RESEARCH ARTICLE

FNAC OF BREAST LESIONS WITH REFERENCE TO INTERNATIONAL ACADEMY OF CYTOLOGY (IAC) REPORTING SYSTEM

Anu Gupta[1], Bhavneet Kour[2] and Subhash Bhardwaj[3]
1. Lecturer, Department of Pathology, Govt. Medical College, Jammu.
2. Demonstrator, Department of Pathology, Govt. Medical College, Jammu.
3. Professor & Head, Department of Pathology, Govt. Medical College, Jammu.

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Manuscript Info

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Abstract

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Introduction: International Academy of Cytology (IAC) has established a standardized approach for reporting Breast FNAC by categorizing the lesions in five tier system (C1 to C5) for diagnostic clarity, ultimately facilitating clinician'sunderstanding and use of FNAB cytology in Breast pathology.

Material and Methods: Ours is a retrospective study done in the cytology section of the Department of Pathology GMC Jammu from January 2019 to January 2020.

Results: A total 130 cases of Breast FNAC's were included in the study with the maximum 111 (85.4%) females and 19 (14.6%) males. Maximum number of cases was seen in the age group of 31-40 years. CI (Insufficient/ Inadequate) lesions were found in 5 cases(3.84%), C2 (Benign) in 92 cases(70.76%), C3 (Atypical) in 8 cases(6.15%), C4 (Suspicious) in 6 cases(4.60%) and C5 (Malignant) in 21 cases(16.15%). Fibroadenoma was the commonest benign lesion found in our study in 44 cases out of 92 and Ductal Carcinoma was commonest among malignant lesions.

Conclusion: FNAC is an essential component in the preoperative management of breast lesions and the IAC Yokohama system for reporting Breast FNAB cytology effectively stratifies breast lesions thus providing guidance to both cytopathologists and clinicians leading to better patient care.

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Introduction:-

The International Academy of Cytology (IAC) gathered together a group of cytopathologists, expert in breast cytology and developed in 2016[1], the IAC Yokohama system for reporting Breast Fine Needle Aspiration Biopsy (FNAB) cytology. The system defines five categories for reporting Breast cytology: C1-Insufficient/Inadequate, C2-Benign,C3-Atypical,C4-Suspicious of malignancy and C5-Malignant each with a clear descriptive term for the category a definition,a risk of malignancy(ROM) and a suggested management algorithm[1]. This categorization helps the cytopathologist to define the uncertain areas, and the clinicians to offer further investigation like excisional biopsy judiciously.[2] Breast FNAC is a rapid accurate and highly cost-effective diagnostic procedure with a minimal complication rate for the broad spectrum of benign and malignant breast lesions. Breast cancer accounts for 25% to 32%[3] of female cancers in all cities across India and is now the most common cancer in Indian women, having

Corresponding Author:- Bhavneet Kour
Address**:-** Lecturer, Department of Pathology, Govt. Medical College, Jammu.

recently overtaken Cervical cancer[4]. With the advent of triple testing for breast malignancies, FNAC has become an integral part of the evaluation of breast lesions.

The main aim of the study was to categorize the various breast lesions on FNAC based on the IAC system.

Material and Methods:-
Ours is a retrospective study done in the cytology section of the Department of Pathology GMC Jammu from January 2019 to January 2020. Institutional Ethical Clearance was taken before start of study. All the breast FNAC's were rescreened and categorized into codes 1 to 5. A total of 130 cases were included in the study and their clinical and radiological details were also taken into consideration. Both Giemsa and Papanicolou stained smears were reviewed.

Results:-
The present study included 111 Females (85.4%) and 19 Males (14.6%). Age range varied from the youngest female of 11 years presenting with Fibroadenoma to the oldest patient patient of 70 years male presenting with Ductal Carcinoma, Breast. Out of the total 130 cases maximum number belonged to Code-2 (Benign) 92 cases (70.76%) followed by Code-5 i,e. 21 cases (16.15%) (Table 1)

Among C2 lesions, 44 cases (47.82%) were Fibroadenoma followed by 18 cases (19.56%) of Gynaecomastia, 10 cases (10.86%) each of Benign Breast diseases and Mastitis, 8 cases (8.69%) of Fibrocystic disease, 2 cases (2.17%) of Galactocele.(Table 2)

There were 5 (3.84%) C1 cases in our study where the smears were too sparsely cellular to allow a cytomorphological diagnosis and they were advised repeat aspiration and radiological guided aspiration in 2 cases in which the lesion was very small (<1cm).

C3 lesions in our study included 8 cases and includes 2 cases of Fibrocystic disease with atypia, followed by 4 cases of Fibroadenoma with atypia and 2 cases labelled as Fibroadenomatosis showing increased cellularity with mild atypia and less of myoepithelial cells (Bipolar cells) seen in the smears.

