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Neoplastic and non-neoplastic breast lesions in a rural teaching hospital at Tamil Nadu: A retrospective study

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Abstract

Introduction: Breast malignancy is one of the leading cause of cancer death in women, which is a complex disease, comprising of distinctive histological patterns and it is the responsibility of the pathologist to differentiate a benign lesion from a malignant one. This study was done to evaluate the age, gender, laterality, frequency and histopathological features of non-malignant and malignant lesions in a rural hospital.

Materials and Methods: This retrospective study was done in the Department of Pathology Rajah Muthiah Medical College and Hospital for a period of 5years from January 2017 to December 2021. The data was collected in a proforma with relevant detailed informations. The excised specimens were received in buffered formalin, processed, sectioned and stained with routine Haematoxylin and Eosin stains.

Results: Out of 570 cases in breast lesions, the female cases reported were 92.1% and males 7.9%. The maximum number of breast lesion were seen on the left side followed by right side and bilaterality with 47.9%, 44.4% and 7.7% respectively. The non-malignant lesions accounts for 79.3% and the malignant lesions 20.7%. Among the non-malignant lesions Fibroadenoma with 60.2% and in malignant lesions Infiltrating ductal carcinoma with 93.2% were maximum encountered.

Conclusion: In our study, most of the malignant lesions were in the late stage, due to lack of awareness, which can be rectified by conducting camps and awareness programmes. Further this study emphasizes the importance of early diagnosis and management in malignancies to reduce the morbidity and mortality.

Keywords: Breast lesions, age, gender, laterality, non-malignant and malignant lesions

Introduction

Breast is a modified sweat gland comprising of two major components - Epithelial and connective tissue [1]. There are wide range of abnormalities that are reported which accounts for breast disorders and therefore wide spectrum of breast lesions have to be classified and evaluated. Detection of breast lesions is the preliminary phase in cancer diagnosis, hence various studies were made in evaluation of different types of lesions. The breast lesions are mostly classified as malignant and non-malignant lesions which includes Inflammatory, Fibroadenoma, Fibroadenosis, Ductal papilloma, Benign Phyllodes and Gynecomastia and Malignant lesions includes Infiltrative Ductal Carcinoma, Invasive Papillary Carcinoma, Mucinous Carcinoma, Medullary Carcinoma and Tubular Carcinoma. Unusual lesions of the breast can present a diagnostic challenge and hence variety of breast lesions along with pathological correlation are attempted in this article.

Breast Cancer is the second most common malignancy that accounts for cancer death in women and the first being Carcinoma of Cervix [2]. Carcinoma of Breast is usually associated with morbidity and mortality among reproductive age group in females, since it is under the varying influence of hormones.

This paper focus on the formation of dataset and study relative to patients involving breast lesions with regard to age, sex, location as left/right/bilateral and distribution of both malignant and non-malignant types and conclude with maximum reported lesions based on data collected in and around rural area of Rajah Muthiah Medical College and Hospital, Chidambaram.

Materials and Methods

A Retrospective study was made in our Institute by diagnosing 570 patients with breast lesions during January 2017 to December 2021. Patients were examined and explorations was made over the breast lesions.

During the study period, all the specimens received in the Pathology department for Histopathological examination, suspecting Non-malignant and Malignant lesions of the breast were included. Partially treated malignant cases were excluded from the study.

The data was collected in a proforma with the relevant information about age, sex, laterality, provisional and histopathological diagnosis. The tissue bits were taken from the representative areas and processed to make paraffin blocks. The sections were made at 3-4 micron thickness, stained with H&E (Hematoxylin & Eosin) and reviewed.

