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RESEARCH ARTICLE

FINE NEEDLE ASPIRATION CYTOLOGY AS A DIAGNOSTIC TOOL IN BREAST LUMPS

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ABSTRACT

Introduction: Breast lesions are a challenge not only for Pathologists but also for Surgeons. The complexity of breast structure and the physiological changes it undergoes at various stages of a female's life makes it a unique organ for histopathological studies. The number of deaths with breast carcinoma are alarmingly increasing over recent times.
Aims and Objective: To Study the diagnostic efficacy of Fine needle aspiration cytology (FNAC) of palpable lesions of breast along with the morphologic spectrum of lesions in breast on cytology.
Materials and Methods: The study period was from May 2016 to June 2017. All the cases which came to Cytology Unit of Pathology Department with palpable lump/mass in breast were included in the study. Subsequently these cases were subjected to surgical excision.
Results: Out of 120 patients, 110 were benign (90%) and 10 cases were malignant (10%). Out of 100 cases which were reported as benign 96 cases proved the same diagnosis on histopathology whereas four cases turned out to be malignant on histopathological examination. Most cases which were reported as malignant on FNAC showed malignant features on histopathology too.

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INTRODUCTION

Breast pathology diagnosis is quite challenging at times. Every year there are more and more number of deaths due to carcinoma breast. It is common in age group of 45 to 55 years. Even the younger age group is not being spared and the time period between diagnosis and death in few cases had been very short. So the concern for early diagnosis and timely treatment. Recently there is a steep rise in carcinoma breast in younger women (who are less than 30 years). 48% of breast cancers occur in less than 50 years of age. Carinoma breast accounts for 38% of all female cancers (Gargi TIKKU, 2016). Medical fraternity is on a mission to find a tool which could accurately diagnose the lesion and also help in prognostication of the disease. There is this theory of '' triple test'' which includes clinical examination, radiologic examination and cytology (Prakash *et al*., 2011). Kun in 1847 described the technique of FNAC. and Ellis and Martin in 1930 introduced it into clinical practice (Diagnostic, 2017). FNAC has been a boon to the medical fraternity if carried out with a sound knowledge of various lesions their common site of occurrence and the clinical presentation.

MATERIALS AND METHODS

Study was conducted at our hospital, cytology unit of Pathology department. Total number of 120 cases were included in this study. Both males and females presenting with palpable lump in breast were included as part of the study. The cases with palpable breast lump presented to surgical out patient department and were referred to cytology unit of Pathology department for fine needle aspiration cytology (FNAC). Procedure was explained to all the patients included in the study. Since it is done without any an aesthetic this procedure is associated with mild, tolerable pain was also informed to the patients. Before doing FNAC, brief history of illness (lump/lesion) was taken, detailed and thorough examination of involved breast and uninvolved breast was done. Size of lump, its mobility, consistency and extension were noted. Whether the lesion is superficial or fixed to the underneath structures was noted Nipple discharge, colour of discharge, puckering of skin around the nipple, were noted. Axilla was examined for any lymph nodes. FNAC was done using 22 gauge needle keeping negative pressure. Number of passes done depended on the size and consistency of swelling.

In larger lumps/mass, aspiration was done at least three or more sites. Protocol followed for cystic lesions was to first aspirate completely. Then from cyst wall material was collected. Slides were prepared by spreading the material on the glass slides and staining the slide. Leishman stain was routinely used. Papanicolou (PAP) stain was used as and when required. PAP stain needs prefixation of slides with alcohol. 80% ethyl alcohol before staining. Multiple smears were prepared so as not to miss any suspected area of malignancy. Each smear was numbered with a diamond marker, labellled, mounted and studied under the microscope.

RESULTS

In our study out of 120 cases there were two males. Youngest patient in our study was 18 year old and oldest patient was 70 years old. There was bilateral involvement of breast in two cases, both were young female patients of reproductive age group. One presented with lump in outer upper quadrant of right breast, aspirate was pus and microscopy showed features of acute mastitiis. Majority of cases were benign.

Table 1. Shows age wise distribution of benign and malignant lesions

Age in years	Number of cases	Benign	Malignant
10 -20	1		nil
21-30	20		1
31-40	42		2
41-50	36		1
51-60	8		5
61-70	3		1

Table 2. Shows number of cases of individual lesions

FNAC diagnosis	Number of cases
Fibroadenoma	60
Fibrocystic disease	48
Phyllodes,benign	1
gynaecomastia	1
Granulomatous mastitis	1
Ductal carcinoma	8
Angiosarcoma	1