In C4 lesions i.e. suspicious for malignancy there were 6 cases (4.60%). Review of these slides showed cytomorphological findings mostly as single dispersed cells with hyperchromatic nuclei juxtraposed to a bimodal ductal epithelial tissue fragment. 2 cases also showed monolayered sheets of ductal epithelial cells with mild to moderate atypia. A highly dispersed pattern of large atypical cells may also raise the differential diagnosis of Lymphoma and hence suspicious of malignancy.

C5 lesions were 21 (16.15%) in our study with 20 lesions seen in Female Breast and a single case of Male Ductal Carcinoma. Among the 21 lesions maximum were given as Ductal carcinoma 16 cases, 2 cases of medullary and mucinous carcinoma each and 1 case of Lobular carcinoma. Cases of medullary carcinoma showed dispersed large pleomorphic cells admixed with lymphoplasmacytic infiltrate and their histological correlation was also available. 2 cases of mucinous carcinoma showed large pools of mucin with chicken wire vessels and atypical cells.(Table 3)

Table 1:- Distribution of cases according to IAC Yokohama system.

Codes	Total	Percentage (%)
1.Insufficient/ Inadequate	05	3.84
2.Benign	92	70.76
3.Atypical	08	6.15
4.Suspicious	06	4.60
5.Malignant	21	16.15
Total	130	100

Table 2:- Distribution of C2 Lesions.

C2 Lesions	No. of Cases	Percentage (%)
Fibroadenoma	44	47.82
Gynaecomastia	18	19.56

Benign Breast Lesions	10	10.86
Mastitis	10	10.86
Fbrocystic Disease	8	8.69
Galactocele	2	2.17
Total	92	100

Table 3:- Distribution of C5 Lesions.

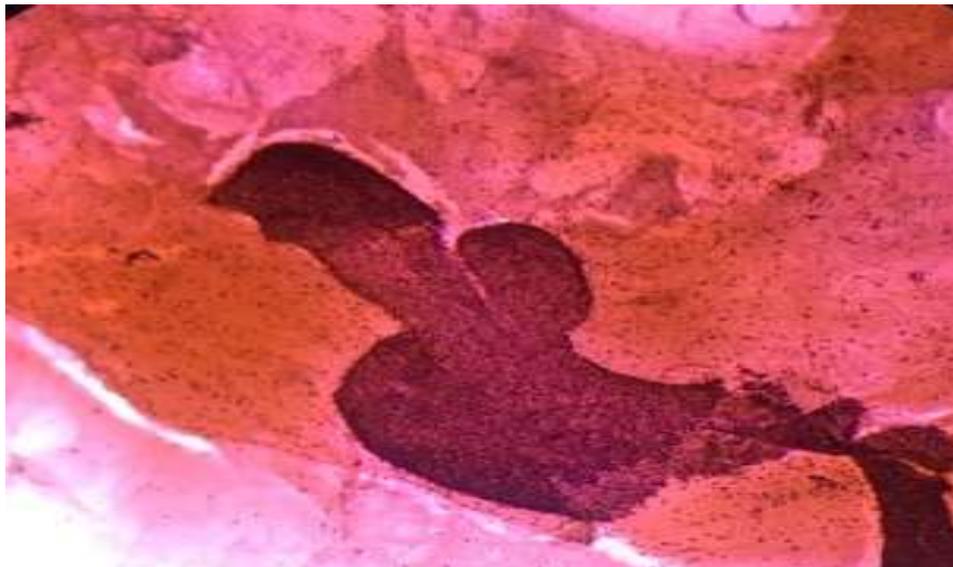| C5 Lesions	No. of Cases	Percentage (%)
Ductal Carcinoma	16	76.20
Medullary Carcinoma	2	9.52
Mucinous Carcinoma	2	9.52
Lobular Carcinoma	1	4.76
Total	21	100

