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Original Article

Role of fine needle aspiration cytology in diagnosis of breast lumps

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Abstract

Objective: The aim of this study is to find out the common causes of breast lump and to determine the sensitivity and specificity of FNAC of breast lump.

Materials and methods: This is a retrospective study of FNAC of breast done in pathology department of NMCTH from January 2003 to December 2005. FNAC findings were correlated with data from histopathology records to determine the sensitivity and specificity of FNAC.

Results: FNAC of breast constituted 16% of all the FNACs. Age group of the patients ranged from 17 to 56 years with mean of 32 years. Fibroadenoma was the most common diagnosis. Malignancy was diagnosed in only 6.6% of the cases. Histological correlation was done in 21 cases. Sensitivity and specificity of FNAC of breast was found to be 83.3% and 100% respectively.

Conclusion: FNAC of breast is simple, cost effective and less traumatic method for diagnosis of breast lump. It is highly sensitive and specific also, and can reduce the needs for open biopsies. So FNAC should be used as a routine method for determining the nature of breast lumps.

Key words: FNAC, breast lump, neoplasm.

Cancer of breast is a second most common cause of cancer in women. Increase in cases of breast cancers are related to late marriage, birth of child in the later age, shorter period of breast feeding and nulliparity or low parity .Clinically, the diseases of breast present with lump in breast or nipple discharge. Mass in breast, whether benign or malignant is a cause of anxiety to the patient & her family members. Though histopathological diagnosis is a universally accepted confirmatory mode of diagnosis & follow up, fine needle aspiration cytology (FNAC) of breast lumps is an important part of triple assessment (clinical examination, imaging, and FNAC) of palpable breast lumps. Most cases of breast lumps are benign[1] but most of these patients are in a state of heightened anxiety until they have undergone specialist assessment, the necessary investigations and eventual reassurance[2,3]. Sometimes it is difficult to determine whether a suspicious lump is benign or malignant simply from clinical examination. Therefore a method of definitive diagnosis of patients who present with breast lumps at the outpatient clinic is needed. This method must be accurate, easy to perform and reproducible. It must also be acceptable to the patient, can be carried out in a busy clinic setting and must not require too much preparation or expensive equipment. Fine needle aspiration cytology (FNAC) of breast lump is an accepted and established method to determine the nature of the lump and it may play an important role when it is difficult to determine the nature of breast lump by clinical examination. It has been shown that, FNAC can reduce the number of open breast biopsies[4]. FNAC has been found to have sensitivity ranging from 82% to 97.5% and specificity of more than 99%[5,6,7]. The aim of this study is to find out the common causes of breast lumps and to find out sensitivity and specificity of FNAC of breast lumps in our hospital.

Materials and methods

This is a retrospective study done in pathology department of Nepal Medical College, Teaching Hospital (NMCTH). Data on breast FNAC done between January 2003 to December 2005 were retrieved from records of FNAC. Demographic data including age, sex and clinical presentation were obtained from request form. Findings of FNAC were correlated with data from histopathology records. Sensitivity, specificity and test efficiency were calculated using standard statistical methods.

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Results

A total of 91 cases of FNAC of breast were obtained which constituted 16% of total FNACs in the department during the three years period. Patients population consisted of 2 males and 89 females, ranging in age from 17 to 56 years with mean age of 32 years. FNAC diagnosis of breast lumps are shown in Table 1 and histologic correlation is shown in Table 2.

Most common cause of breast lump was fibroadenoma accounting for 36(39.5%) of the total cases followed by subareolar abscess. Invasive ductal carcinoma (IDC) accounts for only 6.6% of the cases. In three cases samples were inadequate for evaluation, due to presence of blood mainly. Out of 91 cases of FNAC, biopsy was done in only 21 cases. All cases of malignancy in FNAC proved to be malignant lesion by biopsy. In one case, FNAC showed only inflammatory and necrotic materials and biopsy proved it to be malignant lesion. So sensitivity and specificity of breast FNAC in diagnosis of malignancy was found to be 83.3% and 100% respectively. Test efficacy was 90%.

Table1: FNAC diagnosis of breast lumps

Diagnosis	**No. of cases (%)**
Fibroadenoma	36(39.6)
Sub areolar abscess	7(7.7)
Invasive ductal carcinoma	6(6.6)
Breast abscess	6(6.6)
Fibrocystic diseases	5(5.5)
Duct ectasia	5(5.5)
Galactocele	5(5.5)
Others	21(23)
Total	**91(100)**

Table2: Correlation of histologic diagnosis with FNAC diagnosis of breast lump

	Histological diagnosis →				
FNAC ↓	Fibroadenoma	IDC	Duct ectasia	Gynaecomastia	Fibrocystic disease
Fibroadenoma	8				1
IDC		5			
Duct ectasia			3		
Gynaecomastia				2	
Inflammatory		1			
Atypical epithelial hyperplasia	1				

Discussion

FNAC of breast lump is an accepted and established method to determine the nature of breast lump with high degree of accuracy[8, 9, 10, and 11]. The application of FNA for the diagnosis of palpable breast masses was first introduced by Martin and Ellis[12] in 1930, and since then, it has been established as an important tool in the evaluation of breast lesions. FNAC is simple, cost effective and less traumatic as well as highly sensitive and specific method for assessment of breast lumps. Most of the patients with breast lump are in a state of anxiety, so to reduce anxiety and unnecessary surgical procedures as well as to minimize delay in diagnosis, FNAC plays important role.

This study documented the fact that the benign lesions of breast are the most common lesions. This increased case of benign lesions indicates increase in awareness of patients. In such lesions the reassurance is the main line of treatment though close follow up is mandatory.

Such lesions are more common in young females. In this study, sensitivity and specificity of breast FNAC in diagnosis of malignancy was 83% and 100% respectively, which was quite comparable to the findings of the other studies[5, 6, 7].One case of malignancy was diagnosed as inflammatory lesion by FNAC. This was because of presence of severe inflammation and necrosis without viable malignant cells in FNAC. So if there is extensive inflammation in FNAC, it is better to correlate the findings with clinical diagnosis and to take core biopsy to avoid misdiagnosis. There were no false positive cases in this study.

Conclusion

FNAC of breast is highly accurate and has low false positive and false negative diagnosis. It can be carried out safely as a preoperative diagnostic method in patients with breast lump, mostly in outpatient department. So its use should be recommended for the diagnosis of suspicious breast lumps. With the result of FNAC, patient can be advised for further treatment.

Limitation of the Study

In this study, out of 91 cases of FNAC of breast lump, biopsy was done only in 21 cases. So sensitivity and specificity was based on these 21 cases only. Due to small sample size, the findings (sensitivity and specificity) of this study may not be valid but they were comparable to the findings of other studies where sample size was quite high.

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