



A CLINICOPATHOLOGICAL STUDY OF NON NEOPLASTIC AND NEOPLASTIC BREAST DISEASES AND ITS CORRELATION WITH RADIOLOGICAL DIAGNOSIS

General Surgery

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ABSTRACT

Objectives- 1) To study the various modes of clinical presentation, etio-pathogenesis of non- neoplastic and neoplastic breast diseases. 2) Comparing with the FNAC and radiological diagnosis. **Methods-** 60 female patients with lump in the breast were taken for the study. After clinical diagnosis it was cross checked with radiological diagnosis and FNAC. The excised specimen was sent for Histopathological examination and results were compared with clinical diagnosis, cytological diagnosis, and radiological diagnosis. Accuracy and predictive values were calculated out of the results. **Results:** Out of 60 patients, 39(65%) breast lumps were benign & rest 21 lumps (35%) were malignant and most were seen in upper inner quadrant, whereas majority of the carcinoma breast were found in upper outer quadrant. Fibroadenoma, seen in the second decade, was most common lesion accounting for 48.3% (29 lesions) and all were diagnosed clinically and on USG and were confirmed on HPE. Breast carcinoma was second common, 35% (21 lesions). Maximum number of Carcinoma breast cases were in 5th and 6th decade, 20 out of 21 (96%). Out of 2 and 4 cases of fibrocystic disease and phyllodes respectively, one case in each was found to have carcinomatous changes on HPE. **Conclusion-** Breast lump was the most common presentation in this study for both benign and malignant lesions. Diagnostic accuracy of fibroadenoma by FNAC and USG is 100% in this study. Diagnostic accuracy of carcinoma breast by FNAC and USG is 90.4% in this study. PPV of overall breast lumps is 96.6% with both FNAC and USG. For carcinoma breast the PPV is 100% with both FNAC AND USG. Lymph node were detected Significantly by using USG, in a clinically non palpable axillary lymph nodes which helped in the further appropriate management.

KEYWORDS

breast lump, carcinoma breast, FNAC, Ultrasonography, accuracy, predictive value

INTRODUCTION

Breast health means more than breast cancer. Most of the lesions occurring in breast are neoplastic. About 5-55 percent of all women suffer from breast disorders in their life time. ⁽¹⁾

Benign breast disorders are often considered as aberration of normal development and involution. the cyclical changes due to variation in oestrogen and progesterone result in increased mitosis around days 22-24 of menstrual cycle but apoptosis restores the balance across the cycle. The concept of ANDI-aberrations of normal development and involution proposed by Huges is now universally accepted. ⁽²⁾

Breast cancer is the commonest malignancy among women globally. It has now surpassed lung cancer as the leading cause of global cancer incidence in 2020 representing 11.7% of all cancer cases. ⁽³⁾ As per the Globocan data 2020, in India, BC accounted for 13.5% (178361) of all cancer cases and 10.6% (90408) of all deaths. ⁽⁴⁾ Breast cancer has ranked number one cancer among Indian females with age adjusted rate as high as 25.8 per 100,000 women and mortality 12.7 per 100,000 women. ⁽⁵⁾ Hence, Timely and accurate diagnosis of breast lump is very important as it not only alleviate anxiety but also early intervention becomes lifesaving.

Histopathological examination is the gold standard for the confirmation of diagnosis. ⁽⁶⁾ Screening mammography with computer-aided detection increases the detection of early breast malignancy stage (0 and 1). ⁽⁷⁾

All breast lesions are not malignant and all the benign masses do not progress to cancer; nevertheless the precision of the final diagnosis can be greatly increased by radiological imaging (mammography, ultrasonography) and pathological diagnosis.

So this study finds the accuracy in diagnosing the lump with minimal resources (between clinical, radiological and cytological modalities) which can reflect majorly on devising the treatment.

AIMS AND OBJECTIVES

- 1) To study the various modes of clinical presentation, Etio-pathogenesis of non-neoplastic and neoplastic breast diseases
- 2) Comparing with the FNAC and radiological diagnosis.