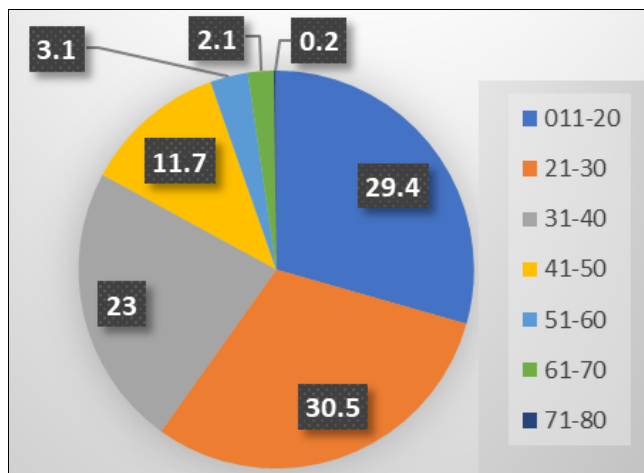
Observation

Age Distribution

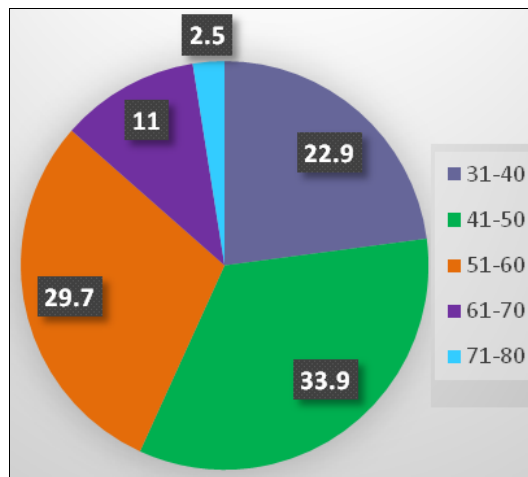
The present study included a total number of 570 cases with non-malignant and malignant lesions of the breast. The age of the patient range between 13 to 78 years. Among the non-malignant lesions of the breast, the maximum number of cases reported between 21 to 30 years of age group and in malignant lesions it was between 41 to 50 years.

Table 1: Age Distribution

Age	Non-malignant		Malignant	
	No of cases	%	No of cases	%
11-20	133	29.4	-	-
21-30	138	30.5	-	-
31-40	104	23.0	27	22.9
41-50	53	11.7	40	33.9
51-60	14	3.1	35	29.7
61-70	09	2.1	13	11.0
71-80	01	0.2	03	2.5



Graph 1: Age distribution of non malignant breast lesions



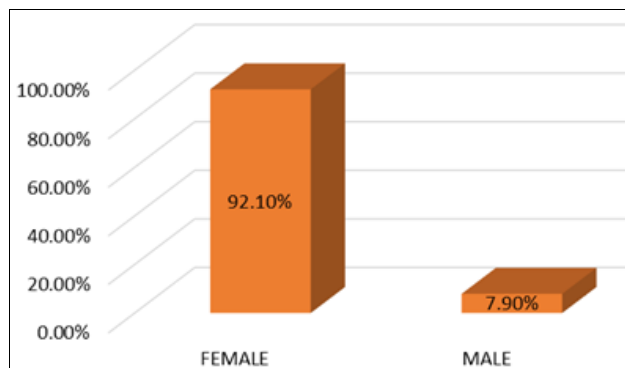
Graph 2: Age distribution of malignant breast lesions

Sex Distribution

Out of 570 cases, the females account for 525 (92.1%) cases and the males with 45(7.9%) cases, with the mean age of 41-50 for non-malignant lesions

Table 2: Sex Distribution

Sex	No of cases (n=570)	%
Female	525	92.1
Male	45	7.9



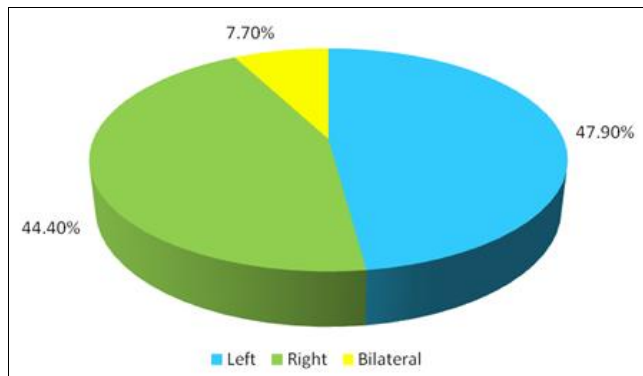
Graph 3: Sex distribution

Laterality

Out of 570 cases of breast lesions studied, left side of the breast was found to be maximum involved with 273 (47.9%) cases and the right side with 253 (44.4%) cases. Bilateral involvement of the breast was noticed in 44 (7.7%) cases.