Fig 1:- Fibroadenoma (PAP, 10X).
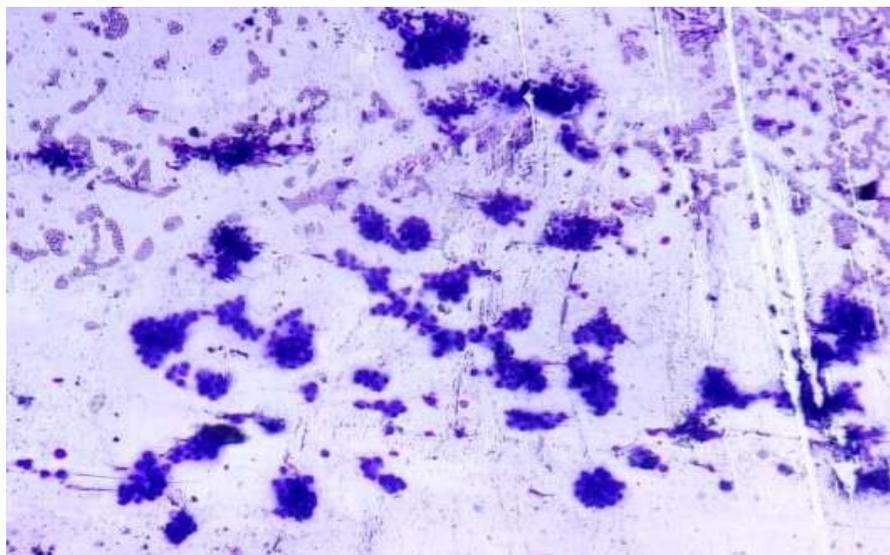

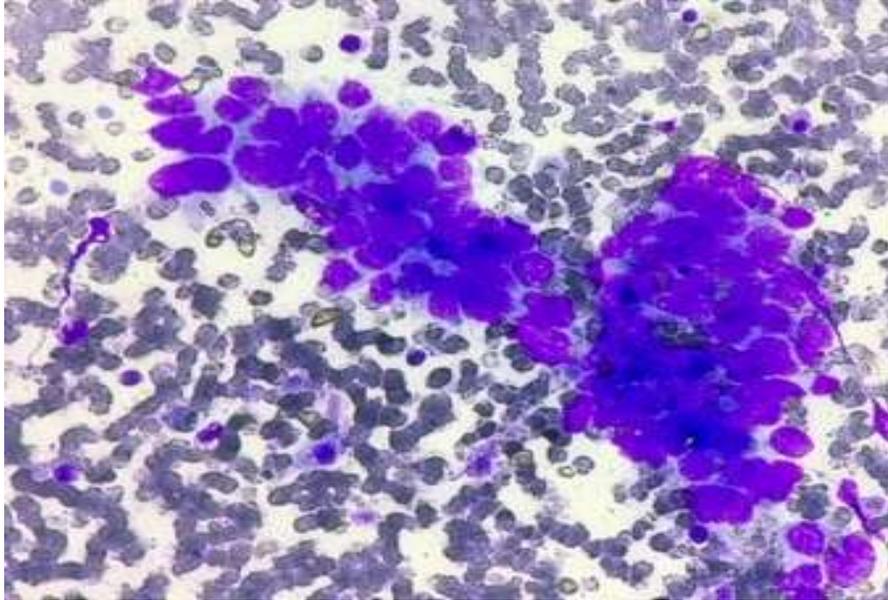**Fig 2:-** Suspicious for malignancy (MGG,10X).

Fig 3:- Malignant (Ductal carcinoma, Breast) (MGG,40X).

Discussion:-

FNAC has significantly contributed to the reduction of excisional biopsies in the assessment of Breast lesions.[5] Accurate diagnosis of Breast cancer is made in 99 % of the cases by the combination of Clinical examination, Mammography and FNAC.[6] Though core needle biopsy is the preferred procedure, in developed countries but in developing countries, where financial constraints play a major role, FNAC still plays a pivotal role[6] being cheaper, less invasive with no added expenses and gives good results the same day.[7,8] In our study, 3.84% cases had inadequate aspirate and were placed in C1 category, which was in concordance with studies done by SunitaH et al.[9] Bajwa R[10] had a slightly higher rate of 13.6% of C1 cases. Present study had maximum number of C2 (Benign) cases 70.76% with 44 cases of Fibroadenoma (47.82%). Similar was the study conducted by Modi P et al.[11] The grey zone lesion included C3- 8 cases (6.15%)and C4- 06 cases (4.60%) similar findings were seen by Bajwa R[10] in C3 group and SunitaH et al[9] and Georgieva RD et al.[12] in C4 group. However the study conducted by SneigeN[13] reported 10.04% C3 cases and 11% C4 cases. C5 (Malignant) cases in our study were 21 (16.15%) which was in concordance with study done by Modi P et al.[11] SunitaH et al[9] however found a higher percentage of 37.10% in their study.

IAC reporting system will enhance the reproducibility of reports and creates uniformity in its assessment, especially by clinicians. Much confidence has been placed on this approach, for it can obviate excisional biopsy.

Conclusion:-

The IAC Yokohama system for reporting Breast FNAB Cytology has effectively stratified breast lesions by their risk of malignancy and provides guidance with a management algorithm for each category thus ultimately facilitating clinicians understanding and use of FNAB Cytology in Breast pathology.

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