MATERIALS AND METHODS:

Source of data:

This study includes patients admitted in Bapuji Hospital and CG hospital attached to JJM Medical college davangere from Oct 2019 - Oct 2022 on random basis.

Prevalence of Breast cancer was taken as 0.34. With confidence level of 0.9, Z value of 1.64 and absolute precision of 0.1, sample size of 60 was calculated. Patients were distributed using simple random technique.

Inclusion criteria:

- 1) Age 16-60 years
- 2) All female patients with complaining of lump in the breast

Exclusion criteria:

- 1) Male patients
- 2) Previously diagnosed and treated breast lumps
- 3) Pregnancy
- 4) Not giving consent

Study Design:

- It is a Prospective randomised study, including 60 female patients with lump in either breast, aged 16-60 years, who were selected after taking written informed consent.
- Clinical diagnosis was arrived after detailed history and careful clinical examination. All underwent routine haematological examination and USG or mammography. Clinical diagnosis is cross checked with radiological diagnosis and FNAC from the lump.
- Patients preferred surgery as treatment modality and was planned depending on the diagnosis.
- The excised specimen was sent for histopathological examination and results were compared with clinical diagnosis, cytological diagnosis, and radiological diagnosis.
- Post operatively, all patients received a course of antibiotics for 5-7 days and sutures were removed on the tenth day.
- Accuracy and predictive values were calculated out of the results.

Table 1: distribution of the subjects based on age groups

Age groups	Frequency	Percent
16 to 20 years	20	33.3
21 to 30 years	10	16.7

31 to 40 years	14	23.3
41 to 50 years	6	10.0
51 to 60 years	10	16.7
Total	60	100.0

Maximum patients were in 16-20 years age group, with 20 patients (33.3%). Minimum patients were in 41-50 years age group (10%), 6 patients. minimum age of the patients was 16 and maximum age was 60 with mean age of 36.8.

All the patients presented with primary complaint of breast lump. Quadrant which has majority of the lump was taken into consideration. Most affected quadrant was upper inner quadrant, in 25 cases (41.7%) and least involved was central quadrant, in 5 patients (8.3%).

Majority of the patients in the study group were premenopausal, with menstrual disturbances seen in 3 cases (5%). One had fibrocystic disease and other two had fibroadenomas. Mean length of the lump was 4.15 cm and mean width was 2.55 cm. Patients with phyllodes had minimum size of 9x5 cm in our study.

Table2: distribution of the subjects based on nipple areolar region

Nippleareolar	Frequency	Percent
Normal	51	85.0
Retraction	9	15.0
Total	60	100.0

Among 60 patients, 9 had nipple retraction (15%) and all of them where carcinoma breast cases.

Table3: distribution of the subjects based on lymph nodes involvement

Lymph Nodes	Frequency	Percent
Negative	44	73.3
Positive	16	26.7
Total	60	100.0

Among 60 patients only 16 patients showed clinically palpable lymph nodes (26.7%) Out of these 16 cases, only 7 had clinically palpable and remaining 9 were diagnosed with the USG imaging which helps in the early staging and management.

Table 4: distribution of the subjects based on clinical diagnosis

Clinical Diagnosis	Frequency	Percent
Ca breast	19	31.7
Duct ectasia	1	1.7
Fibroadenoma	29	48.3
Fibrocystic disease	2	3.4
Axillary tail hypertrophy	3	5.1
Phyllodes tumor	4	6.7
Galactoceles	2	3.3
Total	60	100.0

Most were diagnosed to have fibroadenoma which accounted for 48.3% followed by carcinoma breast 31.7%. Also, 31 patients had right breast involvement (51.7%) and 29 patients had left breast involvement (48.3%).

Table 5: distribution of the subjects based on USG findings

USG	Frequency	Percent
Benign	41	68.3
Malignant	19	31.7
Total	60	100.0

41 cases were benign (68.3%) and 19 cases were malignant (31.7%), as per USG findings.