Table 3: Laterality

Site	No of cases (n =570)	%
Left	273	47.9
Right	253	44.4
Bilateral	44	7.7



Graph-4: Laterality

The symptoms in the present study were the painless lump 58.2% to the maximum and the lump with nipple discharge 1.4% were least. Lump with nipple retraction 24.6%, Lump with pain 11.2% and Lump with ulceration 4.6% were the other symptoms noticed.

Non-Malignant Lesions

In this study with total of 570 cases, 452 (79.3%) cases were diagnosed as non-malignant lesions, and 118 (20.7%) cases were malignant lesions. Out of 452 non-malignant lesions, Fibroadenoma with 272 (60.2%) cases was the predominant one which is followed by Fibrocystic disease of 47 (10.4%) cases, Benign phyllodes 21(4.7%) cases and the least was Apocrine adenoma 1(0.2%). The Gynecomastia in male breast is noticed in 45(9.9%) cases.

Table 4: Distribution of non-malignant lesions of breast (79.3%)

S. No	Non-malignant lesions	No of cases	%
1.	Inflammatory	59	13.1
2.	Fibroadenoma	272	60.2
3.	Fibrocystic disease	47	10.4
4.	Fibroadenosis	03	1.1
5.	Ductal papilloma	02	0.4
6.	Benign phyllodes	21	4.7
7.	Apocrine adenoma	01	0.2
8.	Gynecomastia	45	9.9

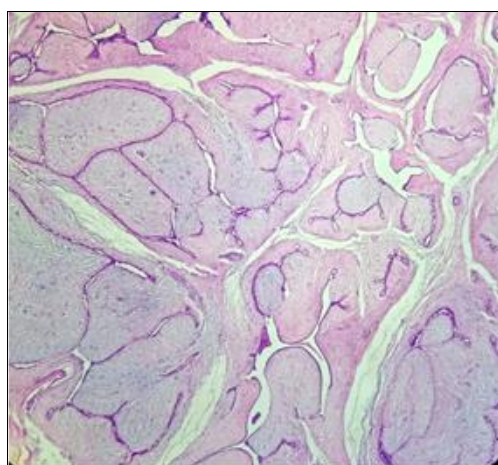


Fig 1: Fibroadenoma of breast (H&E 10X)

Malignant Lesions of Breast

Among 118 malignant lesions, Infiltrative ductal carcinoma accounts the maximum with 113(93.2%) cases and Mucinous carcinoma with 4 (3.6%) cases followed by Medullary carcinoma, Tubular carcinoma, Metaplastic carcinoma with 1 (0.8%) case each respectively.

Table 5: Distribution of Malignant Lesions of Breast (20.7%)

S. no	Malignant lesions	No of cases	%
1.	Infiltrative ductal carcinoma	110	93.2
2.	Invasive papillary carcinoma	01	0.8
3.	Mucinous carcinoma	04	3.6
4.	Medullary carcinoma	01	0.8
5.	Tubular carcinoma	01	0.8
6.	Metaplastic carcinoma	01	0.8

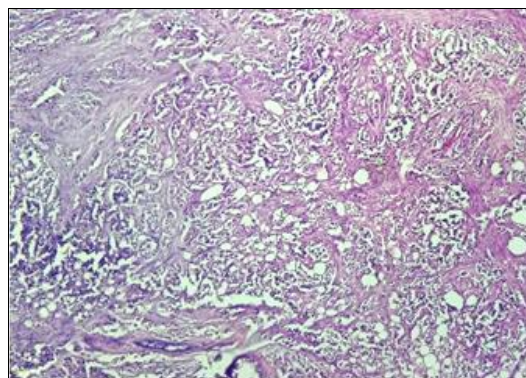


Fig 2: Infiltrative ductal carcinoma showing tumor cells arranged in sheets and nests (H&E 10X)

Discussion

Of all the malignancies, the breast cancer is the leading cause of death in females in Asia. In the recent years it was observed that there is constant rise in the incidence of breast cancer in India [3].

