

Section Pathology

Original Article

Fine Needle Aspiration Cytology: A Reliable Tool for Diagnosis of Spectrum of Breast Lesions in a Tertiary Care Teaching Hospital

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ABSTRACT

Introduction: Breast or mammary gland is under the influence of hormones resulting in physiological changes throughout reproductive life and thereafter various structures give rise to different lesions. FNAC can be used as an OPD procedure in diagnosis of breast lesions without the need to hospitalize the patient. **AIM:** To study the spectrum of breast lesions.

Methods: Breast Lump is the commonest presenting symptom in various types of Breast lesions ranging from inflammation to carcinoma.

Result : The most common lesion encountered in our study on FNAC was fibroadenoma (47.07%) followed by benign proliferative mammary lesion (Commonly fibrocystic disease) 29.47%. Tuberculous mastitis was 11%. Malignancy was 11.19%.

Conclusion: Benign breast lesions form the bulk in this study and fibroadenoma is the most common lesion. FNAC is useful and reliable in early diagnosis of neoplastic and non-neoplastic lesions avoiding the need of biopsy. It has an important role in rural and semi-urban areas with fewer facilities and for the poor.

Key Words: Breast, Benign, FNAC, Fibroadenoma, carcinoma, gynaecomastia.

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INTRODUCTION

In recent years, the focus on breast cancer has shifted from treatment to early diagnosis with the detection of proliferative breast or borderline breast diseases gaining importance in the approach of breast cancer.^[1] The various advantages of FNAC over surgical open biopsy in terms of cost effectiveness, improved patient satisfaction and low complication rate have made it an important first line method of cellular diagnosis of breast lesions. The accuracy rate ranges from just over 50% to 95% depending on the experience of the aspirator and the interpreter.^[2] The current study is carried out with aim of studying the frequency of various breast lesions on FNAC in Department of Clinical Pathology, Lok Nayak Jai Prakash Narayan Hospital, Delhi Gate, Nehru Marg, Daryaganj, New Delhi.

METHODS

The present study is a retrospective study carried in Department of Clinical Pathology, Lok Nayak Jai Prakash Narayan Hospital, Delhi Gate, Nehru Marg, Daryaganj, New Delhi during one year study period and included 250 patients who presented with palpable breast lump. Cases diagnosed or referred from outside hospital were not included in the study. Detailed clinical history, physical examination was noted. Lump was examined for site, and size. Nipple and Axilla on same side for Lymph nodes. Contralateral Breast, Nipple and axilla were also examined. Sonography was performed in cases where definite diagnosis was not

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possible on FNA. All the patients underwent FNA in cytology clinic after prior written consent. FNA was done with standard technique and aseptic precautions by using 10 cc disposable syringe and 22-23 gauge needles. Material was smeared on glass slides. Slides were stained with Leishman's stain and Papanicolaou stains. Ziehl Neelsen (ZN) staining was done wherever required. In case, material obtained was not satisfactory, a repeat aspiration was done. In case of more than one swelling, aspiration was done from each swelling.

RESULTS

Of the 250 cases, in 210 cases, the aspirates were adequate for interpretation and in 40 cases they were inadequate with very scanty cellularity or were only hemorrhagic. There were 199 females and 51 males. The age distribution of females and males were as follows. Maximum patients (37.92%) in females were in the age group 21-30 years followed by age group 31-40 years. Two youngest patients were of 10 years age. The oldest patient was 80 years old. Upper outer quadrant was the commonest site of location of lump in maximum number of patients (45%). Left breast was more commonly affected than right breast. Upper outer quadrant was the commonest site of location in both breasts. On cytological evaluation 85.86% lesions were benign, 10.19% lesions were malignant, 0.85% lesions were atypical and 0.40% lesions were suspicious for malignancy. In benign inflammatory lesions maximum no. of cases were of mastitis (52.12%) followed by duct ectasia (14.80%). 31 cases were diagnosed as granulomatous mastitis. ZN stain was applied to all of them. Only one case was positive for acid fast bacilli and labelled as tuberculous mastitis. In the present study, most common lesion was fibroadenoma in the age group 21-30 years. Fibroadenoma n= 88 (47.81%) patients were correlated with clinical setting and physical findings. They had solitary firm highly movable mass whereas patients of fibroadenosis had diffused lump or nodularity associated with pain. Benign proliferative mammary lesion included the broad category from fibrocystic disease to sclerosing adenosis and proliferative lesion with mild to moderate atypia though fibrocystic disease was common. But because of overlapping features it is not possibly to exactly separate them. Suspicious cases were confirmed by histopathology. one case diagnosed as suspicious for malignancy. Out of 2 cases of atypical ductal hyperplasia, only one of them underwent biopsy. N=1 was diagnosed ductal carcinoma in situ other 3 had infiltrating ductal carcinoma. Rest of the patients had gone to higher centres.

