Original Article

Cytological Study of Spectrum of Lesions of Palpable Breast Lumps by FNAC at SMIMER Hospital, Surat

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ABSTRACT

Background: Palpable breast lumps are quite common which can be benign or malignant. Carcinoma breast is the second most common cancer after cervical cancer. Fine needle aspiration cytology (FNAC) is a minimally invasive, rapid, reliable and cost-effective outdoor procedure to provide effective diagnosis and way to further planning of treatment without need for biopsy.

Objective: To study the spectrum of various breast lesions on cytomorphology.

Methods: This was a one-year study from January 2018 to January 2019 including 160 cases aspirated from palpable breast lumps. Physical examination of breast lumps by palpation was done. Cytological diagnosis was made.

Results: On cytomorphological study of 160 breast lump aspirates 15 (9.38 %) were inflammatory lesions, 96 (60 %) benign, 49 (30.62 %) malignant. The most common benign lesion in the present study was fibroadenoma 62 (64.58 %) and the most common malignant lesion was ductal carcinoma 45 (91.84 %).

Conclusion: Fine needle aspiration cytology is a rapid and reliable tool to provide effective diagnosis in palpable breast lumps. It should be used as routine diagnostic procedure to provide the effective health care to the patients with breast lesions.

Keywords: Breast lumps, Fine needle aspiration cytology.

INTRODUCTION

Breast lumps are common complaints of women visiting to health organisation clinics of which 80 to 85% are benign and rest are malignant [1-3]. Breast cancer is leading cause of morbidity and mortality in women[4]. In Indian women carcinoma breast is the second most common malignancy preceded by cervical cancer, comprising 22.2% of all new cancers' diagnosis and 17.2% of all cancer deaths.[5]

It becomes very important to distinguish benign from malignant lesions prior to definitive treatment as well as early detection is the mainstay in management of breast carcinoma. The global protocol for diagnosis of breast lump is the "triple assessment" a combined approach by clinical examination, imaging (mammography and or ultrasound) and fine needle aspiration cytology (FNAC) [6,7]. Fine needle aspiration cytology has become widely accepted as simple, cost effective, diagnostic tool with high sensitivity and specificity[8]. The sensitivity and specificity of FNAC as a diagnostic tool for palpable breast lumps are 65-99% and 96-100% respectively[9]. With increase in age of patient the tendency of being malignant of breast lumps increases. FNAC has a lot of advantages such as: high accuracy, cheap, fast, outpatient procedure reducing pressure on theatre load, high patient acceptability and low complication rate[7]. It is also capable to evaluate local chest wall recurrences and providing material for ancillary techniques such as hormone receptor analysis, flowcytometry and molecular studies[6]. Therefore, the study aimed to access the cytomorphological spectrum of palpable breast lumps as well as the diagnostic utility of FNAC which can be relied upon to decide the crucial surgical procedures for the management of patients.

MATERIALS AND METHODS

It is a study carried out from the data retrieved from the Department of Pathology of SMIMER, Surat in a period from January 2018 to January 2019. All cases of female breast lumps which underwent FNAC in the mentioned period were retrieved. A proper written consent in patient's local language was obtained from each patient. Physical examination of breast mass by palpation was done along with the examination of axillary lymph nodes, if any. FNAC was done by using 22/23 Gauge needle attached to 10cc/20cc

disposable syringe. Air dried as well as 95% alcohol fixed smears were prepared. Air dried smears were stained with May Grunwald Giemsa (MGG) stain and alcohol fixed smears were fixed with H&E (Haematoxylin & Eosin) & Papanicolaou stains. Slides were studied under light microscope & cytological diagnosis was made under the standard cytological diagnostic protocol.

RESULTS

We included 160 breast aspirates; all 160 cases were females. The age range of these 280 patients was 10 to 90 years.

Table 1: Breast Lumps: Age distribution

Age group (Years)	Cases N=160 (%)
≤20	30 (18.75)
21-40	67 (41.87)
41-60	50 (31.25)
61-80	10 (6.26)
≥81	3 (1.87)

Table 2: Breast Lumps: Cytomorphologic spectrum

Cytological diagnosis	Cases N=160 (%)
Inflammatory	15 (9.38)
Benign breast lesions	96 (60)
Malignant	49 (30.62)

Table 3: Breast Lumps: Distribution of Inflammatory lesions

Cytological diagnosis	Cases N=15 (%)
Acute Mastitis/ Abscess	7 (46.67)
Granulomatous /tuberculous Mastitis	8 (53.33)

Table 4: Breast Lumps: Distribution of benign breast lesions (n=96)

Benign Breast Lesions	Cases (%)
Fibroadenoma	62 (64.58)
Proliferative breast lesion without atypia	20 (20.83)
Proliferative breast lesion with atypia	1 (1.04)
Benign Phylloides tumour	1 (1.04)
Galactocele	1 (1.04)
Fibrocystic disease	7 (7.3)
Gynecomastia	1 (1.04)
Lactational change	3 (3.13)

Table 5: Breast Lumps: Distribution of malignant breast lesions

Malignant Breast Lesions	Cases N=49 (%)
Ductal carcinoma	45 (91.84)
Mucinous carcinoma	3 (6.12
Malignant Phylloides tumour	1 (2.04

The most common affected age group was 21 to 40 years having 67 (41.87%) patients followed by 41 to 60 years having 50 (31.25%) patients (Table 1).

