Cytomorphological Spectrum of Breast Lesions at a Tertiary Care Center in a Rural Setup.

Lalagiri Gnana Priyanka[1], Nagarjuna Chary Rajarikam[2], Namdev.V[3]

[1] *(Assistant professor, Pathology, Government General Hospital, Nizamabad, Telangana, India)*
[2] *(Professor and Head, Pathology, Government General Hospital, Nizamabad, Telangana, India)*
[3] *(Assistant professor, Pathology, Government General Hospital, Nizamabad, Telangana, India)*
Corresponding Author: Lalagiri Gnana Priyanka

Abstract: Background: *Various diagnostic techniques are developed for evaluation of breast lesions. Breast lumps are a common presentation in the outpatient department due to increasing awareness of breast cancers. Distinguishing non-neoplastic from neoplastic breast lesions is important for definitive treatment. Fine needle aspiration cytology is an easy, cost effective and rapid way of diagnosing palpable breast lesions.*
Methods: *This is a one year study between March 2018 to March 2019.Fine needle aspiration cytology was performed on 153 patients with palpable breast lesions which included 13 males and 140 females.*
Results: *Most of the patients with breast lump were in the age group of 21-30 years. Benign lesions (56.2%) are more common than malignant lesions (11.76%). Among benign lesions fibroadenoma is commonest. Malignancies are more common in elderly age group above 40 years, among these duct cell carcinomas accounts to 94.4%.*
Conclusion: *Fine needle aspiration cytology is simple, easy and cost effective procedure for diagnosing and categorizing palpable breast lesions. Benign breast lesions are more in younger age group and malignancies in elder age group.*
Keywords: *Benign breast lesions, Breast lump, Fibroadenoma, Fine needle aspiration cytology.*

I. Introduction

Fine needle aspiration cytology is an easy, cost effective, feasible, reliable and rapid way of diagnosing breast lesions. Breast lesions can be categorized into non neoplastic, benign and malignant lesions with the help of fine needle aspiration cytology [1]. It can be performed with minimal discomfort to the patient on an outpatient basis. It allows clinician to take a decision regarding treatment alternatives for breast lesions. It reduces anxiousness of patients and also avoid unwanted invasive diagnostic and therapeutic interventions [2]. Minimal training is required for proper technique and working experience in cytopathology will minimize false positive and false negative diagnosis [3]. Present study is conducted to evaluate role of Fine needle aspiration cytology in categorizing breast lesions. In this study age wise distribution of frequency of benign and malignant lesions was analyzed. Triple assessment of breast lesions which includes clinical examination, mammography and Fine needle aspiration cytology increases the sensitivity and specificity in diagnosing breast cancers [4,5]. However paucity of specimen material and overlapping between benign and malignant lesions can be major pitfalls of fine needle aspiration cytology.

II. Material and Methods

The present study was conducted on patients presenting with palpable breast lump which were referred to Department Of Pathology, Government General Hospital, Nizamabad, Telangana, India for Fine needle aspiration cytology. Government general hospital provides services for the rural area with more than 3 lakhs outpatients and inpatients around 75000 per year. Study was conducted over a period of one year , from march 2018 to march 2019.A total of 977 cases were referred for FNAC which included 153 breast lesions .written consent , detailed clinical history, clinical examination of these cases was taken and FNAC was carried out using 23 guage 5cc disposable syringes. Aspirated material was smeared on minimum three labelled glass slides. All the slides were fixed with 95% isopropyl alcohol stained with routine haematoxylin and eosin stain as per protocol. The stained smears were submitted for microscopic examination and interpretation was done.

III. Results

Out of 153 cases, 149 cases were satisfactory for evaluation.4 cases (2%) yielded very scant cellularity and were inadequate for diagnosis. Among 153 cases, 140 (92%) were females, 13 (8%) were males.

In females among all the lesions inflammatory lesions comprised of 9.2 %,benign lesions 55.5%, atypical lesions 5%, suspicious of malignancy 3.3% malignancy 12.2% and miscellaneous lesions 12.2%. Miscellaneous lesions included fibroadenosis (47%),galatocele (35.2%) and benign cystic lesion (17.8%).

