

**Original article:**

## **Assessment of Breast Masses Using Fine Needle Aspiration Cytology: An Institutional Based Study**

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### **ABSTRACT**

**Background:** Breast lump is the most common presentation in most of the breast diseases. The present study was conducted to assess breast masses in study group with FNAC.

**Materials & Methods:** The present study was conducted on 280 women of age group 20-50 years who presented with complaint of breast masses. The examination of breast lump was done with recording of size and site of lump, consistency, fixation to skin and underline tissue, and retraction of nipple along with regional lymph node involvement. FNAC was done with 24-gauge needle fitted on 10 ml disposable syringe in syringe holder.

**Results:** Age group 20-30 years had 45 patients, 30-40 years had 110, 40-50 had 30, 50-60 had 31 and >60 years had 14 patients. The difference was significant ( $P < 0.05$ ). Common lesions were gynecomastia seen in 56, invasive lobular carcinoma in 47, papillary carcinoma seen in 45, fibroadenoma in 35, invasive duct carcinoma in 30, lactating adenoma in 30, galactocele in 15, fibrocystic change in 12 and inflammatory breast disease in 10. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Fine needle aspiration cytology should be employed in patients with complaint of breast pain. Fine needle aspiration cytology is reliable and effective method in diagnosis of breast masses.

**Key words:** Breast, Fine Needle Aspiration Cytology, Galactocele.

### **INTRODUCTION**

Breast lump is the most common presentation in most of the breast diseases. In India, breast cancer is the second most common cancer in women. Most of the cases in breast lesions are benign. There is increasing awareness with associated anxiety and stress among women, who perceive every symptom in breast as cancer, compelling them to seek medical advice.<sup>1</sup> It is sometimes difficult to determine whether a suspicious lump is benign or malignant simply from clinical assessment. Due to its increasing incidence, morbidity and mortality breast cancer is the commonest malignant tumour responsible for 18.4% of all female cancers worldwide. As it is the leading cause of death from cancer in women, the major concern of the surgeon and the responsibility of the surgical pathologist lies in the ability to differentiate a benign from a malignant lesion.<sup>2</sup> The fine- needle aspiration cytology (FNAC) was first introduced by the Martin and Ellis in 1930. The FNAC of breast lump is highly sensitive, easy to perform, and cost effective that can be carried out at outpatient department. FNAC has various benefits over the open tissue biopsy. It

is rapid and reliable procedure. That is why FNAC is regarded as preliminary diagnostic procedure, as a screening procedure with or without ultrasonography or stereotactic guidance, or as a follow-up procedure for postmastectomy or lumpectomy.<sup>3</sup> The present study was conducted to assess FNAC of breast masses in study group.

#### **MATERIALS & METHODS**

The present study was conducted in the Department of Pathology, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh, India. It comprised of 280 women of age group 20-50 years who presented with complaint of breast masses. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained from the institutional ethical committee. General information such as name, age, gender etc was recorded. The examination of breast lump was done with recording of size and site of lump, consistency, fixation to skin and underline tissue, and retraction of nipple along with regional lymph node involvement. FNAC was done with 24-gauge needle fitted on 10 ml disposable syringe in syringe holder. The wet smear fixed with ether-alcohol mixture stained with hematoxylin and eosin and papanicolaou stain. The air-dried smear stained with May Grunwald Giemsa stain. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significantly.

