Utility of Fine Needle Aspiration Cytology and Ultrasonography in Detection of Breast Cancer- A Clinical Study

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ABSTRACT

Introduction: Breast malignancy is the most widely recognized tumor in females around the world. It is likewise the guideline reason for death from malignancy among ladies internationally. The (USG-FNAC) ultrasonography-fine needle yearning cytology procedures have adequate symptomatic legitimacy files and can be utilized for early arranging of bosom disease patients. The present examination was directed to evaluate breast malignancy utilizing FNAC and USG among consider population.

Material and Methods: This study was conducted in the department of general pathology in year 2015. It included 80 women with breast lump. All were subjected to ultrasound, FNAC and incisional biopsy. The FNAC was performed using a 23G needle and 10 ml syringe with an average of four to six passes with constant suction. Strong injuries with sporadic shape, unpredictable edge, non-uniform dissemination of inside echotexture, shadowing and calcifications in hypo-echoic sores are suggestive of malignancy by USG.

Results: Out of 80 patients, 32 had education upto high school and 48 were illiterate. 74% had lump within 2- 6 months and 26% had more than 6 months. 54% had fever, 22% had fever, 24% had discharge from nipple, 5% had redness over breast and 3% had pain in opposite breast. Benign growth was seen in 50 (62%) patients and malignant growth was seen in 30 (38%) patients. Among benign, 90% was localized and 10% was ulcerated. In malignant, 55% was localized, 30% was ulcerated and 20% was infected fungating growth. USG had Sensitivity of 91%, specificity of 92% and PPV of 74.2% whereas FNAC had Sensitivity of 95%, specificity of 98% and PPV of 94%. Various histopathological lesions were fibroadenoma (19), fibrocystic disease (17), DCIS (6), fat necrosis (3), tuberculous mastitis (2), adenosis (1), tubular adenoma (2) and breast cancer (30).

Conclusion: Early detection of breast lesions using fine needle aspiration cytology and ultrasonography is useful measure. Breast lump more than 1 month should be considered for detection and delay should be avoided as the chances of breast cancer cannot be over ruled.

Keywords: Fine Needle Aspiration Cytology, Fibroadenoma, Ultrasonography

INTRODUCTION

Breast cancer is the most well-known growth in females around the world. It is additionally the guideline reason for death from malignancy among ladies all around. The expression "bosom disease" alludes to a harmful tumor that has grown for the most part from the ductal epithelial cells in the breast.[1]

As of now, it is the most driving reason for malignancy passing with 198,000 passings for every annum which speaks to 15.4% of all passings in created districts after that of the lung disease. In creating nations, it is the main driving reason for death among ladies with 324,000 passings which spoke to 14.3% of all passings. Moreover, this rate varied from 6 to 20 per 100,000 in East Asia and West Africa as a Whole.[2]

The most common risk factors of breast cancer are obesity, lack of exercise, alcohol consumption, smoking and use of oral contraceptive pills. Whereas genetic mutations and family history of breast cancer also plays important role. In general, women from higher socio-economical groups, regardless of their race/ethnicity, have higher rates of occurrence of breast cancer. Most of the breast cancers are asymptomatic.[3]

At present, screening for breasttumor in females is viewed as powerful approach to decrease rate of bosom malignancy. So a quick and precise conclusion device is vital and essential in the execution of bosom malignancy screening. The USG-FNAC ie ultrasonography-fine needle yearning cytology methods have satisfactory analytic legitimacy lists and can be utilized for early organizing of bosom malignancy patients.[4]

The present investigation was directed to survey breast malignancy utilizing FNAC and USG among contemplate populace.

MATERIAL AND METHODS

This study was conducted in the department of general pathology in year 2015. It included 80 women with breast lump. All were informed regarding the study and written consent was obtained. Patient information such as name, age, duration of lump etc. was recorded. A thorough history and physical examination was done in all patients.

All were subjected to ultrasound, FNAC and incisional biopsy. The FNAC was performed using a 23G needle and 10 ml syringe with an average of four to six passes with constant suction. We received tissue of breast lumps excised in Surgery OT under local/general anesthesia. Where the lump was very big, incision biopsy was done at proper site and with proper orientation of the incision. The histopathology reports gotten at follow-up visits were utilized to look at the consequence of USG and FNAC. High recurrence ultra sound picture was utilized for analysis. Strong sores with sporadic shape, unpredictable edge, non-uniform appropriation of inside echotexture, shadowing and calcifications in hypo-echoic injuries are suggestive of growth by USG.

STATISTICAL ANALYSIS

Results thus obtained were subjected to statistical analysis. P

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value less than 0.05 was considered significant.

RESULTS

Table 1 shows that out of 80 patients, 32 had education upto high school and 48 were illiterate. 74% had lump within 2- 6 months and 26% had more than 6 months. Figure 1 shows that 54% had fever, 22% had fever, 24% had discharge from nipple, 5% had redness over breast and 3% had pain in opposite breast. Figure 2 shows that benign growth was seen in 50 (62%) patients and malignant growth was seen in 30 (38%) patients. Among benign, 90% was localized and 10% was ulcerated. In malignant, 55% was localized, 30% was ulcerated and 20% was infected fungating growth. Table 2 shows that USG had Sensitivity of 91%, specificity of 92% and PPV of 74.2% whereas FNAC had Sensitivity of 95%, specificity of 98% and PPV of 94%. Figure 3 shows that various histopathological lesions were fibroadenoma (19), fibrocystic disease (17), DCIS (6), fat necrosis (3), tuberculous mastitis (2), adenosis (1), tubular adenoma (2) and breast cancer (30).

