Original Research Article

Clinicopathological study of breast lesions over a period of one year in a tertiary care center

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ABSTRACT

Background: Breast carcinoma is no longer seen as a single disease but rather a multifaceted disease comprised of distinct biological subtypes with varied natural history, presenting a diverse spectrum of clinico-pathological and molecular features with different therapeutic and prognostic implications. The present study was designed to evaluate the frequency, age, gender and histopathological features of breast carcinoma in a tertiary care hospital.

Methods: The present study is a hospital based retrospective study for a period of one year from January 2015 to December 2015, conducted in the Department of Pathology, Andhra Medical College, Visakhapatnam.The clinical details were recorded as per the proforma. Tissue for H&E sections were fixed in 10% formalin and subjected to routine paraffin embedded processing and stained with Hematoxylin and Eosin.

Results: Out of the total 185 cases of breast lesions, 151 cases (81.62%) were diagnosed as non-malignant and 34 cases were malignant (18.37%). Maximum number of patients, 106 cases (57.2%), were between 21 - 40 years. Out of 34 malignant breast lesions, 27 were diagnosed as Infiltrative duct cell carcinoma (79.41%), followed by medullary carcinoma 4 cases (11.76%).

Conclusions: The pattern of breast lesions provides valuable information concerning clinicopathological profile of breast lesions. The clinical diagnosis of a breast lump must be correlated with histopathological diagnosis for correct and adequate treatment of patient.

Keywords: Breast carcinoma, Fibroadenoma, Infiltrating ductal carcinoma

INTRODUCTION

Breast Cancer accounts for one third of female cancers and approximately one fourth of all malignancies.[1] Malignancy not only poses financial burden on the patient, their family and society but also is responsible for emotional distress.[2] The majority of the patients seek medical advice when the disease is fairly advanced.

Breast diseases are more prevalent among females as compared to males and the pattern of breast diseases and their etiology varies among different countries and ethnic groups.[3]

Breast cancer is one of the most frequently occurring cancer and cancer related deaths are highly prevalent worldwide, which has become a major public health challenge.[4]

The present study is clinico-pathological study of thyroid lesions in a tertiary care centre with the main objectives of studying the spectrum of diseases in breast and to correlate with histopathology.

METHODS

Study design

The present study is a hospital based retrospective study for a period of one year from January 2015 to December 2015, conducted in the Department of Pathology, Andhra Medical College, Visakhapatnam.

Inclusion criteria

All mastectomy specimens received for histopathological examination suspected for neoplastic and non-neoplastic lesions of breast during the study period were included.

Exclusion criteria

Women with an obvious malignant disease or those who had been treated for malignancy earlier were excluded.

Study subjects

A total of 185 cases of breast specimens received in the Department of Pathology during this period were considered and studied. The lesions encountered in the present study were classified into inflammatory, noninflammatory and nonneoplastic, benign, and malignant conditions.

The clinical details were recorded as per the proforma along with mammography findings and related special investigations were taken into consideration. Fine needle aspiration was done by using non aspiration technique except for cystic lesions. In case of non diagnostic aspirates the procedure was repeated.

Specimens were collected in 10% formalin in fresh state and allowed to fix for 24hours. Specimens were thoroughly grossed with detailed examination according to standard protocol and bits were given. The following data was recorded- tumor size, infiltration of the tumor to nipple and aerola, posterior margin, adjacent breast changes, number of lymph nodes involved and size of lymph nodes. Representative tissue bits taken was subjected to routine processing, three to four micron thick sections were taken from the paraffin embedded blocks and sections were stained with Haematoxylin and eosin and were examined. The histopathological features were noted, and the tumors were diagnosed basing on WHO classification, and graded adopting Modified Bloom Richardson grading system. Each slide was examined for diagnosis by two pathologists who have experience of greater than 10 years. Any variation in the diagnosis of the specimen by pathologists was confirmed again by the senior most pathologist and the diagnosis in common was recorded.

Statistical analysis

Data was analysed using Microsoft excel, chi-square test and p value <0.05 to establish the significance.

RESULTS

In the present study, age of the patients ranged from 13 to 65 years with mean age of 34 years. Maximum number of patients, 106 cases (57.2%), were between 21-40 years (Table 1).

In the present study, out of 185 patients, 9 (4.8%) were male and 176 (95.13%) were female (Table 2).

Table 1: Age distribution.

