ORIGINAL RESEARCH

# Breast lesions on FNAB and their categorization according to IAC Yokohama system in a tertiary care center

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**ABSTRACT**
**Background:** Breast lesions commonly present as palpable breast lumps. FNAC is a first line, minimally invasive and cost-effective investigation in diagnosis of breast lumps with high levels of accuracy in differentiating various benign and malignant.
**Aims and Objectives:** The aim is to study the spectrum and distribution of breast lesions according to IAC Yokohama system of reporting breast cytopathology.
**Materials and methods:** This is a retrospective study conducted in the Department of Pathology in Government Medical College Rajouri over a period of one year from January 2021 to January 2022.**Results:** Out of 134 cases, majority of the cases were in category 2 i.e.,70.9%. most common benign lesion is fibroadenoma i.e., 48.42% of all the benign lesions.**Category5** has 11.94% of the total cases. Most common malignancy is ductal cell carcinoma i.e., 87.5% of the total malignancies.**Conclusion:** Categorization of the lesions according to the IAC Yokohama system of reporting breast cytopathology gives uniformity to the results by different cytopathologists. Therefore, the management can be planned by the surgeon according to the risk and unnecessary delay can be prevented.
**Key words:** Breast, FNAC, IAC Yokohama.

## INTRODUCTION
Breast lump is the most common presentation in the majority of the breast diseases. The triple assessment is found to be very helpful in early diagnosis. FNAC being an important component of triple assessment is mostly used as an initial minimally invasive investigation in the patients presenting with breast lumps. FNAB of the breast lesion is very cheap, simple, easy and requires very less manpower therefore it can be done at a place where minimum resources are available. It is the most cost-effective modality for diagnosing breast lesions. Breast carcinoma is the most common malignancy encountered in the Indian females and its cases are increasing among remote and rural population also. FNAB is an effective tool in differentiating benign from malignant lesions.The international academy of cytology system for reporting breast (FNAB) cytology was formed following meeting at Yokohama international congress of cytology in 2016, by a group of cytopathologists, radiologists, surgeons and oncology expert in the management of breast lesions[1].The present study was conducted to study the spectrum of the palpable breast lesions and their distribution

according to the IAC Yokohama system. It gives the uniformity to the results by different pathologists and thereby helping surgeon in deciding right management of the lesion.

## MATERIALS AND METHODS

This is a retrospective studyconducted in the Department of Pathology,Government Medical College Rajouri over a period of one year i.e.,January 2021 to January 2022. Total 134 cases were studied. All the patients with palpable breast lumps who were referred to the hospitalareincluded in the study. Noncooperative patients were not included in the study. Proper clinical history and informed consent of the patients was taken, local examination was done and other relevant investigations were recorded. Both PAP and MGG stained smears were reviewed by the cytopathologists and the smears were graded according to the IAC Yokohama system of reporting breast (FNAB) cytology.

## RESULTS

FNAC were performed in 134patients during the period of study. Out of 134 patients 122 (91.05%) were females and 12 (8.95%) were males. M:F ratio is 10.1:1. Age range from 17 years to 80years. Majority of the patients were in the age group of 21—40 years of age i.e., 95 cases (70.89%). Out of total 134 cases, majority were in C2 category 95 cases followed by 15 cases in category C1,5 cases in C3, 3 cases in C4 and 16 casesin C5 (Table 2). Among C2category majority of the cases were of fibroadenoma(46 cases) followed by acute mastitis (16 cases),benign breast disease(12 cases)gynecomastia (12cases),fibrocystic disease(5 cases) andgalactocele(3 cases)as shown in Table 3.In fibroadenoma, smears are cellular showing tight clusters of benign ductal epithelial cells in a background of many scattered bare bipolar nuclei (Fig.1). In C1 category 15 cases were unsatisfactory either due to blood only in the smear or due to very low cellularity to make the exact diagnosis. Those cases were advised repeat aspiration.C3 cases were 5 in number which included 1 case of fibrocystic disease with atypia and 4 cases of fibro adenomatosis with mild atypia.C4 cases were suspicious of malignancy. The cytosmears were showing few features of mild to moderate atypiain the ductal epithelial cells. C5 cases were16 in number. Ductal cell carcinoma was the most common malignancy seen in 14 casesfollowed by medullary carcinoma 1 caseand mucinous carcinoma breast 1 case (Table 4). Smears in ductal cell carcinoma are highly cellular comprising of loosely cohesive clusters of pleomorphic nuclei with prominent nuclei. Bare bipolar nuclei and myoepithelial cells are absent in the background (Fig. 2)

**Table 1 Age distribution of the cases**

| Age | No. of cases | Percentage(%) |
|---|---|---|
| 0-20 | 16 | 11.94% |
| 21-40 | 95 | 70.90% |
| 41-60 | 13 | 9.7% |
| 61-80 | 10 | 7.45% |
| >80 | 0 | 0 |
| **Total** | **134** | 100% |