#### **RESULTS**

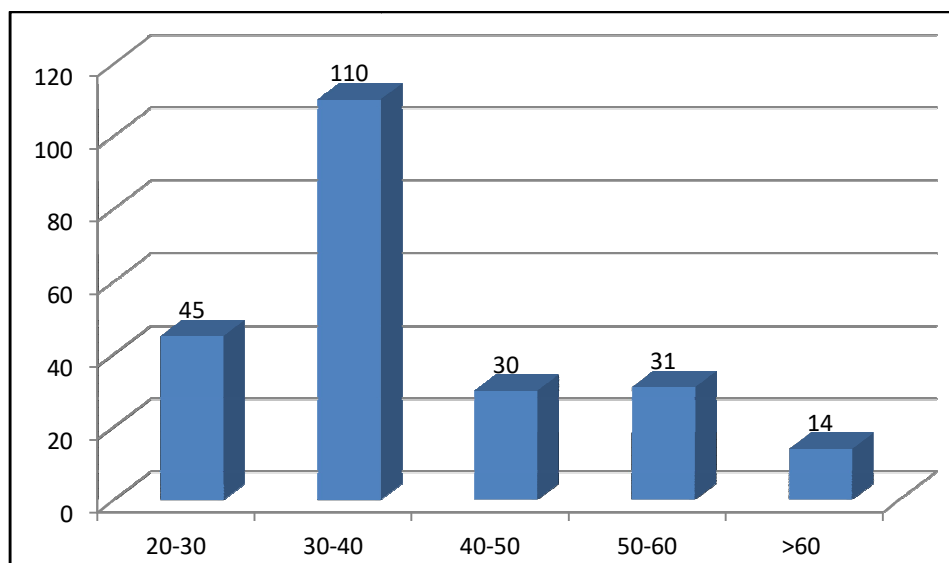
Table I, Graph I shows that age group 20-30 years had 45 patients, 30-40 years had 110, 40-50 had 30, 50-60 had 31 and >60 years had 14 patients. The difference was significant ( $P < 0.05$ ).

Table II, Graph II shows that common lesions were gynecomastia seen in 56, invasive lobular carcinoma in 47, papillary carcinoma seen in 45, fibroadenoma in 35, invasive duct carcinoma in 30, lactating adenoma in 30, galactocele in 15, fibrocystic change in 12 and inflammatory breast disease in 10. The difference was significant ( $P < 0.05$ ).

**Table I: Age wise distribution of subjects**

<b>Age group (years)</b>	<b>Number</b>	<b>P value</b>
<b>20-30</b>	45	0.01
<b>30-40</b>	110	
<b>40-50</b>	30	
<b>50-60</b>	31	
<b>&gt;60</b>	14	

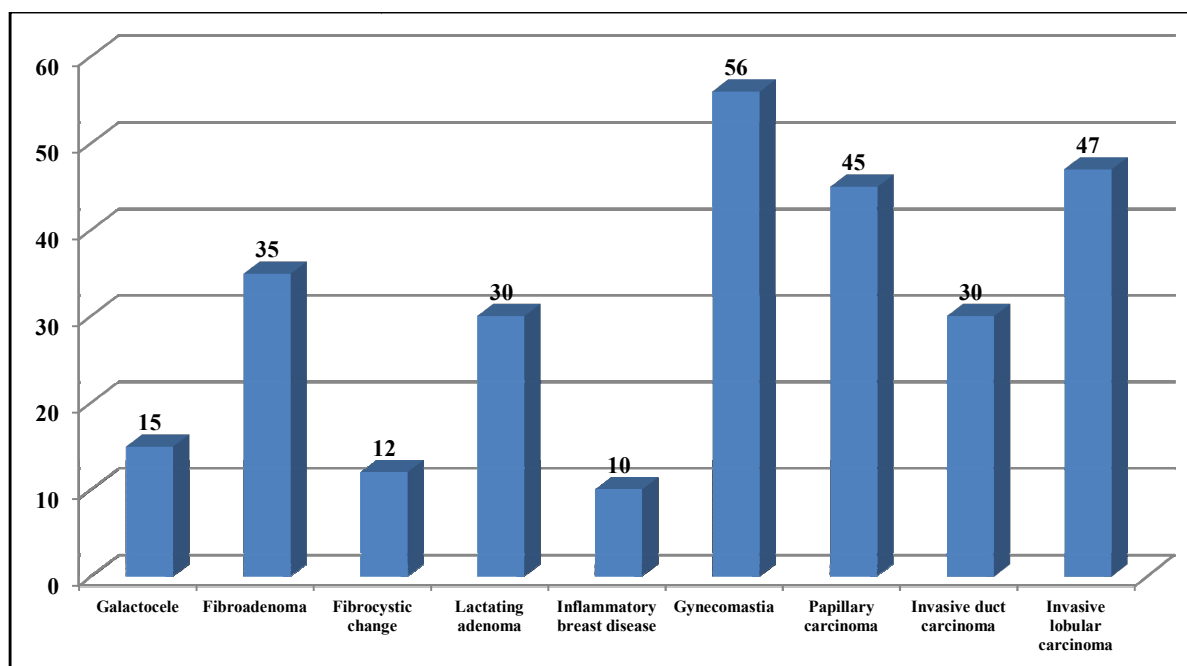
**Graph I: Age wise distribution of subjects**