Age	Inflammatory	Non inflammatory Non-Neoplastic	Benign	Malignant	Total	Percentage (%)
11-20	2	7	18	-	27	14.59
21-30	2	20	33	3	58	31.33
31-40	2	25	13	8	48	25.94
41-50	3	13	8	8	32	17.29
51-60	2	3	-	13	18	9.72
61-70	-	-	-	2	2	1.62
Total	11	68	72	34	185	100.00

Table 2: Sex distribution of the breast lesions.

Sex	Numbers	Percentage (%)
Male	9	4.8%
Female	176	95.13%
Total	185	100 %

Out of 185 cases, 170 cases presented with a lump in the breast and of the remaining 15 cases, 5 cases presented with nipple discharge alone while other 10 cases with both lump and nipple discharge. For most patients presented with lump, associated compliant was pain.

Varied sizes were noted in the breast lesions. For benign lesion the smallest one measured 0.8 Cm x 0.5cm and largest one measured 12 x 10 cm. For malignant lesion the smallest tumor measured 2.5 x 2 cm, and largest 10 x 10 cm in size. Bilaterality was noticed in 15 cases (8.3%) and fibroadenoma was the most common bilateral lesion encountered (5 cases) (Figure 1).

Figure 1: Pericanalicular type of fibroadenoma (H&E 100X).

Figure 2: Gross specimen of breast with infiltrating duct cell carcinoma showing irregular grey white growth.
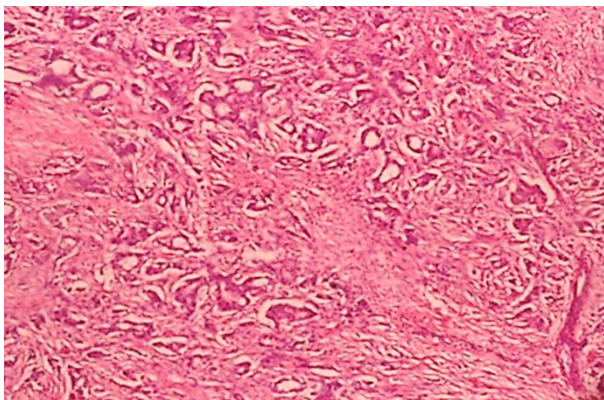

Figure 3: Infiltrative duct cell carcinoma showing tumor cells arranged in tubules (H&E 100X).

Out of the total 185 cases that were included for statistical analysis, 151 cases (81.62%) were diagnosed as nonmalignant and 34 cases were malignant (18.37%). Out of 151 cases of nonmalignant lesions, majority of the lesions were diagnosed as fibroadenoma (70 cases) comprising 46.35%, followed by fibroadenosis (36 cases) and fibrocystic disease (23 cases) comprising of 23.84% and 15.23% respectively (Table 3).

Table 3: Distributions of non-malignant breast lesions.

Lesion	No. of cases	Percentage (%)
Inflammatory	11	7.28
Fibroadenoma	70	46.35
Fibrocystic disease	23	15.23
Fibroadenosis	36	23.84
Benign phyllodes	1	0.66
Gynaecomastia	9	5.96
Duct papilloma	1	0.66
Total	151	100

Out of 34 malignant breast lesions, 27 were diagnosed as Infiltrative duct cell carcinoma (79.41%), (Figure 2,3 and 4) followed by medullary carcinoma 4 cases (11.76%) (Table 4).

Table 4: Distribution of malignant breast lesions.

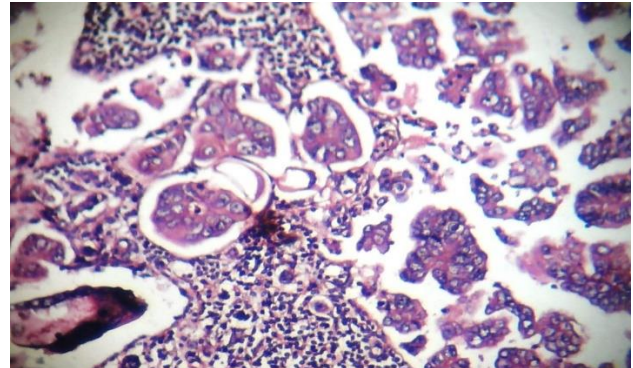| Lesion	No. of cases	Percentage (%)
Infiltrative duct cell carcinoma	27	79.41
Medullary carcinoma	4	11.76
Invasive papillary carcinoma	1	2.94
Metaplastic carcinoma	1	2.94
Apocrine carcinoma	1	2.94
Total	34	100

Figure 4: Malignant cells arranged in lobules and tubules in infiltrative duct cell carcinoma (H&E 100X).