Out of 120 patients, 110 were benign (90%) and 10 cases were malignant (10%), as shown in Prakash et.al There were two male patients in our study and both the cases were benign in nature. e. gynaeccomastia. Out of 10 malignant cases, three were young females of reproductive age group and 1 case was reported in female above 60 years of age. Two cases showed aggressive disease. Almost all benign correlated with histopathological report. Data is provided in the tables. Most common benign diagnosis was fibro adenoma and most common malignant diagnosis was Invasive ductal carcinoma. There was a case of a young female with huge bilateral breast mass. Clinical examination showed an inflammatory/ infectious pathology. FNAC in this case was reported as granulomatous mastitis in one of the breast and malignancy in the other breast. Histopathological examination revealed bilateral malignancy. The diagnosis was Angiosarcoma which is very rare for the site. Two cases were reported as phyllodes tumor on cytology one with malignant suspicion. On histopathology benign phyllodes was confirmed. Interestingly this young patient in her early 30's, presented with lymph node involvement which turned out to be reactive lymph node. The other phyllodes was reported as Atypical Ductal hyperplasia on biopsy. Table 1 and 2 shows the age group of patients and the number of patients affected with benign/malignant lesion of breast as well as the diagnosis. Figure 1 to 9 shows benign and malignant features on cytology.