Table 6: distribution of the subjects based on FNAC findings

USG	Frequency	Percent
Benign	41	68.3
Malignant	19	31.7
Total	60	100.0

In FNAC, 41 cases were benign (68.3%) and 19 cases were (31.7%) malignant.

Table 7: distribution of the subjects based on treatment

Treatment	Frequency	Percent
Excision biopsy	37	61.7
Mastectomy	4	6.7
MRM+CHEMO+HT	14	23.3
NEOADJ EMO+MRM+CHEMO+RT	5	8.3
Total	60	100.0

Table8: distribution of the subjects based on HPE findings

USG	Frequency	Percent
Benign	39	65.0
Malignant	21	35.0
Total	60	100.0

2 cases which were benign on FNAC were found to be malignant on HPE.

Table 9: cross tabulation of USG, FNAC with HPE

			HPE		Total	Accuracy
			Benign	Malignant		
USG	Benign	Count	39	2	41	96.6%
		%	65.0%	3.3%	68.3%	
	Malignant	Count	0	19	19	
		%	0.0%	31.7%	31.7%	
	Total	Count	39	21	60	
		%	65.0%	35.0%	100.0%	
FNAC	Benign	Count	39	2	41	96.6%
		%	65.0%	3.3%	68.3%	
	Malignant	Count	0	19	19	
		%	0.0%	31.7%	31.7%	
	Total	Count	39	21	60	
		%	65.0%	35.0%	100.0%	

Diagnostic accuracy of fibroadenoma by FNAC and USG is 100% in this study. Diagnostic accuracy of carcinoma breast by FNAC and USG is 90.4% in this study. PPV of overall breast lumps is 96.6% with both FNAC and USG. For carcinoma breast the PPV is 100% with both FNAC AND USG.

Table 10: Correlation of clinical diagnosis, FNAC findings and histopathological diagnosis of breast lump

Clinical diagnosis	Cases N=60	FNAC	No. of cases	Histopathology	No. of cases
Fibroadenoma	29	Fibroadenoma	29	Fibroadenoma	29
Fibrocystic disease	2	Fibrocystic disease	2	Fibrocystic disease	1
		carcinoma	0	carcinoma	1
Breast carcinoma	19	Fibroadenoma	0	Fibroadenoma	0
		Fibrocystic disease	0	Fibrocystic disease	0
		carcinoma	19	carcinoma	19
Other benign disorders	10	galactoceles	2	galactoceles	2
		Chronic inflammation phyllodes	4	Chronic inflammation phyllodes carcinoma	3
		Duct ectasia	1	Duct ectasia	1
		Axillary tail hypertrophy	3	Axillary tail hypertrophy	3

29 (48.3%) cases were diagnosed as fibroadenoma clinically and on FNAC and all were confirmed to be same on histopathology also. Total 2 (3.3%) cases were clinically diagnosed as fibroadenoma and FNAC also confirmed same but on histopathology 1 of it was carcinoma breast. 19 (31.6%) cases were clinically diagnosed as breast carcinoma and was confirmed on FNAC and by histopathology. Out of 10 other benign disorders which were diagnosed clinically and by FNAC, 1 was proven to be carcinoma on histopathology.

DISCUSSION

Breast malignancies are the leading cause of cancer related mortality among women. Benign breast diseases are the most common diseases affecting women of our country. According to the statistics obtained in this study the majority of diseases were benign. This study had

maximum number of cases in the age group of 16-30 years (33.3%), comparable with Premila De souza Rocha et al study⁽⁸⁾ and ABMZ sadik et al.⁽⁹⁾ In general, majority of the breast lumps are situated in upper outer quadrant. In our study most of the lumps were predominantly situated in upper inner quadrant (41.7%) in contrast to the study done by Premila De souza Rocha et al.⁽⁸⁾, in which most of the palpable lesion were in upper outer quadrant (45.2%).

Majority of the lumps were benign in our study (65%) with fibroadenoma constituting the majority (48.3%), these findings are comparable with the study by ABMZ et al.⁽⁹⁾ in which 54% patients had benign lesion, with fibroadenoma constituting majority (40.76%). Other benign breast disease was found in 10 (17%) patients.