Table No 1: Age and Sex wise Distribution of Breast lesions

AGE GROUP	MALES		FEMALES		TOTAL
11– 20 years	01	(7.7%)	21	(15%)	22
21– 30 years	04	(30.9%)	50	(35.3%)	54
31– 40 years	01	(7.7%)	37	(26.2%)	38
41– 50 years	03	(23%)	21	(15%)	24
51– 60 years	03	(23%)	08	(6.5%)	11
61– 70 years	01	(7.7%)	02	(1.4%)	03
>70 years	00	(00%)	01	(0.6%)	01
	13	(100%)	140	(100%)	153

Table No 2: Categorization of Breast lesions

DIAGNOSIS	MALES		FEMALES		TOTAL
INFLAMMATORY	01	(7.7%)	13	(9.2%)	14
BENIGN	08	(61.5%)	78	(55.6%)	86
ATYPICAL	01	(7.7%)	07	(05%)	08
SUSPICIOUS OF MALIGNANCY	01	(7.7%)	05	(3.3%)	06
MALIGNANT	01	(7.7%)	17	(12.2%)	18
MISCELLANEOUS	00	(00%)	17	(12.2%)	17
INADEQUATE	01	(7.7%)	03	(2.14%)	04
TOTAL	13	(100%)	140	(100%)	153

Table No 3: Distribution of Non Neoplastic lesions

	DIAGNOSIS	MALES	FEMALES	TOTAL
INFLAMMATORY LESIONS	ACUTE MASTITIS	01	10 (76.9%)	11
	GRANULOMATOUS MASTITIS	00	03 (23.1%)	03
	TOTAL	01	13 (100%)	14
MISCELLANEOUS LESIONS	GALACTOCELE	--	06 (35.2%)	06
	FIBROADENOSIS	--	08 (47%)	08
	BENIGN CYSTIC LESION	--	03 (17.8%)	03
	TOTAL	--	17 (100%)	17

In females among all the lesions inflammatory lesions comprised of 9.2 %, benign lesions 55.5%, atypical lesions 5%, suspicious of malignancy 3.3% malignancy 12.2% and miscellaneous lesions 12.2%. Miscellaneous lesions included fibroadenosis (47%), galatocele (35.2%) and benign cystic lesion (17.8%).

Table No 4 : Distribution of Benign lesions

DIAGNOSIS	MALES	FEMALES	TOTAL
FIBROADENOMA	--	70 (87.5%)	70
FIBROCYSTIC DISEASE	--	10 (12.5%)	10
GYNAECOMASTIA	06	--	06
TOTAL	06	80 (100%)	86

Table 4 shows that most common benign lesion in males is gynaecomastia and most common benign lesion in females is fibroadenoma

Table No 5: Distribution of Malignant lesions

DIAGNOSIS	MALES	FEMALES	TOTAL
DCC	O1	14 (82.4%)	15
DCC WITH METASTASIS	--	02 (11.8%)	02
MEDULLARY CARCINOMA	--	01 (5.8%)	01
TOTAL	01	17	18

DCC – Duct cell carcinoma

Table 5 shows that malignant lesions are more common in the age group of 41-50 years.

Table No 6: Age wise distribution of Benign and Malignant lesions in females.

	BENIGN LESIONS	MALIGNANT
11-20 YRS	20 (25%)	00 (00%)
21-30 YRS	24 (30%)	01 (5.8%)
31-40YRS	21 (26.5%)	02 (11.8%)
41-50 YRS	12 (15%)	06 (35.2%)
51-60 YRS	02 (2.5%)	05 (29.5%)
61-70 YRS	00 (00%)	03 (17.7)%
>70 YRS	00 (00%)	00 (00%)
TOTAL	80	17

Table 6 shows that most of the benign lesions fall in the age group of 20 to 30 years and ost of he malignant lesions fall in the age group of 41 to 50 years.
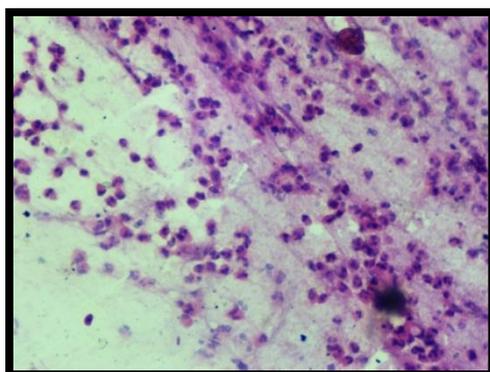
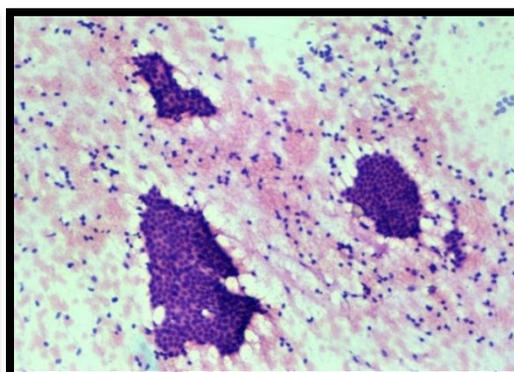**Fig1:** Acute mastitis, smear shows numerous neutrophils and cellular debris in a necrotic background