In the present study, the various clinicopathological parameters in 27 cases of infiltrating duct cell carcinoma were analyzed. The age range of occurrence of carcinoma breast was between 23 years to 80 year. The mean age was 51.5 years. 14/27 (51.85%) cases were seen in perimenopausal and menopausal age group and 13/27 (48.14%) of cases occurred below 45 years of age.

Nulliparity is considered as a risk factor for carcinoma breast but in the present study 21/27 (77.77%) cases of infiltrating duct cell carcinoma had children less than 2 and 5/27 (18.51%) had children more than 2 in number. One case had history of nulliparity.

The size of tumor was more than 2 cm in 24/27 (88.88%) of cases. The grade of tumor was well differentiated (grade 1) in 18/27 (66.66%) and grade 2 in 5/27 (18.5%) and grade 3 in 4/27 (14.81%) of cases.

Metastatic lymph nodes were seen in 14/27 (51.85%) with less than 4 lymph nodes involved in 8/14 (57.14%) of cases. Out of these 14 cases with positive lymph nodes 82.8% showed vascular invasion and necrosis in 90.7% of cases. In the present study 19/27 (70.37%) and 8/27 (29.62%) presented with stage I and stage II disease respectively.

DISCUSSION

Out of 185 cases of breast lesions, 151 cases (81.62%) were nonmalignant and 34 cases (18.37%) were malignant. Out of all nonmalignant lesions fibroadenoma constitutes the dominating lesion 70 cases (46.35%). This was similar to study of Mansoor I and another study by Adesunkanmi AR et al, Amr et al, reported 30.7%, Kulkarni et al, 62.32%, Malik et al, 41 %, cases of fibroadenoma.[5-9] In present study the most common age of fibroadenoma was second and third decade which is comparable to the above studies.

In the present study, the ratio of benign to malignant lesions were 4.4:1. Kumar M et al, asserted that in Indian rural population the benign breast diseases are 5 to 10 times more common than breast cancers; while Aisha Memon A et al, referred that in west benign breast lesions are 10 times more common than breast cancers.[10,11] Kumar M et al, observed that incidence of benign breast diseases varies in different geographical areas, and benign breast diseases are common in developing countries but due to lack of education women disregard the breast lump.[10] It is necessary that general features of individual breast diseases like incidence, age distribution, symptoms and palpatory findings are crucial and beneficiary for the diagnosis and management of these lesions. Illiteracy, social taboo, unawareness result in delayed diagnosis in both benign and malignant lesions. Such delay in diagnosis of malignant lesions is associated with poor prognosis.

In the present study, 34 cases (18.37%) were malignant. Shanthi V et al, studied 100 breast lesions and found 28% malignant pathology.[12] In a study of Pradhan et al, in Nepal upto 15.5% cases were malignant.[13] In another study reported from Nigeria, malignant lesions were diagnosed approximately 40% by Mayun et al.[14]

In the present study the mean age at presentation of carcinoma breast was 51.5 years. 51.85% of cases occurred in the post menopausal age group with 48.14% occurring less than 45 years of age. In the study by Ayadi L et al, 51.6% of cases occurred in less than 50 years of age with median age of 51 years.[15] Forty six percent of cases occurred in less than 45 years. In the study by Raina V et al, 49.7% of cases occurred in less than 45

years and 48.5% cases in greater than 45 years.[16] In the study by Saxena S et al, of New Delhi reported that the median age of occurrence of carcinoma breast was 47.8 years.[17] In the present study, out of 34 cases of malignant lesions, the commonest histological type was infiltrating duct cell carcinoma (NOS) type constituting 79.41% of cases. In the studies by Raina V et al, Lokuhetty M, Ayadi L et al, were 92.8%, 86.3% and 83.8% respectively.[15,16,18]

