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EFFICACY OF FNACIN BREAST LUMP EVALUATION – A REVISIT AT TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To assess the results of fine needle aspiration as an adjunct tool for breast lump evaluation in terms of sensitivity, specificity and diagnostic validity.
Methodology:
Study design: Prospective analytical study.
Study setting: Department of Surgery, Liaquat University of Medical & Health Sciences, Jamshoro.
Sample size: Ninety five patients
Sample technique: Non-probability convenient sampling technique after obtaining informed consent.
Study duration: February 2007 to January 2009.
Results: A total of 95 females, 86 (90.52%) married and 9 (9.47%) unmarried were included in the study. Mean age of our patient was 38 years (range 14-70 years). All patients (100%) were presented with the history of breast lump of duration about 4 months to more than 2 ½ years. Out of 95 patients, 83(87.3%) had unilateral lump and 12 (12.7%) had bilateral lump. Forty six (48.2%) gave history of breast pain while 66 (69.4%) had history of weight loss. Comparison of FNAC and histopathology results done, for 29 malignant lesions FNAC could detect 21 (72.4%) and 4 (13.7%) were graded as suspicious of malignancy and 4 (13.7%) were remained undiagnosed. Due to thorough conservative approach there was no false positive diagnosis. For 66 benign lesions on histopathology, FNAC could diagnose 54 (81.8%) and 12 (18.18%) labeled unsatisfactory for diagnosis. Analysis of cytology reports showed that there were 21(72.4%) true positive (TP) for malignancy and 4 (6.06%) were false negative (FN), 54 (81.81%) were true negative (TN) for malignancy and there was no false positive.
Conclusion : Mastectomies can be prevented by early diagnosis and open biopsies need can be reduced. FNAC should be routinely used as a part of clinical sequence to determine the nature of breast lump.

INTRODUCTION

Breast lump is one of the most common surgical problems. Most of breast lump are benign in nature but most of the patient are always in the state of heightened obsession and anxiety until they go specialist assessment with necessary investigations and eventual reassurance.[1,2] Breast cancer is the most common malignant disease among the women and as old as mankind.[1]It is leading cause of death in women more than 300,000 deaths per year worldwide.In Pakistan it account 25% of all malignant tumors in female population and constitutes the common and most dreadful malignancy.[4]
Breast lump can be diagnosed with high degree of accuracy by localized physical examination, mammography and fine needle aspiration cytology. The application of FNAC for the diagnosis of palpable breast masses was introduced by Martin and Ellis in 1930 and since then it has been established as an important tool in the evolution.[2,5] Indeed all experts with medical wisdom are of opinion that every palpable breast lump requires preoperative mandatory cytological or histological diagnosis which can be achieved

either by fine needle aspiration or core needle biopsy and this fine needle aspiration cytology has become widely popular throughout the world. FNAC of the breast lump is an established method to determine the nature of breast lump with high degree of accuracy, and has been accepted worldwide for breast lump evaluation.[6,7,8] This study was designed to evaluate our experience with FNAC results so that FNAC as a part of clinical sequence to detect malignant lumps at earlier stages and patient may get rid of cancer phobia in case of benign lump.

METHODOLOGY:

Objective: Toassess the results of fine needle aspiration as an adjunct tool for breast lump evaluation in terms of sensitivity, specificity and diagnostic validity.

Study design: Prospective analytical study.

Study setting: Department of Surgery, Liaquat University of Medical & Health Sciences, Jamshoro.

Sample size: Ninety five patients

Sample technique: Non-probabilityconvenient sampling technique

Study duration: February 2007 to January 2009.

Inclusion criteria:

- Female patients with palpable solid breast lump.

Exclusion criteria:

- Females before menarche.
- Female with cystic breast lump.
- Patients having previous breast surgery.
- Patients not willing for excisional biopsy.

Data collection procedure: A total 95 female patients filling inclusion criteria analyzed during this study after taking consent for including in study.After taking demographic data and clinical evaluation ladies were briefly informed about the FNAC procedure. Then FNAC done smears wet fixed in 95% alcohol and examine by cystopathologist. All the patients underwent excisional biopsy of breast lump. Results of FNAC and histopathology compared and statistical analysis was done. Data was collected on proforma designed for this study.

Statistical Analysis of FNACin 95 Patients:

Sensitivity = TPx100/TP+FN
= 21x100/21+4 = 84

Specificity = TN/TN+FPx100
= 54/54+0x100 =100

Validity = TP+TN/TP+TN+FP+FNx100
= 21+54/21+54+0+4=94.93

PPV = TP/TP+FPx100
= 21/21+0x100=100

NPV = TN/TN+FNx100
= 54/54+4x100=93.1

FPR = 100-specificity
= 100-100=0

FNR = 100-sensitivity
= 100-84 =16

RESULTS:

A total of 95 females, 86 (90.52%) married and 9 (9.47%) unmarried were included in the study. Mean age of our patient was 38 years (range 14-70 years). All patients (100%) were presented with the history of breast lump of duration about 4 months to more than 2 ½ years. Out of 95 patients, 83(87.3%) had unilateral lump and 12 (12.7%) had bilateral lump. Forty six (48.2%) gave history of breast pain while 66 (69.4%) had history of weight loss.

Physical examination revealed that left breast more commonly involved 58(61%), most of lumps were in upper outer quadrant 47(49.4%). Mean size of lump was 3.6 cm (ranged 1.5-10 cm) nipple retraction was presented in 13 (13.68%) and peau d' orange in 7 (7.36%) patients.