Fig2: Fibroadenoma,smear showing tight cohesive clusters of benign duct epithelial cells with scattered bipolar nuclei.
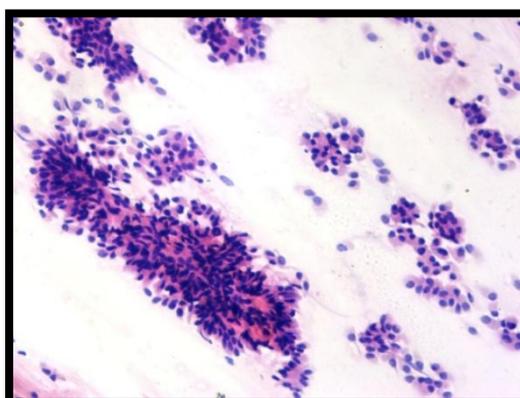

Fig 3: Duct cell carcinoma, smear showing loose clusters of pleomorphic epithelial cells
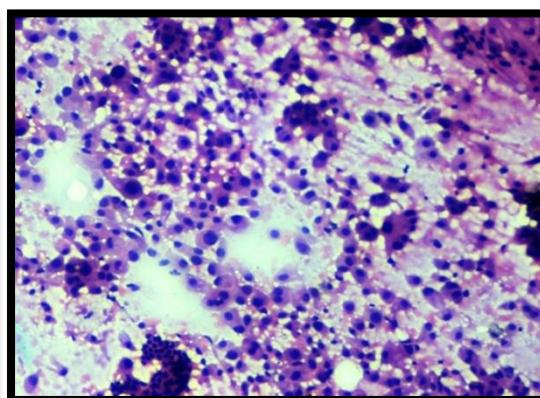

Fig 4: Medullary carcinoma of breast, smear showing discohesive plamacytoid cells and few lymphocytes

IV. Discussion

Most of the breast lesions usually present as breast lumps [6]. FNAC can be used as a rapid way of diagnosing breast lesions. Total 977 cases were referred for FNAC , out of which 153(15.6%) cases were breast lesion .Other studies by Prashant S. Mane et al [6] and Tiwari M et al[7] reported breast FNACs of 15.5% and 16% respectively.

In the present study age group of patients ranged from 12 to 78 years which included both males and females. Overall breast lesions were common in age group of 21–30 years (35.2%). Other studies by Rahman MZ et al (38.13%) [8] Rachana Binyake etal (31.66%) [4] Likhar KS et al [8] and Iyer etal [9] showed similar findings. Benign lesions were most common in the age group of 21 – 30 yrs (30%) followed by 31- 40 years (26.5%) .Malignant lesions were more common in the age group of 41 –50 years (35.2%), similar findings were seen in studies conducted by Rachana Binyake et al [4] and Khan et al.[10]

Distribution of lesions in female breast:

Among females the youngest age reported in our study is 12 years and oldest is 78 years. Present study showed 56.2% of cases involving right breast. Similar findings were seen in studies conducted by Jyanandhini etal (right breast – 47.9%, left breast-45.8%) and Rachana Binyake etal (right breast – 45%, left breast-43.3%).Most common quadrant involved is upper outer quadrant.

Most common benign lesion is fibroadenoma (46%) and it was common in the age group of 21-30 years. Similar findings were seen in studies conducted by Rahman MZ et al, Jayanandini et al [1] and Prashanth.S.Mane et al [6]. Most common malignant lesion is duct cell carcinoma (94.2%) and it was common in the age group of 41 -50 years. Similar findings were seen in studies done by Rahman MZ et al [8] Pradhan etal [12] jarwani PB etal[13] Ghosh A et al [13] and Rachana Binyake et al[4] .Two cases showed duct cell carcinoma with metastasis to axillary lymphnodes.

Distribution of lesion among males:

In males maximum number of patients were in the age group of 21 – 30 years. This finding is in contradiction to study done by jayanandhini et al [1] in urban areas of Chennai where the most common age group was 50-59 years most common lesion diagnosed among males was gynaecomastia (46.2%).

V. Conclusion

We conclude from this study that most common presentation of breast lesions is breast lump ,which is feasible to perform FNACs to evaluate them.most of the breast lumps are benign and they are commonly seen in reproductive age group. Malignancies are common above 4 th decade.

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