Most common breast lump was fibroadenoma, which was most commonly seen in the 2nd decade. In study by Oluwole and Freeman⁽¹⁰⁾, peak age incidence for Fibroadenoma was between 16 to 25 years, which is consistent with this study. Study by ABMZ sadiq et al.⁽⁹⁾ also found fibroadenomas (66%) to be most common in second decade.

Maximum number of Carcinoma breast cases were in 5th and 6th decade, 20 out of 21 (96% of total carcinoma cases); also, out of 10 patients in their 6th decade, 9 had carcinoma breast in our study. No carcinoma patient was found below the age of 20 years

Median age of patients with breast carcinoma in series by oluwole and freeman⁽¹⁰⁾ was 61 years, which is comparable to our study, whereas in series by ABMZ sadik et al.⁽⁹⁾ most of the carcinoma breast were in 31-40 years age group. Malignant lesions constituted about 35% in our study whereas in study by ABMZ et al. (9), 46% patients had malignant lesions.

Although benign breast lumps are commoner than malignant tumors but presence of any lump in the breast raises the question of carcinoma especially in 5th and 6th decade and in high risk females and it should be evaluated extensively. Among 60 patients, 9 had nipple retraction (15%) and all of them where carcinoma breast cases, making presence of nipple retraction a strong positive finding towards clinical diagnosis of carcinoma breast.

In our study FNAC diagnosis of fibroadenoma was made in 29 patients which was confirmed on HPE. One of the 2 cases of fibrocystic disease (diagnosed by FNAC) was found to have carcinomatous changes on HPE. Out of the 4 cases of phyllodes (diagnosed by FNAC) one patient was found to have carcinomatous changes on HPE.

Three most common lump producing lesions in the breast are fibroadenoma, fibrocystic disease and carcinoma. The relative incidence of these three lesions varies in different studies. Oluwole and Freeman⁽¹⁰⁾ analyzed 255 patients with 282 breast lesions and found fibroadenoma was the most common (34.75%) lesion, followed by carcinoma and fibrocystic disease comprising 28 and 17 % respectively. In this study most common lump producing lesion in breast were fibroadenomas (48%) followed by carcinoma (35%). In our study all patients presented with primary complaint of lump in either of the breasts. Also in same series 94% of the patients presented with a breast mass, 5% with nipple discharge, 5% with pain, and 2% with a history of trauma to the breast.

Most of the patients of carcinoma breast presented in locally advanced stage (stage 3), 31%. The late presentation was due to lack of awareness and lack of screening programs in our population. Illiteracy, poverty, religious superstitions were also responsible for the delayed presentation. As the main problem of breast lump is its risk of being malignant, early detection of underlying pathology is a good means for long survival. Early detection of carcinoma with FNAC and radiological imaging helps in the early treatment and survival of the patient.

In this study, diagnostic accuracy of fibroadenoma by FNAC and USG is 100% in this study. Diagnostic accuracy of carcinoma breast by FNAC and USG is 90.4% in this study. PPV of overall breast lumps is 96.6% with both FNAC and USG. For carcinoma breast the PPV is 100% with both FNAC AND USG. As the cost benefit ratio of screening programs to the society, as a whole is unclear, less expensive modalities like USG and FNAC can be used for early diagnosis especially in the vulnerable age group. This will help to improve the survival rate.

CONCLUSION

Breast lump was the most common presentation in this study for both benign and malignant lesions.

Diagnostic accuracy of fibroadenoma by FNAC and USG is 100% in this study. Diagnostic accuracy of carcinoma breast by FNAC and USG is 90.4% in this study. PPV of overall breast lumps is 96.6% with both FNAC and USG. For carcinoma breast the PPV is 100% with both FNAC AND USG.

Lymph node were detected significantly by using USG in a clinically non palpable axillary lymph nodes which helped in the further appropriate management.

Hence USG and FNAC should be routinely done in any suspected lump for early diagnosis and treatment, this will help in reducing the morbidity and mortality in carcinoma breast

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