Clinical evaluation also showed that 37 (38.9%) females breast fed their children for more than one year, 48 (50.5%) for less than six month, 10 (10.5%) were infertile. Clinical diagnosis was made as benign lump in 59 (62.1%) and malignant in 36 (37.8%) patients. FNAC of all breast lumps done which showed malignancy in 21 patients (22.1%) 7 had intraductal and 14 had invasive duct cell carcinoma, suspicious was in 4 (4.21%), benign in 54 (56%) patients fibroadenoma, fibrocystic disease, chronic pyogenic mastitis and fat necrosis, while in 16 (16.8) patients pathologist was unable to comment and labeled as unsatisfactory. (Table I)

TABLE: 1
FNAC RESULTS
n=95

DIAGNOSIS	NUMBER (%)
Malignancy	21(22.1%)
Suspicious	04(4.3%)
Benign	54(56.8%)
Unsatisfactory	16(16.8%)
Total	95(100%)

TABLE: 2
HISTOPATHOLOGY
n=95

DIAGNOSIS	NUMBER (%)
MALIGNANT	29 (30.5%)
• Intra ductal carcinoma	11 (37.9%)
• Invasive ductal carcinoma	16 (55.7%)
• Lobular carcinoma	02 (6.9%)
BENIGN	**66 (69.5%)**
• Fibroadenoma	49 (74.2%)
• Fibrocystic disease	04 (6%)
• Phyllodes tumor	01 (1.5%)
• Chronic pyogenic mastitis	06 (9.0%)
• Traumatic fat necrosis	04 (6%)
• Tuberclosis	02 (3%)
Total	95

Histopathology of the 95 patient is shown in Table II. Comparison of FNAC and histopathology results done, for 29 malignant lesions FNAC could detect 21(72.4%) and 4 (13.7%) were graded as suspicious of malignancy and 4(13.7%) were remained undiagnosed. Due to thorough conservative approach there was no false positive diagnosis. For 66 benign lesions on histopathology, FNAC could diagnose 54 (81.8%) and 12 (18.18%) labeled unsatisfactory for diagnosis.

Analysis of cytology reports showed that there were 21(72.4%) true positive (TP) for malignancy and 4 (6.06%) were false negative (FN), 54 (81.81%) were true negative (TN) for malignancy and there was no false positive.

After statistical analysis of FNAC it was evident that for malignancy of breast lump FNAC has 100% specificity, 84% sensitivity, 94.93% validity or accuracy, false positive rate zero, false negative rate 16%, 100% positive predictive and 93.1 % negative predictive value.

DISCUSSION:

Breast lump have always commanded a great deal of attention because of fear of their being cancerous. Most of breast disease takes the form of palpable lump, sometimes painful and most of these conditions have possible confusion clinically with cancer.[9] Women breast lump are in a state of anxiety. So to reduce anxiety and unnecessary surgical procedure as well as to minimize delay in the diagnosis FNAC play as important role. This study was aimed to assessthe efficacy of FNAC in breast lump evaluation with regards to sensitivity, specificity, and diagnosis validity.

Clinical evaluation of total 95 patients in our study showed, mean age of our patients was 38 years (14-70 years) 89.16% were married and 10.83% were unmarried. 36.6% of females breast fed their children for 1 year, 49.16% for less than 6 month and 14.16% were infertile, these results of clinical evaluation. In s study done by Homesh, mean age was 33 years (15-74 years) and Ambreen Sadiq et al observed in her study 89.17% married ladies and 10.83% unmarried, she also observed that 33.8% of her patient's breast fed more than 1 year, 46.4% less than 6 month and 9.8 were infertile.[1,3]

Regarding clinical presentation we observed that duration of breast lump was 3 month to more than 2years, mean size of lump 3.8cm (1.5- 10cm), upper outer quadrant involved in 50% patients with some predominance on left side(60%). These observation are again as per with other studies.[1,3,10]

Fibroadenoma was the commonest pathology found in our patients, followed by invasive duct cell carcinoma. Tiwari M also observed Fibroadenoma as commonest pathology causing breast lump.[2,11]

After analysis of FNAC results we observed sensitivity 84%, specificity 100, diagnostic validity 94.93% with false negative rate of 16% and false positive rate of zero, 100% positive predictive and 93.1% negative predictive value. These observation are in comparisonto other studies Tiwari M observed 83.3% sensitivity, 100% specificity and 90% test efficacy and zero false positive rate.[2]Mahmood A,etal observed sensitivity 94.1% and specificity 96% with 95.5% accuracy.[12] Hussain MT observed 90.9% sensitivity, 100% specificity, false positive rate zero, false negative rate 9.1%.[13,14]Aziz M and his colleagues observed sensitivity, specificity,pseudo negative, positive predictive value and negative predictive value of FNAC diagnosing breast carcinoma 85.29%, 100%, 14.7%, 100%, 98.79% respectively. Overall sensitivity and specificity ranges from 80-98%, 99-100%.[15]

FNAC is simple, accurate,safe and reliable with high patient's compliance and relatively free of complication, so a good alternate to open biopsy in expert hands.

CONCLUSION:

It is concluded that FNAC is an ideal adjunct tool in cancer program and management of patients presenting with breast lump, it helps in early diagnosis. Mastectomies can be prevented by early diagnosis and open biopsies need can be reduced. Hence FNAC should be routinely used as a part of clinical sequence to determine the nature of breast lump.

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