**Table II: FNAC of lesions**

Lesion	Number	P value
Galactocele	15	0.05
Fibroadenoma	35	
Fibrocystic change	12	
Lactating adenoma	30	
Inflammatory breast disease	10	
Gynecomastia	56	
Papillary carcinoma	45	
Invasive duct carcinoma	30	
Invasive lobular carcinoma	47	

**Graph II: FNAC of lesions**



## DISCUSSION

FNAC comes readily useful for its obvious advantages. It is a cheap, fast, and reliable diagnostic method. It also reduces the frequency of open biopsies. Some of the setback of FNAC include pain and haematoma formation.<sup>4</sup> It has also been found to have the potential to mask radiological assessment when done prior to mamography. It is also possible that the smears may be acellular making cytological analysis impossible. These are described as inadequate aspirates and rates vary markedly, being particularly operator dependent and cases have to be converted to CNB which is able to solve the problem.<sup>5</sup>

In present study we assessed cases of breast lesions with FNAC. We found that age group 20-30 years had 45 patients, 30-40 years had 110, 40-50 had 30, 50-60 had 31 and >60 years had 14 patients. Ibiunle et al<sup>6</sup> in their study a total of 289 FNAC of breast lumps were done. The aspirates were obtained from 275 (95.2%) females and 14 (4.8%) males. There were 161 cases of FNAC with corresponding tissue for histological correlation giving a biopsy rate of 55.7%. The sensitivity of FNAC in determining the final histologic diagnosis was found to be 99.4% while the specificity was 100%. FNAC was able to determine final histologic diagnosis conclusively in 86.3% of cases. We observed that common lesions were gynecomastia seen in 56, invasive lobular carcinoma in 47, papillary carcinoma seen in 45, fibroadenoma in 35, invasive duct carcinoma in 30, lactating adenoma in 30, galactocele in 15, fibrocystic change in 12 and inflammatory breast disease in 10. This is in agreement with Bell et al.<sup>7</sup> Bagde et al<sup>8</sup> in their study, a total of 731 cases of which 220 (30.10%) cases were breast lump FNACs was done. Benign tumors contributed to 162 cases (73.64%) and malignant tumors to 58 cases (26.36%). Among benign tumor, fibroadenoma was the most common tumor which constituted 121 cases (55%). Infiltrating duct carcinoma was the most common malignant breast tumor in the present study comprising 53 cases (24.09%). Conclusion: The most common benign

tumor in the present study was fibroadenoma and the most common malignant tumor was invasive ductal carcinoma. Hadi et al<sup>9</sup> carried out to evaluate the efficacy of ultrasound guided FNACs by comparing the results with the corresponding definitive histological examination outcome as in our study. They also investigated the role that core needle biopsy can play as a complementary diagnostic tool for breast cancer in selected cases. The specificity and sensitivity of FNAC were 99.3% and 96.7%, respectively. The overall positive predictive values and negative predictive values were 99.3% and 96.7%, respectively. Aiming to maximize the preoperative diagnosis of cancer, they concluded therefore that it would be cost efficient and time saving to use FNAC as a first-line investigation to benefit from the wealth of cytological information yielded, followed by CNB in selected cases. The most important is that FNA is a simple, safe, and cost-effective method as the first line of investigation of palpable breast lumps, particularly in low-resource settings. Furthermore, the diagnosis of benign lesions is two folds that of malignant ones, this is an indicator of increased awareness in the community as well as clinicians recognizing the practicability of FNAC.<sup>10</sup>

### CONCLUSION

Fine needle aspiration cytology is reliable and effective method in diagnosis of breast masses. It should be employed in patients with complaint of breast pain.

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