The spectrum of lesions on cytomorphological interpretation and diagnosis was inflammatory 15(9.38%), benign 96 (60%), and malignant 49 (30.62%) Table 2. In Inflammatory lesions, out of 15 cases Table 3, the maximum cases were of Granulomatous/ Tuberculous mastitis 8 (53.3%) followed by Acute mastitis 7 (46.67%). In Benign lesions, out of 96 cases Table 4, the maximum cases were of Fibroadenoma 62(64.58%). 21 (21.87%) cases were of Proliferative breast lesions, 7 (7.3%) having Fibrocystic disease, one case each of galactocele, benign phyllodes tumour & Gynecomastia shared an equal incidence of 1(1.04%) cases each.

In 49 (30.62%) malignant lesions Table 5, maximum cases were of ductal carcinoma NOS 45 (91.84%), 1 (2.04%) was malignant phyllodes tumour and 3 (6.12 %) were diagnosed as Mucinous carcinoma.

DISCUSSION

In the present study, we included 160 breast lump cases in which cytomorphological study was done. FNAC results were divided into inflammatory, benign & malignant. All aspirates were adequate and diagnosis were made. mostly presented with a short history of tense lump in breast with tenderness and redness of overlying skin. In the present study, maximum number of cases 67(41.87%) were found in age group of 21-41 years which is comparable to study done by Faiyaz Ahmad (156 cases; 55.71%)[6], by Tariq Wahab Khanzada (211 cases; 76%) [7], & by Sandhya P. Iyer (329 cases; 65%)[10]. In present study, among the benign lesions, fibroadenoma was the most common benign lesion(64%) followed by Proliferative breast lesion without atypia inclusive of fibrocystic disease(27 cases; 28%), this study is comparable to study by Fiyaz Ahmad(115 cases of fibroadenoma; 41.07%) followed by proliferative breast lesion without atypia(40 cases; 14.29%)[6] and study by Tariq Wahab Khanzada, cases of fibroadenoma(75 cases; 27%) followed by proliferative breast lesion without atypia(57 cases; 20.72%)[7]. In our study, in inflammatory lesion category, all 15 cases(100%) are of mastitis(acute and granulomatous) that is comparable to study by Faiyaz Ahmad in which among all inflammatory lesions, out of 32 cases, 28 cases(87%) are of mastitis followed by fat necrosis6 and study by Tariq Wahab Khanzada in which 56 cases(60%) are of mastitis followed by duct ectasia[7]. The number of malignant lesions in our study was 49 (30.62%) cases, among which, Maximum number are of ductal carcinoma (43 cases) followed by mucinous carcinoma (3 cases) which is comparable to study by Faiyaz Ahmad in which out of 46 cases, 43 cases are of ductal

carcinoma[6]. In our study, benign lesions of breast are more common in 2nd to 4th decade of life which is comparable to study by Tariq Wahab Khanzada[7]. Malignant cases were in 41 to 60 years of age group which is similar to the results by Khan et al[11].

Well-formed epithelioid cell granulomas were found in 7 (4.37%) cases which reported as granulomatous mastitis, 2 cases have granulomas as well as AFB positivity and were thus reported as tuberculous mastitis. Most of the time clinically and radiologically it mimics with carcinoma of breast. So quick and appropriate diagnosis by FNAC relieves the anxiety of patients and opens the door for cure.

CONCLUSION

Fine needle aspiration cytology is a minimally invasive, rapid and effective method for preoperative diagnosis to relieve the anxiety of patient and also for post-operative follow up of breast lumps to ensure the recurrences. Despite being an invaluable tool, FNAC has some pitfalls, both false-positive and false-negative results can occur, which can be minimized by experience and expertise of cytopathologist. Benign breast lesions are commoner than malignant lesions, fibroadenoma is the commonest condition in the benign category followed by proliferative breast lesion including fibrocystic disease, whereas ductal carcinoma accounts for the highest number of malignant lesions. So, we conclude that FNA should be used as a routine diagnostic procedure for breast lumps due to its cost effectiveness, quick results and high accuracy. Breast cancer is the most common cancer in the women after cancer cervix, so we recommend FNAC as a first line diagnostic procedure in patients presenting with breast lumps especially in developing countries with limited resources. Breast self-examination and education to females is very important in case of breast lumps.

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