DISCUSSION

The primary goal of FNA is to separate benign and malignant lesions so that early diagnosis helps in management and reduces morbidity and mortality. Breast diseases are more common in women because estrogen cyclically stimulates breast during their reproductive life. The youngest patient in the study were two 10 years old

female with fibroadenoma and oldest female was 80 years old female with carcinoma breast. The most common age group involved in our study includes females of 21-30 years age group. Similar findings were observed by Farkhanda and co-authors and Godwin E et al.^[3,4] Haque et al have reported 3040 years age group as the most common age group in their study.^[5] In our study this is the second most commonly involved age group. Involvement of left breast is more common in our study and this was also observed by Prakash et al whereas Chandanwale S found the involvement of right breast more common.^[6,7]

Table 1: Age wise distribution of patients n=250

Age group	No. of females	Percentage	No. of males	Percentage
0-10	-	-	-	-
11-20	25	10.77	16	32.50
21-30	77	37.92	14	27.15
31-40	67	31.60	7	7.53
41-50	18	9.48	5	7.90
51-60	8	6.97	4	8.10
61-70	2	2.41	4	11.30
71-80	2	0.85	1	1.75
Total	199		51	

Table 2: Categorization of cytological samples.

S.No.	Category	No. Of Patients	Percentage
1	Benign	190	85.86
2	Atypical	2	0.85
3	Suspicious	1	0.40
4	Malignant	17	10.19
5	Inadequate	40	2.41
	Total	250	

Table 3: Distribution of inflammatory lesions

lesions	No. Of Patients	Percentage
Acute mastitis/abscess	3	52.12
Granulomatous mastitis	1	14.30
Tuberculous mastitis	1	8.13
Fat necrosis	1	10.65
Duct ectasia	2	14.80
Total	8	

Table 4: Distribution of benign lesions.

Benign lesions	No. Of Patients	Percentage
Galactocele	5	4.97
Fibroadenoma	88	47.81
Fibroadenosis	12	5.20
Phyllodes	2	0.085
Gynaecomastia	25	12.82
Papilloma	2	0.11
Epidermal cyst	3	0.21
Benign proliferative mammary lesion	53	28.795
Total	190	

In the benign category, inflammatory lesions accounted for 5%. The findings are very near to those observed by Chandanwale S and Baptist et al of 11% inflammatory

lesions.^[7,8] In our study benign lesions were maximum (85.86%). They were 7 times more common than malignant lesions. M. Kumar et al also reported the same.^[9] He asserted that in Indian rural population the benign breast diseases are 5 to 10 times more common than breast cancers. They stated that incidence of benign conditions of breast are common in developing countries but due to lack of education women disregard the breast lump. Adesunkanmi et al,^[10] have reported 85.86% of benign lesions and Chandanwale S have reported 80% of benign lesions.^[7] 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).^[11] Of the benign lesions fibroadenoma was most common and constituted 47.81%. Malik et al have reported 55% and Priyadarshni J et al have reported 57% of fibroadenoma.^[12,13] Incidence of fibroadenoma is highest in younger women under 30.^[11] Second most common was benign proliferative mammary lesion. Fibrocystic disease was the most common but we didn't categorize it because of overlap in cytological features of benign proliferative lesion. All cases of galactocele (4.97%) had history of lactation. Only one case of phyllodes tumor was diagnosed by FNA and it was confirmed on histopathology. In our study only one case of tuberculous mastitis diagnosed on the basis of ZN stain. This is because in India tuberculosis is very common. Chandanwale SS et al have reported an incidence of 20% in their study.^[14] Common sites for epidermal inclusion cyst are head, neck, trunk and extremities. Previous reports on epidermal cyst in breast is scanty and to date less than 46 cases have been reported. They remain underreported because of their insignificant clinical presentation.^[14]

There were 132 male patients out of which 131 patients had gynaecomastia and one patient of 80 years had infiltrating ductal carcinoma. The youngest patient was of 13 years while the oldest patient was 92 years. Gynaecomastia in young age is related to hormonal pubertal changes whereas in later years, it may be caused by hormonally active tumors, cirrhosis or medications. Maximum number of patients were in 11-20 years (10.77%) age group in gynaecomastia.^[15] 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.^[16] There were 154 cases of breast malignancy which were diagnosed as ductal carcinoma in 151 cases, 2 cases were reported as lobular carcinoma and 1 mucinous carcinoma. Pradhan et al have reported 15.5% cases, Mayun et al have found 40% and Jain SB et al have reported 20% of malignancy.^[17,18] In our study malignancy is comparatively less as we have catered rural population. Mortality and incidence is relatively lower in developing countries and other parts of globe in comparison to western population. (Khan et al 2003).^[19] Balkrishna B Yeole et al in an epidemiological study compared the breast cancer

incidence of various countries and found that incidence rates were very high in developed countries.^[20] The incidence of breast cancer increases with age, more common in urban population and in women of higher socioeconomic group. They also suggested that apart from genetic causes, change in life style is responsible for increase in incidence of malignant breast lesions.

CONCLUSION

For diagnosing the nature of palpable breast lesions, FNAC is considered as a highly accurate procedure with sensitivity and specificity as high as 95%. Its use has been recommended in literature as preliminary treatment on outpatient basis. Early diagnosis is of paramount importance to decrease the mortality and morbidity associated with these lesions. The ability of FNA to differentiate benign and malignant lesions coupled with high sensitivity and specificity gives psychological relief to the patient. When in doubt the investigations like mammography and tru cut biopsy can be used to differentiate between benign and malignant lesions. Majority of the lesions in their study were benign with fibroadenoma being the most commonly diagnosed lesion. Although endocrine factors play a major role in etiology of benign breast lesions their exact role is still an enigma.

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