The present study was conducted with 570 patients of which 452 (79.3%) cases were non-malignant and 118 (20.7%) cases were recorded as malignant lesions.

Among the non-malignant lesions, Fibroadenoma is the dominant lesion with 272 (60.2%) cases. This was similar to other study carried out by Kulkarni *et al.* [4] 62.3% and Chavan R *et al.* [5] – 75.2%. This was more prevalent in second and third decade which is similar with the above studies. The ratio of non-malignant to malignant lesions was 3.8:1. In 118 malignant cases, 67 (56.8%) cases were reported during the premenopausal age group and 51(43.2%) cases were in the postmenopausal age group. Our study was similar to the study done by Raina v *et al.* [6] with 49.7% in premenopausal and 48.5% in postmenopausal age group, concluding that risk of malignancy is more predominant with premenopausal age group than with postmenopausal age group. In our study with 118 cases of malignant lesions, the Infiltrating ductal carcinoma was the commonest histological type with 110 (93.2%) cases. Our study fall in line with other studies like Chavan R *et al.* [5] 91% and Kulkarni *et al.* [4] 84.8% which were tabulated and compared.

The predominant malignant lesion was infiltrating ductal carcinoma with 93.2% and Mucinous case with 3.6%, followed by Invasive papillary carcinoma, medullary carcinoma, Tubular carcinoma, metaplastic carcinoma with 0.8% of each.

Table 6: Comparison of predominant cases in present study with other studies

Other studies	Fibroadenoma	Total non-malignant	IDC	Total malignant
Kulkarni <i>et al.</i> [4]	62.3%	80.70%	84.85%	19.30%
Chavan R <i>et al.</i> [5]	75.25%	75.9%	91%	24.1%
Present study	60.2%	79.3%	93.2%	20.7%

In the present study, the Infiltrating ductal carcinoma was graded in 110 cases using Modified Bloom Richardson grading system into 3 grades, with 12.7% categorized under grade I, 31.8% categorized under grade II and 55.5% categorized under grade III. Moreover it is observed that the present study closely resembles the other studies reported in literature validating the diagnosis made. In the other studies like Mudduwa L *et al.* [7] 14.6% with grade I, 36.4% with grade II and 49% with grade III followed by Ayadi L *et al.* [8] with grade I 10.9%, grade II 63.2% and grade III 25.8%. The study by N. M. Ghodasara *et al.* [9] reported grade I 19.5%, grade II 23.92% and grade III 56.52%.

Table 7: Comparison of grade of tumors with other studies

Other studies	Grade - I	Grade - II	Grade - III
Mudduwa l <i>et al.</i> [7]	14.6%	36.4%	49%
Ayadi l <i>et al.</i> [8]	10.9%	63.2%	25.8%
N.m ghodasara <i>et al.</i> [9]	19.5%	23.9%	56.5%
Present study	12.7%	31.8%	55.5%

In the present study, the Infiltrating ductal carcinoma shows 30.5% positive in lymph node metastasis and negative in 69.5%. The other studies like N.M. Ghodasara *et al.* [9], Sree N D *et al.* [10] and Lokuhetty M *et al.* [11] documented positive for lymph node metastasis as 54.28%, 51.85% and 41% respectively.

Conclusion

In the present study, the most common non-malignant lesion was Fibroadenoma of breast with 60.2% and the most predominant malignant lesion was infiltrating ductal carcinoma with 93.2%, on grading the Infiltrating ductal carcinoma, the maximum recorded was grade III with 55.5%. This was due to lack of awareness and poor economic status of the village people around Chidambaram. This study emphasizes the importance of recognizing the malignant lesions of the breast at an earlier stage. In this rural set up, breast cancer has to be given top priority starting from earlier diagnosis with available modalities to surgical and follow-up treatment, by conducting camps, screening programs, motivating the patients to report doctor earlier if any mass lesion is noticed by them. By following all these, the morbidity and mortality associated with breast malignancies can be reduced.

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