the commonest diagnosis with 57% of total cases, 50 cases (9%) Fibroadenosis, 5 cases (1%) lactating adenoma, 5 cases (1%) Atypical Ductal Hyperplasia and 1% cases of Duct Papilloma were reported. 80% Breast lumps were benign. 20% (100 cases) of Ductal Cell carcinoma including a case of medullary carcinoma and Apocrine carcinoma each. Amongst the patients with lump, benign to malignant disease ratio was 4:1. **CONCLUSION:** FNAC serves as a rapid, economical, and reliable tool for the diagnosis of palpable breast lesions because the cytopathological examination of these lesions before operation or treatment, serves as an important diagnostic modality. Fibroadenoma was the commonest lesion in this study. However, malignancy was detected as the second common lesion.

KEYWORDS: Fine Needle Aspiration Cytology, Breast Lump, Ductal Cell Carcinoma, Fibroadenoma, Fibrocystic disease of Breast.

INTRODUCTION: Breast or mammary gland is an apocrine gland under the influence of hormones resulting in physiological changes throughout reproductive life and thereafter^{1,2} with various structures giving rise to different lesions. Lump presentation is one of the 2nd commonest presentation, pain being the commonest.³ Benign breast lesions account for commonest clinical presentation in about 90% cases.⁴ In premenopausal females, Fibroadenoma is a common cause of benign breast lump^{5,6} with majority of FNAC's and biopsies done on it. Fibrocystic disease is a histological term that refers clinically to a large group of syndrome presented as lump or lumpiness.⁷ Evidence shows that there is a relationship between the presence of benign breast disease and risk of

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breast cancer.⁸ About 10% breast lumps result in breast cancer diagnosis. Therefore, all lumps are suspicious until proved otherwise.

Amongst inflammatory lesions, mastitis, breast abscess and tubercular infections are reported.^{3,9}

Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women with an estimated 1.67 million new cancer cases diagnosed in 2012 (25% of all cancers).¹⁰ The incidence of breast cancer is rising steadily. Transition from normal to cancer begins as proliferation, progresses to atypia and finally arrives at neoplasia.¹¹ As per GLOBOCON 2015, estimated incidence is 155863 which is 10926 more than in 2012 and estimated mortality is 75957 which is 5739 more than that in 2012. In India, for every 2 women newly diagnosed with breast cancer, one lady is dying of it.¹²

This study in Greater Gwalior Region will provide a guideline to the health authorities and will help in early diagnosis and better management leading to high cure rates and reduced mortality.

AIMS and OBJECTIVES: To evaluate the pattern of existence of Breast diseases in females and males under the following headings:

1. To know the incidence of inflammatory, benign and cancerous lesions.
2. Clinical, Cytological and Histopathological correlation of breast lumps.
3. To know the incidence and type of breast lump in young females aged 15-25 years.
4. Pattern of presentation of breast lumps.

MATERIAL AND METHODS: Total 500 patients presenting with lump in the Cytopathology section of Department of Pathology, were included in the present study. History was taken and Clinical examination was recorded. Oral Questionnaire was filled seeking information on the following heads. History: Age, Age at marriage, Parity. Education, Family income (Rs./months), Residence, History of lump in family member, History of use of oral contraceptives, H/o associated pain, discharge and Menstrual history, Duration of lump.

Clinical Examination: Lump was examined for site, and size. Nipple and Axilla on same side for Lymph nodes. Contralateral Breast, Nipple and axilla were also examined.

Written consent was taken by all patients.

FNAC was done using 22 gauge needle using 20cc. disposable syringe. The smears were prepared on clean glass slides, air dried and stained with MGG. The stained smears were examined and reported by Cytopathologists.

RESULTS: The present prospective study included 500 patients with Breast Lump. 98% (490) were women and 2% (10 cases) were males. The cytological findings were as follows: 57% Fibroadenoma, 20% Ductal cell carcinoma, 9% Fibrocystic disease of breast, 3% abscess, 3% Tubercular abscess. 2% Gynaecomastia, 2% Lactating adenoma, 2% Atypical Ductal Hyperplasia, 1% Duct papilloma and 1% mastitis.

Incidence of Breast lesion varied in different age groups. From 15-35 years of age, Fibroadenoma was the predominant lesion. In 15-25 years age, 81% cases of Fibroadenoma were reported (Fig. 1). 57 cases (20%) had bilateral involvement and 228 cases (80%) showed unilateral presentation. (Table 1). 35 cases (12.28%) had multiple lumps and 35 cases (10.52%) had recurrent

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fibroadenoma on the same side of the breast. Maximum 30 cases (30%) of Ductal cell carcinoma were reported in 41-45 years age group. The youngest case was 28 years old and oldest 80 years old. Biopsy was done only in 25% malignant cases and 2 cases of Atypical Ductal hyperplasia were reported as Carcinoma in situ.

Breast cancer was reported on the Left side in 65 cases out of 100. In cancer cases, the size was more than 2.5 cm. in 60 cases (60%) in our study.

