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RESEARCH ARTICLE

Role of Fine Needle Aspiration Cytology in the Diagnosis of Malignant Breast Lesions with Histopathological Correlation

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ABSTRACT

Fine needle aspiration cytology has become the preliminary diagnostic tool in the evaluation of clinically palpable breast lumps. This study was taken up to evaluate the role of FNAC in diagnosing malignant breast lesions. In this two year study 70 cases of malignant breast lesions diagnosed on cytology were followed up for histopathological correlation. Sensitivity was 94.3% and specificity was 100%. Sub typing of epithelial malignancies need a careful examination and an experienced cytopathologist.

INTRODUCTION

Breast cancer is the second most common cancer after carcinoma cervix in India[1,2]. Incidence of breast cancer is increasing in the young breast lump is a source of anxiety in females[3, 4]. with increased awareness, and any palpable lump in breast is coming to clinical attention more frequently than before. Fine needle aspiration cytology (FNAC) is the rapid, simple, safe and fairly accurate investigation in diagnosing breast lumps [5, 6, 7, 8]. It is commonly used as a part of diagnostic triad including clinical breast examination and mammography [9, 10, 11]. FNAC has the advantage over core biopsy in that preliminary diagnosis can be made in a single day. This study was taken up to study the sensitivity and specificity of FNAC in the diagnosis of malignant breast lesions.

MATERIALS AND METHOD

This study was carried out over a period of two years (2006 and 2007) in Karnataka institute of medical sciences, Hubli, Karnataka a tertiary care centre. Hundred cases of malignant breast lesions diagnosed on fine needle aspiration cytology were followed up, either lumpectomy or modified radical mastectomy specimen submitted for histopathological examination were correlated . Of the hundred cases 70 cases underwent surgery and were considered for the study. Verbal consent was taken from the patients after explaining the procedure. Fine needle aspiration cytology was done using 5ml syringe with 20-22 gauge needle. Minimum of 3 passes were made in each case to obtain adequate material from different quadrants. Adequacy of the smears was assessed by Rubenchik criteria which states 6 or more epithelial cell groups with minimum of 5-10 cells per group[1,5]. If this criterion not achieved smears are labelled unsatisfactory and FNAC was repeated. Smears stained with Haematoxylin -Eosin stain, Papanicolaou stain and May- Grunwald- giemsa's stain were examined. These smears were used for cytological diagnosis. Smears showing few abnormal cells (smears with low cellularity or excessive stripped bare nuclei or bipolar nuclei or many benign cell groups[11]) but a firm diagnosis of malignancy could not be made were reported as suspicious of malignancy and were adviced for biopsy to rule out malignancy. Histopathological specimen were processed routinely, stained with Haematoxylin- Eosin stain and were examined.

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RESULTS

In the present study total 70 cases which had histopathological correlation were considered. Infiltrating ductal carcinoma (IDC) was the most common cytological diagnosis (88.7%). Suspicious of malignancy was the reported in 4 cases (5.7%), followed by 2 cases of medullary carcinoma (2.8%) and an each case of colloid carcinoma and malignant phylloides (1.4%).

Table 1. Table showing cytological diagnosis

Diagnosis	Number of cases	Percentage
Suspicious	4	5.7
IDC	62	88.7
Medullary carcinoma	2	2.8
Colloid carcinoma	1	1.4
Malignant phylloides	1	1.4
Total	70	100

Histopathological examination of corresponding cases on follow up revealed the diagnosis of infiltrating ductal carcinoma in 61 cases (87.1%). Infiltrating lobular carcinoma (ILC) was diagnosed in 5 cases (7.1%), colloid carcinoma in 2 cases (2.8%) and an each case of medullary carcinoma and malignant phylloides (1.5%). In the study 57 cases of infiltrating ductal carcinoma, 1 case of medullary carcinoma, 1 case of colloid carcinoma and 1 case of malignant phylloides were correlated both on cytology and histopathology.

Table 2. Table showing histopathological diagnosis

Diagnosis	Number of cases	Percentage
IDC	61	87.1
ILC	5	7.1
Colloid carcinoma	2	2.8
Medullary carcinoma	1	1.5
Malignant phylloides	1	1.5
Total	70	100

Out of the four suspicious cases of malignancy on cytology 3 cases were infiltrating ductal carcinoma and 1 was infiltrating lobular carcinoma on histopathology. Out of the 2 cases of medullary carcinoma on cytology, one case was IDC and another was medullary carcinoma on histopathology.

Table 3. Table showing correlation of cytological and histological diagnosis

Cytological diagnosis	Histological diagnosis					Total
	IDC	ILC	Medullary carcinoma	Colloid carcinoma	Malignant phylloides	
Suspicious	3 (75%)	1 (25%)	0	0	0	4
IDC	57 (92%)	4 (6.4%)	0	1 (1.4%)	0	62
Medullary carcinoma	1 (50%)	0	1 (50%)	0	0	2
Colloid carcinoma	0	0	0	1 (100%)	0	1
Malignant phylloides	0	0	0	0	1 (100%)	1
Total	61	5	1	2	1	70

DISCUSSION

In this study 62 cases were diagnosed as infiltrating ductal carcinoma on cytology, out of which 57 were IDC, 4 were ILC and 1 was colloid carcinoma on histopathology. On retrospect review of slides mucin in the background which was scanty was missed in colloid carcinoma. Indian file pattern and monomorphic cell population were overlooked hence ILC was missed on cytology. Of the 4 cases reported as suspicious of malignancy 3 cases turned out to be IDC and 1 case was ILC. Of the 2 cases reported as medullary carcinoma one was IDC. Malignant phylloides correlated well with histopathology. Over all sensitivity was 94.3% and specificity was 100% in diagnosing malignant breast lesions. With specificity of 100% FNAC is as good as trucut biopsy or excisional biopsy. Both epithelial and non epithelial malignancies such as malignant phylloides can be diagnosed cytologically. Sub typing of epithelial malignancies into lobular, colloid, medullary requires careful evaluation of the smears and experienced cytopathologist. FNAC material thus obtained can also be used for immunocytochemical examination which will aid the surgeon in selection of appropriate treatment.

Conclusion

FNAC is the simple, low cost, accurate and rapid around time tool in the diagnosis of malignant breast lesions. Accuracy of FNAC in the diagnosis of malignant breast lesions depends on the experience of the cytopathologist and adequate sample. High sensitivity and specificity make FNAC a useful method in evaluating the suspicious breast lumps in outpatient settings.

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