



## UTILITY OF FINE NEEDLE ASPIRATION CYTOLOGY IN DIAGNOSIS OF BREAST LESIONS IN A DISTRICT HOSPITAL IN JAMMU REGION

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### KEYWORDS :

#### INTRODUCTION

Breast lumps constitute a significant proportion of surgical cases in both developed and developing countries. Vast majority of them are in women and are benign. It is needed to distinguish benign lumps from malignant preoperatively for definite treatment [1,2].

Fine-needle aspiration (FNA) biopsy is an established and highly accurate method for diagnosing breast lesions. The use of core biopsy (CB) is being increasingly advertised but its procedure is more cumbersome, expensive and time consuming as compared to FNA procedure [3–5]. Core Biopsy or tru cut needle biopsy is not widely used because of its complications, interpretation, and time-consuming results; therefore palpable breast lesions can be accurately diagnosed by triple test only (FNAC, physical examination and Mammography) [6]. Scope of FNA has now extended into identifying the subtypes of benign, malignant lesions and residual disease for the purpose of planning the therapeutic protocol and eventual follow-up [7,8]. This study was conducted to see the cytological spectrum of breast lesions and usefulness of fine-needle aspiration (FNA) in screening of palpable breast masses at the Government Gandhinagar hospital, Jammu.

#### MATERIALS AND METHODS

This study was conducted in the Department of Pathology Government Gandhinagar hospital, Jammu over a period of 1 year (March 2023 to February 2024). A total of 100 cases were included in the study. A written informed consent was taken from all the patients.

**Study Period:** A one year study period from March 2023 to February 2024.

**Study Design:** This was a prospective study on the patients attending surgery OPD with complaints of palpable breast lump.

**Sample Size:** The sample size required to find out cytological pattern included 100 cases.

#### Criteria For Selection Of Patients:

##### Inclusion Criteria

- (1) All patients with unknown primary diagnosis of palpable breast mass of variable duration.
- (2) Patients consented for inclusion in study according to designed proforma.

##### Exclusion Criteria

- (1) Patients with recurrent malignancy.
- (2) Past or current chemo-therapeutic or prevention treatment.
- (3) Frank malignant mass with skin infiltration.

#### Procedure For Fine-needle Aspiration Cytology (FNAC)

A written consent was taken before performing the FNAC. The breast was examined and palpated. FNA was done using a 23

gauge needle and 10 mL disposable syringe for each prick and for each patient. No local anesthetic was used. The suspicious area was cleaned with antiseptic solution and spirit and the needle was inserted into the palpable lesions, either once or twice depending upon the size of the nodule. Cellular material was aspirated into a syringe and expelled onto slides. Four to five slides were prepared for each patient. Few of them were air dried and stained by May Grunwald Giemsa (MGG) stain while wet fixed smears were stained with papanicolaou stains. In order to ensure uniformity in the diagnostic reporting, the National Cancer Institute (NCI) has developed and recommended five categories for assessing and reporting of palpable breast lesions.

#### Five Groups Were Defined For The FNAC Diagnosis

- (1) Inadequate
- (2) Non neoplastic lesions
- (3) Atypia probably benign
- (4) Suspicious of malignancy
- (5) Positive for malignancy

#### RESULTS

In the present study, a total of 100 cases of aspiration were performed in breast swellings in the age group ranging from 16 to 68 years.

**Table No 1. Sex Wise Distribution Of Cases**

| SNO   | SEX     | NO OF CASES |
|-------|---------|-------------|
| 1     | FEMALES | 92          |
| 2     | MALES   | 08          |
| TOTAL |         | 100         |

Amongst a total of 100 cases performed, 93 were done in females while 7 cases were done in males.

**Table No 2: Distribution Of Cases**

| Cytological diagnosis              | NO OF CASES |
|------------------------------------|-------------|
| C1 (inadequate)                    | 02          |
| C2 (benign)                        | 88          |
| C3 (atypia probably benign)        | 03          |
| C4 (suspicious probably malignant) | 02          |
| C5 (malignant)                     | 05          |
| TOTAL                              | 100         |

Out of a total 100 cases, 93 cases were reported as benign, while malignancy was reported in 5 cases. Two cases were found suspicious with no conclusive evidence of malignancy.

**Table No 3: Age Distribution Of Cases**

| Age group | No of Cases |
|-----------|-------------|
| 16-26 yrs | 08          |
| 27-36 yrs | 17          |
| 37-46 yrs | 36          |
| 47-56 yrs | 19          |
| 57-66 yrs | 11          |
| 67-76 yrs | 09          |
| Total     | 100         |

Out of a total of 100 cases, maximum number of cases i.e. 36 cases

were found in 37-46 age group, followed by 47-56 age group with 19 cases. Third in frequency was 27-36 age group with 17 cases.

