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Original Research Article

Fine Needle Aspiration Cytology in Palpable Breast Lumps: A Retrospective Study

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Abstract

Background: Breast lumps are a common presentation among females. Breast carcinoma is 2nd commonest malignancy in females in India and needs early detection for proper management. Fine needle aspiration cytology (FNAC) is an established and highly accurate method in the investigation of palpable breast lumps. So the study was performed to analyse the cytomorphological spectrum of palpable breast lesions in a Tertiary Care Centre in North India. ***Material and Methods:*** This retrospective study was carried out in the Department of Pathology in GMC, Jammu. Female patients with suspected breast lumps who underwent FNAC in our department over a period of one year were included in the study. Detailed history including patient's age, site and duration of breast lumps was noted. Findings of FNAC were recorded in detail and results tabulated. ***Results:*** Inadequate/Non-Diagnostic aspirations were seen in 13 cases. Majority of cases were seen in 4th decade of life. Among all aspirations, fibroadenoma was the commonest lesion seen in 36.4 % cases while malignancy was seen in 20.1 % cases. ***Conclusions:*** FNAC is a rapid, economical, and reliable tool for the diagnosis of palpable breast lesions. FNAC provides useful information in the management of the lesions and prevents unnecessary surgery in cases of non-neoplastic lesions.

Keywords: Cytology; Breast; Neoplasm; Malignancy.

INTRODUCTION

Breast lump is the commonest presentation in most of the breast diseases. Breast cancer is the 2nd commonest cancer among women in India [1]. Majority of the breast lumps observed in general population are benign [2]. FNAC of breast lumps is a highly sensitive, easy and cost effective procedure that can be carried out at outpatient department [3,4]. It is a rapid and reliable procedure and helps in planning of treatment in the breast lump [5]. FNAC can prevent unnecessary surgery and could provide a diagnosis with only 10-30% of the cost of surgical biopsy. Molecular ancillary techniques, i.e., progesterone receptor and oestrogen receptor and DNA pattern analysis can also be performed on aspirated material. Diagnostic accuracy of the FNAC can be increased by multiple sampling of appropriate sites by ultrasonography guidance and/or mammographic localization [6]. The present study was performed to evaluate the spectrum and distribution of palpable breast lumps on FNAC.

MATERIAL AND METHODS

This retrospective study was conducted for a period of 1 year in cytology section of Post Graduate Department of Pathology, GMC Jammu from January 2017 to December 2017. All the patients with suspected breast lumps who underwent FNAC in our Department were included. The study was approved by institution ethics committee. The clinical data pertaining to patient's age, sex and site were recorded from the requisition forms and data registers. All the aspirations were performed by cytopathologists using 22-24G needles attached to 10cc disposable syringe. One to two passes were given and the aspirated material was smeared onto glass slides. Smears were fixed in 95% ethyl alcohol and stained with Papanicolaou stain. Giemsa stain was done on air dried smears. Ziehl-Neelson (ZN) staining was done whenever a cytological diagnosis of granulomatous disease was made. In cases where fluid was aspirated on FNA, the fluid was centrifuged and smears were prepared from the sediment followed by the above staining methods.. The stained FNA smears were examined by two

cytopathologists independently for cytomorphological findings, diagnosis and differential diagnosis where needed.

RESULTS

FNAC was performed in 184 cases which showed age range of 12-78 years. Majority of females were seen in 4th decade of life followed by 5th decade. Aspirations in 13 cases were reported as unsatisfactory due to scant cellularity and repeat aspiration advised. Wide varieties of lesion were seen which included inflammatory, benign and malignant lesions. Benign neoplasms were seen in majority of cases (38.0%) followed by malignancy (20.1%) (Table 1). Benign breast disease not otherwise specified (NOS) were seen in 10.9% cases while inflammatory lesions were seen in 9.2 % cases. Benign cystic lesions were seen in 9.8% cases and benign proliferative disorders in 4.9% cases (Table 1).