**Table 2Distribution of the cases according to IAC YOKOHAMA**

| Category | `No. of cases | Percentage |
|---|---|---|
| C1 | 15 | 11.19% |
| C2 | 95 | 70.9% |
| C3 | 5 | 3.73% |
| C4 | 3 | 2.24% |
| C5 | 16 | 11.94% |

| | | |
|---|---|---|
| **Total** | **134** | 100% |

**Table 3Distribution of C2 lesions**

| C2 lesions | No. of cases | Percentage |
|---|---|---|
| Fibroadenoma | 46 | 48.42% |
| Gynaecomastia | 12 | 12.63% |
| Benign breast lesion | 13 | 13.68% |
| Mastitis | 16 | 16.84% |
| Fibrocystic disease | 5 | 5.3% |
| Galactocoel | 3 | 3.15% |
| **Total** | **95** | 100% |

**Table 4 Distribution of C5 lesions**

| C5 lesions | No. of cases | Percentage |
|---|---|---|
| Ductal cell carcinoma | 14 | 87.5% |
| Medullary carcinoma | 1 | 6.25% |
| Mucinous carcinoma | 1 | 6.25% |
| **Total** | **16** | 100% |

**Fig. 1 MGG stained smears showing Fibroadenoma (40X)**
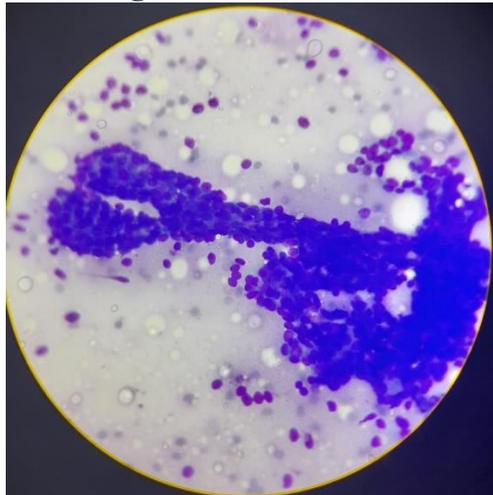


**Fig. 2 MGG stained smears showing ductal cell carcinoma (40X)**
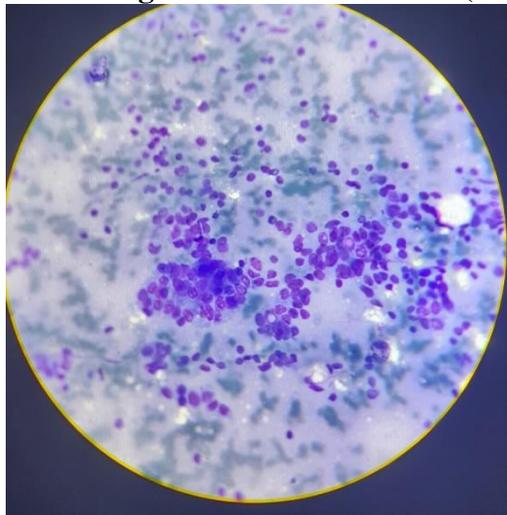
## DISCUSSION

Breast cancer is now the most common cancer in the Indian women by replacing the cervical cancers [2]. Age range in our study is comparable to the studies conducted by Hebber AK et al, Panwar H *et al*, ChallaV R *et al*and Sunita H *et al*. [3-6].

In this study 15 cases(11.19%) show inadequate smears i.e., C1. In our study majority of the lesions were in C2 i.e., benign category which shows 70.90% (95) cases which is comparable with the study conducted bySunita H *et al*,Feitcher*et al*,RisaldarAA*et al*, Dixit N *et al*, Chauhan V *et al* and Bajwa R *et al*[6-11]. Out of which fibroadenoma was the commonest benign lesion encountered in 46 patients (48.42%) of all benign cases. Study conducted bySunita H *et al*, Risaldar A A*et al*,Bajwa R *et al*, Sangma MMB *et al*,ShobhaSN*et al*, Singh P *et al*,S A Badge *et al* and Tiwari M*et al*, also showed fibroadenoma as the most common lesion in benign category[6,8,11,12,13,14,15,16.]. C3 lesions are 5 (3.73%) cases. C4 were 3 cases (2.24%) of the total lesions. C5 category has total 16 cases(11.94%). Studies conducted by Feitcher*et al*,Tiwari M *et al* and Bukhari M H *et al*[7,16,17] show similar results. Out of which ductal carcinoma is the commonest malignancy encountered with 14 cases (87.5%) of the total malignant lesions in the breast comparable to the study conducted bySunita H *et al*,RisaldarA A*et al* and Singh P *et al*[6,8,14]. Therefore, IAC Yokohama system will give the uniformity to the reporting of breast cytopathology. It is helpful in the areas where less facilities are available. Best stratification of the lesions can be done with minimal resources and management can be planned by the clinician depending upon the risk of malignancy.

## CONCLUSION

In 99% cases the diagnosis can be made by doing triple assessment (Clinical examination, FNAC and mammography). As this area is catering mostly remote population therefore the chances of follow up remain less.Core biopsy is the most reliable for the diagnosis of breast lesions. But as we know core biopsy is a complicated and more invasive procedure therefore, FNAC can be done with minimal manpower hence it is also economical and has value in those areas where more advanced facilities are not available. They found it to be very useful with further categorizing the lesions according to IAC YOKOHAMA system as it gives the clinician an idea about the management of the lesions according to the risk of their malignancies.

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