**Table4: Distribution Of Breast Lesions**

| CATEGORY                                         | CYTOLOGICAL DIAGNOSIS                                       | NO OF CASES |
|--------------------------------------------------|-------------------------------------------------------------|-------------|
| Inflammatory lesion(8 cases)                     | Acute mastitis                                              | 05          |
|                                                  | Chronic mastitis                                            | 02          |
|                                                  | Granulomatous mastitis                                      | 01          |
| Benign Breast Lesion(77 cases)                   | Fibroadenoma                                                | 38          |
|                                                  | Fibrocystic change                                          | 15          |
|                                                  | Fibroadenosis                                               | 05          |
|                                                  | Simple cyst                                                 | 04          |
|                                                  | Epithelial hyperplasia                                      | 02          |
|                                                  | Galactocoele                                                | 08          |
|                                                  | Gynaecomastia                                               | 04          |
| Atypical probably benign(C3)                     | Epithelial hyperplasia with atypia Fibroadenoma with atypia | 03          |
| Miscellaneous                                    | Lipoma, Lactational changes                                 | 04          |
| Inadequate/Inconclusive(C1)                      |                                                             | 01          |
| Suspicious of malignancy(C4)                     |                                                             | 02          |
| Malignancy(C5) Infiltrating Ductal carcinoma-NOS |                                                             | 05          |

Cytological diagnoses aspirations of lesions were classified into five diagnostic classes revealing 77 benign proliferative lesions, 5 malignant, 2 suspicious, and 2 inadequate smears (Table 4).

Amongst a total of 100 cases, 8 cases (8%) were reported as inflammatory lesions-5 cases of acute mastitis, 2 cases of chronic mastitis and 1 case of granulomatous mastitis, with age of presentation 30-45 years.

In our study, most of the benign lesions were reported in 3rd and 4th decades of life, while maximum numbers of malignant lesions (5) were reported in 5th and 6th decades. In benign breast lesions, we were very conscious about over-diagnosis, therefore our reports were limited to Fibroadenoma (38 cases), fibrocystic change disease (15 cases), fibroadenosis (5 cases), mild epithelial hyperplasia (2 cases), simple cyst (4 cases) and gynaecomastia (4 cases). Most of the benign breast lesions were observed in reproductive age group.

For uncertain categories we only reported "Atypical probably benign (C3). This class of diseases constituted the largest group of lesions with maximum incidence in the 3rd, 4th and 5th decades of life and included 3 cases.

Invasive ductal carcinoma-NOS was the most common malignant lesion reported in our study with minimum age of presentation 37 year old female and maximum incidence in 5th decade of life (2 cases). One 60 year old elderly male who presented with hard lump left breast with adherent overlying skin was also reported as malignancy.

In the C 4 category (Suspicious of malignancy), 2 cases were reported – one in 57 year old male and other in 62 year old female. 2 cases were reported as inconclusive/ inadequate (C1) and advised as repeat FNAC under ultrasound guidance.

## DISCUSSION

FNAC of breast lumps is an accepted and established method for determining the nature of breast lumps with a high degree of accuracy [9,10]. Application of Fine Needle Aspiration (FNA) for the diagnosis of palpable breast masses was first introduced by Martin and Ellis in 1930 and since then, it has been established as an important tool in the evaluation of breast lesions [11]. The most significant advantage of FNAC is the high degree of accuracy, rapid results, and a less invasive procedure than a tissue biopsy. FNAC of the breast can reduce the number of open breast biopsies [12–15].

In the present study, maximum numbers of cytologically benign lesions were seen in the age group ranging from 14 to

40 years. This was similar to the findings by Khemka et al [16] and Rocha et al [17] who had maximum cytological benign cases in the age groups 15-44 years and 14-40 years respectively. Malignant lesions were common in the 5<sup>th</sup> and 6<sup>th</sup> decade in the present study, 35-84 years in the study by Khemka et al [16] and 41-75 years in the study by Rocha et al [17]. So overall pattern of occurrence is as expected, with benign lesions more commonly in younger age group and malignant lesions in older age group. In the present study of 100 patients, 77 cases were benign cases and malignant lesions were reported in 5 cases. Yeoh et al [18] studied 1533 breast masses on FNAC and found that 70.4% cases were benign. Similarly, Malik et al [19] in his study of 1724 cases over a period of 20 years reported benign lesions in 72.97% and malignant lesions in 27.3% of cases. Similar results were obtained by Iyer et al [20] and Mayun et al [21]. It has been emphasized in the past that vast majority of the lesions in breast are benign. Fibroadenoma was the most frequently (n=123) diagnosed lesion on FNAC in the present study. Aslam et al [22] also documented fibroadenoma as the most common benign lesion (71.3%) in their study. Amongst inflammatory lesions, 8 cases – 5 cases of acute mastitis, 2 cases of chronic mastitis and 1 case of granulomatous mastitis, with age of presentation 30-45 years. Our findings are consistent with Nemenqani et al. that primary tuberculous mastitis is very rare in Pakistan [23].

In the present study, 5 cases were positive for malignancy and all were diagnosed as Infiltrating Ductal carcinoma (NOS). Singh A et al [24] also reported that invasive ductal carcinoma is the commonest breast malignancy.

FNAC results are more reliable regarding malignant lesions; however the category of "Suspicious for Malignant Lesions" needs histopathological evaluation before performing surgical measures. Self-assessment, mammography, and tru-cut biopsy may help in the accuracy of these lesions [2].

## CONCLUSION

It can be concluded that FNAC is a very important preliminary diagnostic test in palpable breast lumps. Adhering to the principle of Triple test, with the acquisition of technical, observational and interpretative skills will further enhance the diagnostic accuracy of lesions of the breast.

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