Fibroadenoma was the commonest benign neoplasm (36.4%) in our study. Of these, cellular fibroadenoma was seen in 4 cases while fibroadenomatosis was seen in 2 cases. Infiltrating duct carcinoma NOS was the commonest malignant breast tumour in the present study (17.9%) followed by DCIS (1.1%). Solitary case of mucinous and lobular carcinoma was also seen in our study.

Table-1: Distribution of Breast Lesions on FNAC

FNAC		Number	Percentage
Inflammatory	1. Abscess	9	4.9
	2. Acute Mastitis	4	2.2
	3. Fat Necrosis	2	1.1
	3. Granulomatous Mastitis	1	0.5
	5. Periductal Mastitis	1	0.5
Benign Breast Disease NOS		20	10.9
Benign Proliferative Disorders	1. Fibrocystic Change	8	4.3
	2. Duct Ectasia	1	0.5
Benign Cystic Leisons	1. Simple Cyst	9	4.9
	2. Galactocele	8	4.3
	3. Mucinous Cyst	1	0.5
Benign Neoplams	1. Fibroadenoma	67	3.4
	2. Lipoma	2	1.1
	3. Papilloma	1	0.5
Malignant	1. Infiltrating Ductal Carcinoma NOS	33	17.9
	2. DCIS	2	1.1
	3. Mucinous Carcinoma	1	0.5
	4. Lobular Carcinoma	1	0.5
Inadequate Aspiratons		13	7.1
Total		184	

DISCUSSION

Breast lumps are common presentation in surgery and gynaecology outpatient department. There is increasing awareness and the associated anxiety and stress among women which compels the patients to seek medical advice [7]. FNAC of breast lumps is an important part of triple assessment (clinical examination, imaging, and FNAC) of palpable breast lumps. It is a simple, cost effective and less traumatic as well as highly sensitive and specific method for assessment of breast lumps [7].

Age range of patients in our study was 12-78 years. Similar results were also obtained in previous studies [8, 9]. Dennison G *et al*. [10] from UK observed an age range of 18-92 years likely due to higher life expectancy in UK as compared to Asia and Africa. Majority of cases were seen in 4th decade followed by 5th decade of life. Mane PS *et al*. [7] also observed maximum cases in 4th decade of life. Benign neoplasm were the commonest lesions in our study seen in 38.0 % cases, similar to findings of study done by Bukhari MH *et al*. [9], Rocha PD *et al*. [11] and Feichter GE *et al*. [12]. Malignant lesions were seen in 20.1 % cases in our study similar to previous studies [9, 13].

Fibroadenoma was the commonest lesion (36.4%) in this study. Most studies have found fibroadenoma to be most common lesion [5, 7, 15]. Among malignant lesions, majority of the cases were infiltrating ductal carcinoma with two cases of DCIS and solitary case each of lobular carcinoma and mucnious carcinoma. Binayke R *et al*. [14] in their study observed ductal carcinoma in all the malignant aspirates. Qasim M *et al*. [13] also observed invasive ductal carcinoma as the most common malignant lesion in their study.

20 cases of benign breast disease NOS were also seen in our study. Among the inflammatory category of breast lesions, we observed 9 cases of breast abscess, 4 cases of acute mastitis and 2 cases of fat necrosis. One case each of Granulomatous mastitis

was also seen with presence of caseating granulomas and was positive for acid fast bacilli on ZN stain. 9 cases of simple cyst and 8 cases each of Galactocele and Fibrocystic disease were also seen in our study.

CONCLUSIONS

The study highlights the role of FNAC as a rapid, economical, and reliable tool for the diagnosis of palpable breast lesions. Fibroadenoma was the commonest lesion in this study while Malignancy was the second commonest lesion. Adequate sampling, high quality smear preparation and experienced cytopathologist can diagnose majority of non-neoplastic and neoplastic conditions on FNAC.

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