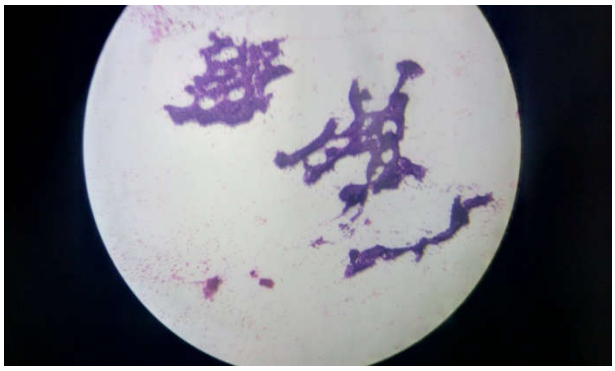

Fig. 1. Fibroadenoma

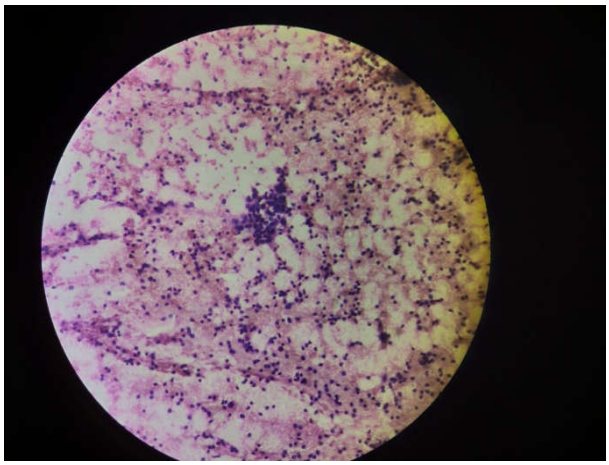

Fig. 2. Fibroadenoma

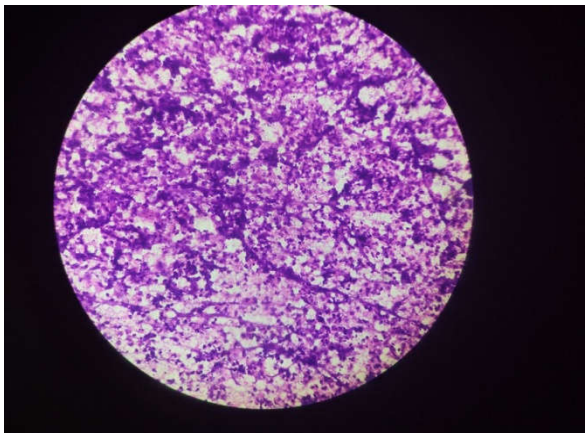

Fig. 3. Granulomatous_mastitis

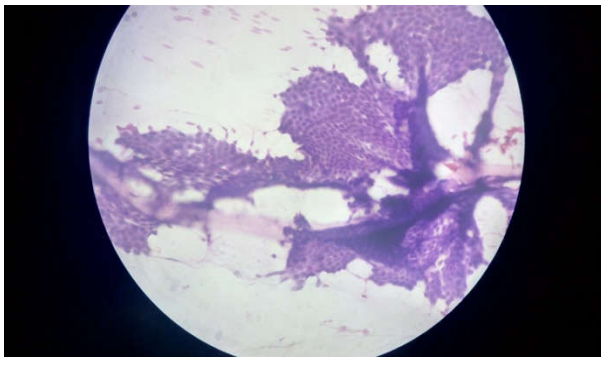

Fig. 4. Benign_phyllodes

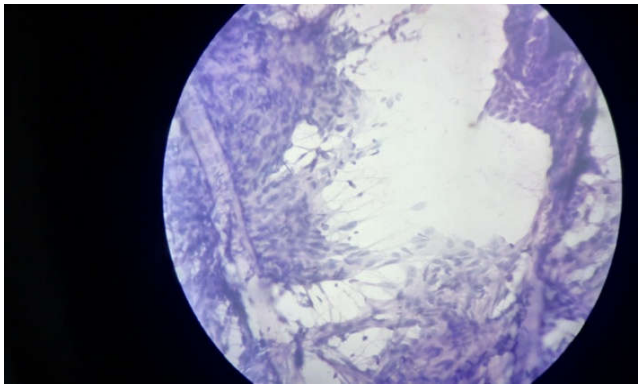

Fig. 5. Benign_phyllodes

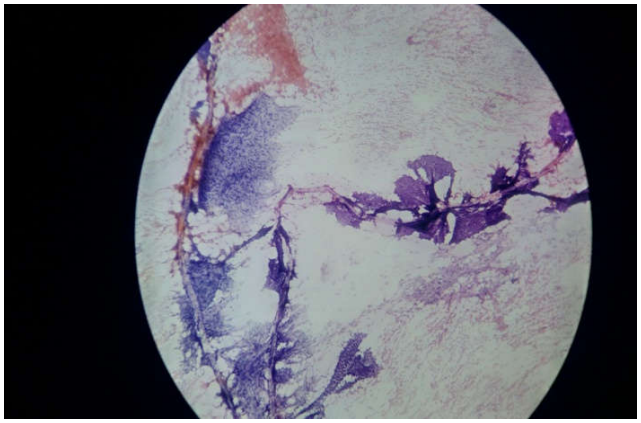

Fig. 6. Benign_phyllodes

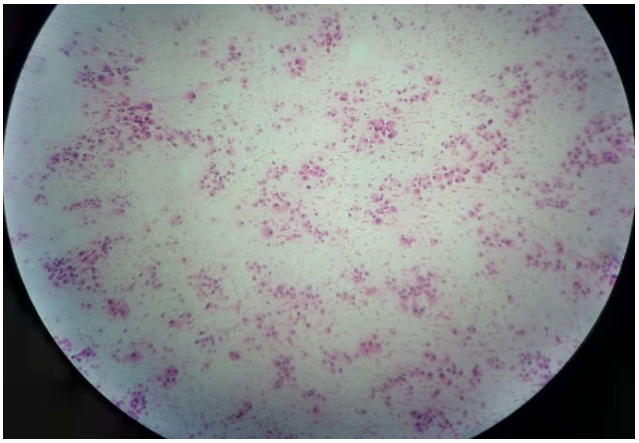

Fig. 7. Malignancy

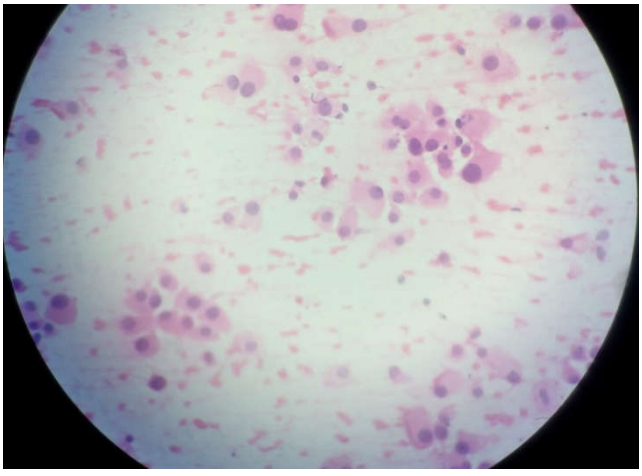

Fig. 8. Ductal_carcinoma_40x

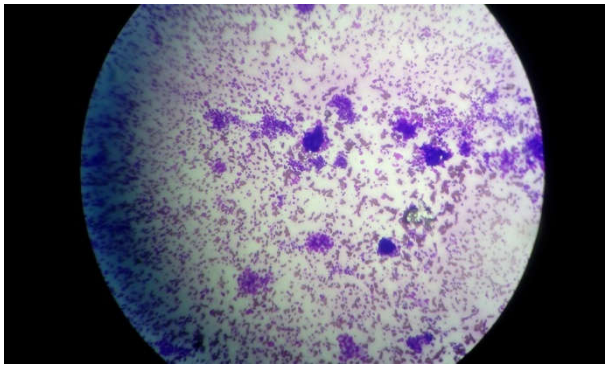

Fig. 9. Ductal_carcinomma

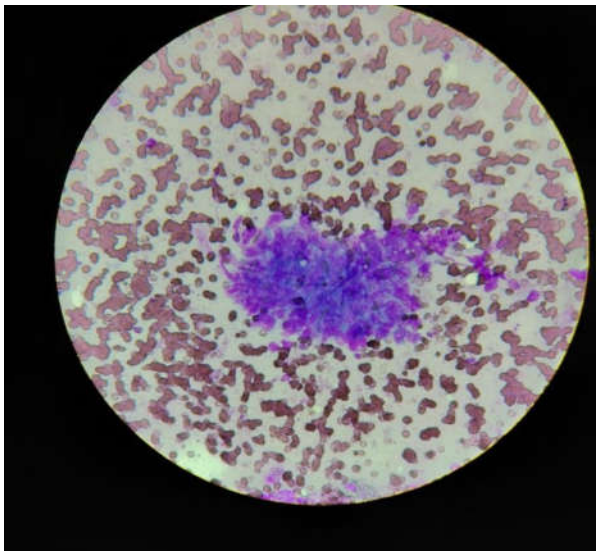

Fig. 10. Angiosarcoma

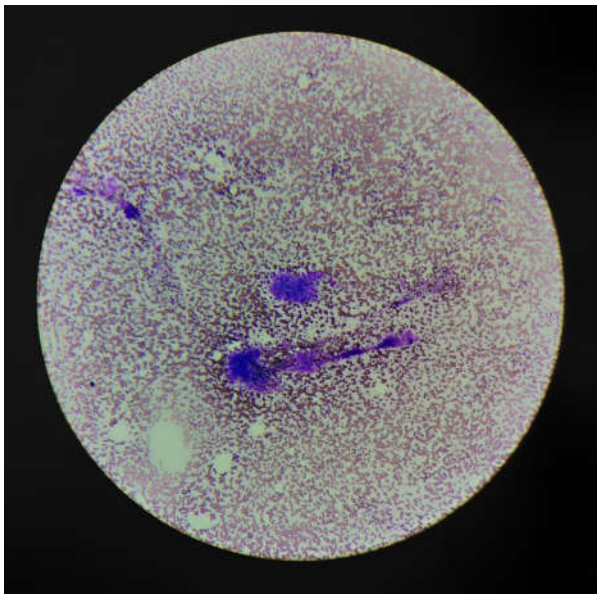

Fig. 11. Angiosarcoma

DISCUSSION

Breast pathology is an intriguing topic, the morphology of which varies at different ages of a female's life. Delay in diagnosis due to various causes can lead to loss of life. Hence medical fraternity is always on a lookout for a diagnostic tool which can assist in quicker, accurate diagnosis. Theory of Triple assessment has saved time and has also proved to be reliable. Triple Assessment means radiology, pathology,

genetic, serum markers (Peters, 2011). Every year new cases keep on adding. Benign and malignant both lesions are quite common in Indian scenario. It accounts for second most common cause of cancer deaths after carcinoma cervix (Smitha Balwanntrao, 2014). In developing countries it is not feasible to follow triple assessment. Hence we depend on radiology and cytopathology in most of the cases. So it becomes all the more important to develop skills in performing FNAC and reporting of cytopathology slide. There is no doubt that genomics provide the ultimate information. Genomics is reffered to as study of functions and interactions of all genes