Pain was reported in 75 cases (26.31%) in Fibroadenoma, 30 cases (66.66%) of Fibrocystic disease complained of pain whereas only 5 patients (25%) mentioned pain as a symptom in cases of malignancy. Inflammatory conditions were all painful.

Out of 100 malignant cases, 98 cases were reported as Ductal Cell Carcinoma and 1 case each of medullary carcinoma and Apocrine carcinoma. 28 cases (28%) showed nipple retraction, 10 cases (10%) showed peau d orange and Bloody nipple discharge each, 5 cases (5%) were positive for Axillary lymph node involvement. (Table 2.)

Gynaecomastia was reported in 2% cases, youngest 16 years of age and oldest 62 years.

DISCUSSION: Benign breast conditions causing lumps or tumours are quite common (American Cancer society 2002, Dolan 2002, Johnson 1999, Marchant 2002), with an estimated 9 out of 10 women showing benign tissue changes if tissue is examined microscopically (American Cancer society 2002).¹³ In our study, Incidence of Benign Breast Disease is significantly higher than malignancy. The benign cases were 4 times commoner than malignant cases. In Indian rural population benign breast diseases are 5-10 times more common than breast cancers.¹⁴ Due to lack of education women disregard lump.¹⁴ Endocrine factors are involved in the etiology of benign breast disease, but their precise roles remain to be elucidated. Benign breast disease deserves attention because of its high prevalence, its impact on women's quality of life, and, for some histologic types, its cancerous potential.⁹ In our study, Benign lesions were 74% whereas 57% of Fibroadenoma were reported. Our findings were similar to other studies.^{14,9,15,16} Incidence of Fibroadenoma is highest in younger women under 30.^{13,9}

Recurrence in Fibroadenoma cases post operatively is very common. In our study 10.52% cases were recurrence and is higher than the studies by Aisha Memon et al.,(2007) and Onuigbo et al.,(2003).^{15,17} Pain is associated with lumps in many cases whereas others are painless ¹⁷. In our study 26.31,% cases of Fibroadenoma presented with pain.

Fibroadenosis/Fibrocystic Disease of Breast is the next common diagnosis after Fibroadenoma. In present study, 9% cases were reported. Siddiqui et al and Akhator et al reported almost similar incidences.^{7,18} M. Kumar et al. reported a higher incidence of 26.5%.¹⁴

Mammary carcinoma is 5 - 10% more likely to arise in the left breast.¹⁹ The left breast is statistically more prone to developing cancer than the right breast. ("Epidemiology of Breast Cancer." Medicine World. Accessed: January 27, 2011.) It has been well established that, on average, the left breast is slightly larger than the right.²⁰ This leads itself to the logic that more breast tissue is present to be at risk for the development of a cancer. In our study, carcinoma predominantly presented in left breast.

Size is also important. It is used to help determine the stage of the breast cancer. A small cancer can be aggressive while a larger cancer is not or it could be the other way around.²¹ Tumor size is related to breast cancer recurrence and survival. Data from the Surveillance, Epidemiology,

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and End Results (SEER) Program clearly show that as tumor size increases, breast cancer survival decreases. 85% malignant cases in our study presented with size between 2-3 cm.

Breast cancer was less as compared to benign lesions. Vissa Shanthi et al., (2011) reported 28% malignancy.²² Our study reported 20% malignant cases. Mortality and incidence is relatively lower in developing countries,²³ whereas it is very high in developed countries (Balkrishna B. Yeole et al., (2003). Maximum no. of breast cases were reported in 41-45 years age group same as that by Vissa Shanthi et al.,(2011).²² FNAC was diagnostic in 75% cases of malignancy. FNAC plays an important and essential role in the management of patients with breast lesions and also offers a great potential for prediction of patient outcome, disease response to therapy and assessment of risk of developing breast cancer.²⁴

The incidence of Breast cancer increases with age, more common in urban population.²⁵ Besides Genetic causes, changes in life style is responsible for increase in incidence of malignant breast lesions. In our study 100 out of 500 cases were malignant. Our hospital is a Tertiary care centre and drains malignant cases from all surrounding areas. Nipple discharge was reported in 10 out of 100 cases in our study. It is associated with both benign and inflammatory conditions.²⁶

Gynaecomastia is the commonest breast lesion in males.²⁶ Our study reported 3% cases. Inflammatory lesions of breast are also common. Our study reported 11% cases of inflammatory lesions. The findings were similar to study by M. Kumar et al. (2010).¹⁴

CONCLUSION: This prospective study was undertaken with a view to study the incidence and pattern of Breast Lumps by Fine Needle Aspiration Cytology. Lump in Breast is the commonest clinical presentation of breast lesions with varied aetiology. We can conclude from the present study that most breast lumps are benign in aetiology unless proved otherwise. FNAC is a simple, rapid, inexpensive and well tolerated procedure for the diagnosis of Breast Lumps. It is useful and reliable in early diagnosis of neoplastic and non-neoplastic lesions avoiding the need of biopsy and helps planning surgery for malignant cases, where definitive operative intervention can be performed in one session. It has an important role in rural and semi-urban areas with less facilities and for the poor. It is most accurate where there is a close cooperation between clinician, cytopathologist and radiologist.

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