Out of 34 malignant breast lesions, 27 were diagnosed as Infiltrative duct cell carcinoma (79.41%), followed by medullary carcinoma 4 cases (11.76%) and one case each of metaplastic carcinoma (Figure 5), invasive papillary carcinoma (Figure 6) and apocrine carcinoma. This was similar to a study by Shanthi V et al, in which out of 28 cases 23 cases were diagnosed as ductal cell carcinoma, 2 as lobular carcinoma, 1 as medullary carcinoma, 1 as malignant Phyllodes and 1 case was found to be mucinous carcinoma respectively.[12] Raina V et al, documented 2.9% of lobular carcinoma, medullary carcinoma 1.4% and Ayadi L et al, reported 3, 8% of invasive lobular carcinoma, 3.2% mucinous carcinoma and 0.6% as metaplastic carcinoma.[15,16]
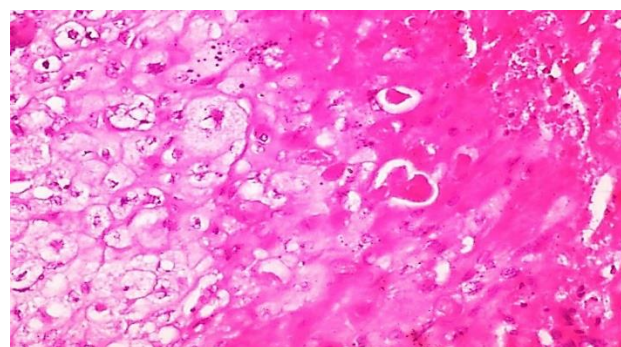

Figure 5: Sheets of ductal epithelial cells with squamoid change showing abundant eosinophilic cytoplasm, nucleus with prominent nucleoli and keratin material diagnosed as metaplastic carcinoma (H&E;400x).
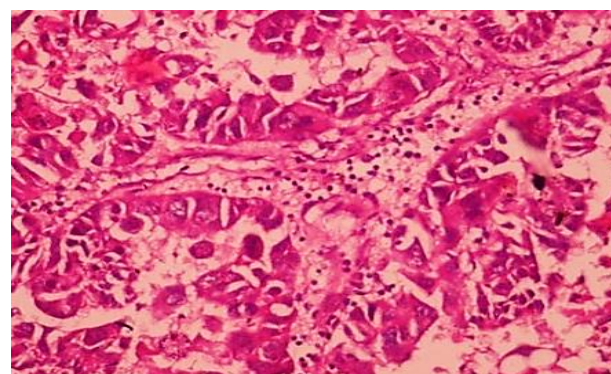

Figure 6: Tumor cells arranged in papillary fronds with pleomorphic nuclei and abundant eosinophilic cytoplasm with lymphocytic collection diagnosed as invasive papillary carcinoma (H&E;400x).

Infiltrating duct cell carcinoma is graded using modified Bloom Richardson grading system into three grades.

In the present study, the grade of tumor was well differentiated (grade 1) in 18/27 (66.66%) and grade 2 in 5/27 (18.5%) and grade 3 in 4/27 (14.81%) of cases. In the study by Ahmed Z et al, documented 4.17% as grade 1 tumors, grade 2 were 75.83% and grade 3 tumors as 20%.[19] Mudduwa L et al, reported 14.6% as grade 1 tumors, 36.4% as grade 2 tumors and 49% as grade 3 tumors.[20] The grade 1, grade 2 and grade 3 tumors in the study by Ayadi L et al, was 10.9%, 63.2% and 25.8% (Table 5).[15]

In the present study, lymph node metastasis in infiltrating duct cell carcinoma was seen in 51.85% of cases and negative for metastasis in 48.15% of tumors. The number of lymph nodes positive for metastasis, less than 4 in number was 57.14% and those more than 4 were 42.86%. In the studies by various authors like Ahmed Z et al, Mudduwa L et al, Ayadi L et al, and Lokuhetty M, documented lymph nodes positive for metastasis as 74.77%, 57.7%, 65% and 41% respectively.[15,18-20]

Table 5: Comparison of grade of tumor with other studies.

Study	Grade 1	Grade 2	Grade 3
Ahmed Z et al[19]	4.17 %	75.83%	20%
Mudduwa L et al[20]	14.6%	36.4%	49%
Ayadi L et al[15]	10.9%	63.2%	25.8%
Present study	66.66%	18.5%	14.81%

Out of 14 cases with positive lymph nodes, 82.8% showed vascular invasion and necrosis in 90.7% of cases. In the study by Ahmed Z et al, vascular invasion was seen in 62.5% of cases and tumor necrosis was seen in 63.33 % of cases.[19]

CONCLUSION

Due to lack of awareness breast diseases present in the late stage of malignancy. Awareness must be generated among women to reduce the morbidity and mortality with breast lesions. The pattern of breast lesions provides valuable information concerning clinicopathological profile of breast lesions. The clinical diagnosis of a breast lump must be correlated with histopathological diagnosis for correct and adequate treatment of patient.

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