in a person. One can find out the risk occurrence and optimize the treatment. Mammogram remains the gold standard in breast lesions. Combining mammogram and cytology one can achieve the target of correct diagnosis in most cases. Still there are ambiguous lesions which are diagnosed only on histopathology. Breast lesions even at a younger age can be malignant, most common malignancy being Invasive ductal carcinoma. In our study we diagnosed one case of angiosarcoma which is very rare in breast (Allesandra, 2008). It clinically mimicked malignancy. On examination breast was quite enlarged in size and showed nodularity on palpation. FNAC showed spindle shaped, elongated cells which mimics granulomatous lesion. Occassional cells showed mild pleomorphism. Though diagnostic pitfalls are present in aspiration cytology whether it is breast or any other organ, still it remains the mode of investigation when surgeon wants an early diagnosis. FNAC still plays a major role in diagnosis of benign disease in symptomatic palpable lumps as part of triple assessment, staging of breast carcinoma in particular preoperative axillary lymph node FNAC and intraoperative sentinel node imprints and diagnosis of metastatic disease at distant sites following treatment for carcinoma (Kocjan, 2008). Also in cases which show indeterminate results, a repeat FNAC within a month or Core biopsy would give results (Bauke Kooistra, 2009). Sound communication between Surgeon and Pathologist also provides the much needed correct clinical information. FNAC serves as a quick method, much cheaper and less time consuming compared to other diagnostic modalities. It does not require any complicated equipment and can be performed even at a primary health care centre on outpatient basis.

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