DISCUSSION

Breast cancer is recognised as a major public health problem in developing countries. Breast cancer is cancer that develops from breast tissue. Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin. In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin.[5]

The two most commonly used screening methods, physical examination of the breasts by a healthcare provider and mammography, can offer an approximate likelihood that a lump is cancer, and may also detect some other lesions, such as a simple cyst. When these examinations are inconclusive, fine needle aspiration, or fine needle aspiration and cytology—FNAC) procedure is helpful in establishing the diagnosis. The needle aspiration may be performed in a healthcare provider's office or clinic using local anaesthetic if required. A finding of clear fluid makes the lump highly unlikely to be cancerous, but bloody fluid may be sent off for inspection under a microscope for cancerous cells. Together, physical examination of the breasts, mammography, and FNAC can be used to diagnose breast cancer with a good degree of accuracy. USG is useful in detection of breast massess.[6]

In present study we analyzed patients with breast masses using FNAC and USG. Out of 80 patients, 32 had education upto high school and 48 were illiterate. 74% had lump within 2- 6 months and 26% had more than 6 months. We found that common symptoms in patients were fever, discharge from nipple, redness
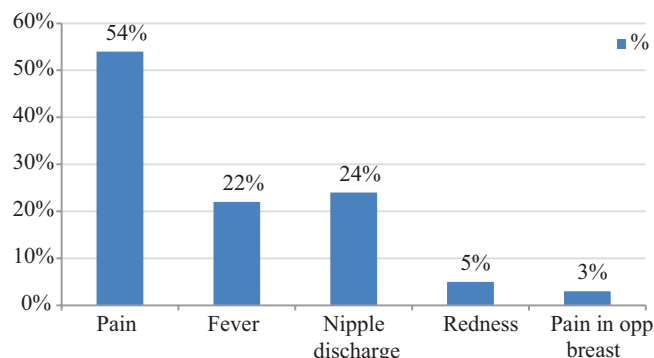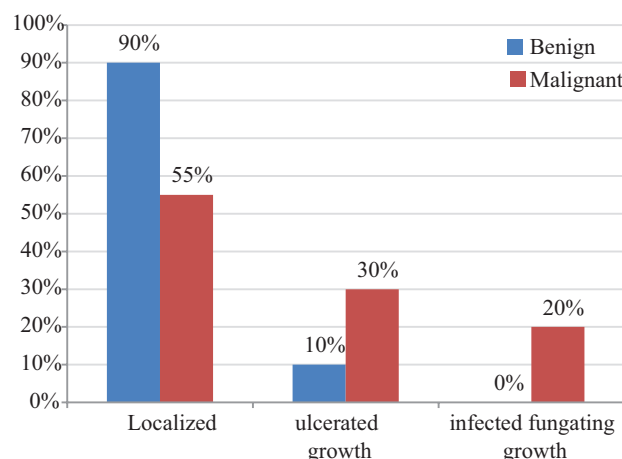

Figure-1: Symptoms in patients
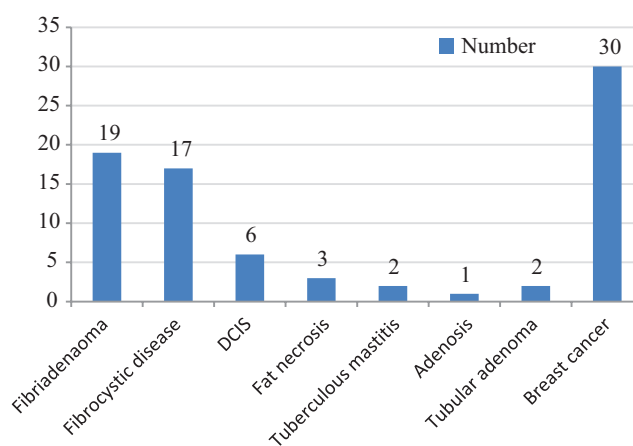

Figure-2: Gross appearance of lesion

Figure-3: Histopathological Diagnosis

Total - 80			
Literacy		**Time lapse since lump first noticed**	
Upto high school	Illiterate	2-6 months	>6 months
32	48	74%	26%
Table-1: Demographic parameters in patients			

Test	Biopsy+/ breast cancer	Biopsy-/ no of breast cancer	Total	Sensitivity, specificity and PPV
USG				
Benign	2	45	47	Sensitivity 91%, specificity 92% and PPV 74.2%
Malignant	26	7	33	
FNAC				
Benign	1	48	49	Sensitivity 95%, specificity 98% and PPV 94%
Malignant	25	6	31	
Table-2: Ultrasonography and FNAC in breast cancer				

over breast and pain in opposite breast. This is in accordance to Vissa et al.[7]

We found that among study population, benign growth was seen in 62% patients and malignant growth was seen in 38% patients. Among benign, 90% was localized and 10% was ulcerated. In malignant, 55% was localized, 30% was ulcerated and 20% was infected fungating growth. A study conducted by Nair MK[8] found 71.2% of benign lesions.

A study conducted by S Usmani[9] reported high specificity and sensitivity of FNAC as compared to USG. In our study, USG had Sensitivity of 91%, specificity of 92% and PPV of 74.2% whereas FNAC had Sensitivity of 95%, specificity of 98% and PPV of 94%.

In our study, histopathological lesions were fibroadenoma, fibrocystic disease, DCIS, fat necrosis, tuberculous mastitis, adenosis, tubular adenoma and breast cancer. This is in accordance to Y singh et al.[10]

CONCLUSION

Early detection of breast lesions using fine needle aspiration cytology and ultrasonography is useful measure. Breast lump more than 1 month should be considered for detection and delay should be avoided as the chances of breast cancer cannot be over ruled.

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