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Original Research Article

Histomorphological evaluation of Breast carcinoma – A study of 15 cases

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ABSTRACT

Purpose/Objective: Breast cancer occurs in any of the cells of the mammary gland and exhibits a wide scope of morphological features, different immunohistochemical profiles, and unique histopathological subtypes that have specific clinical course and outcome. This study was conducted to assess various histomorphological variants of breast carcinoma.

Material and Methods: Total of fifteen cases of modified radical mastectomy specimens were prospectively assessed from January 2019 to June 2019 in pathology department of Dr B.R. Ambedkar Medical college and hospital, Bangalore.

Observation: Out of 15 cases, Invasive ductal carcinoma NOS was most common variant accounting for 10 cases (66.66%) followed by 1 cases of Invasive Lobular Carcinoma breast, 1 case of Invasive micropapillary carcinoma, 1 case of Medullary carcinoma, 1 case of Metaplastic breast carcinoma. The histological grading of breast carcinoma was done on the basis of Elston – Ellis modification of Scarff - Bloom - Richardson grading system. We found that Grade 2 tumours were more common accounting to 9 cases (60%) followed by Grade 1 tumour (26.66%).

Conclusion: This study emphasizes on the importance of assessment of histopathological variants of breast carcinoma in not only in establishing the final diagnosis, but also in predicting the prognosis by histological typing, staging and grading of breast carcinoma.

1. Introduction

The breasts, also called the mammary glands are highly modified apocrine sweat gland which is under constant influence of sex hormones from puberty to menopause. Changes in the breast are most dynamic and profound during the reproductive years. Just as the endometrium grows and ebbs with each menstrual cycle, so does the breast. The breasts being composed of specialized epithelium and stroma are susceptible to numerous benign and malignant lesions. [1]

With growing awareness among the general population, a female presenting with a lump in the breast is most common presentation in the out and in patient department. Apart from this other frequent symptoms with which women with breast disease presents are pain, nipple discharge or abnormal findings on mammographic screening. [1] Diagnosis of breast lesions is routinely performed by the triple assessment of a specialized surgeon, radiologist and pathologist.

Breast cancer is one of the most common human neoplasm, accounting for approximately one-quarter of all cancers in females worldwide and 27% of cancers in developed countries with a Western lifestyle. [2] Breast cancer can also occur in men, but it is more than 100 times more common in women than in men. In India it is the second most common cancer after cancer cervix with mortality 12.7 per 100,000 women. Currently 75,000 new cases of breast cancer are detected in India yearly. [3]

The various histopathological factors of breast carcinomas like tumor size, lymph node status, histological type, histological grade, presence or absence of hormone receptors and age of patients play crucial role on treatment options such chemotherapy and radiation therapy and

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prognosis.

This study was conducted as an attempt to understand various histomorphological variants of breast carcinoma and their age distribution from mastectomy specimens in our tertiary care centre.

2. Materials and Methods

This is a prospective type of study conducted over a period of 6 months, from January 2019 to June 2019 in the Department of Pathology, Dr. B.R. Ambedkar Medical college and hospital, Bangalore. A total 15 cases of modified radical mastectomy specimens were studied. MRM specimens with no evidence of residual tumor, patients having previous history of radiotherapy or neo-adjuvant chemotherapy were excluded from the study. Clinical details of the patients like age and clinical presentation were obtained from the requisition forms received with specimens and were entered in the proforma.

All the received mastectomy specimen in the department were immediately fixed with 10% formalin. After 24 hours of adequate fixation, specimen was grossed and multiple representative bits were taken followed by routine tissue processing and were embedded in paraffin. The axillary tail were also examined for the lymph nodes and dissected. A detailed histopathological evaluation including histologic variant, grade, stage and lymph node status were evaluated as per CAP protocol by microscopic examination of Hematoxylin and Eosin stained tissue sections. And the findings were correlated with age and clinical presentation.

3. Results

A total of 15 cases were analyzed in this study and all were females. The age of the patients ranged from 31 years to 67 years with mean age of 49.4. Majority of the patient were within the age group of 40 – 50 years (46.66%) followed by 50 – 60 years (40%).

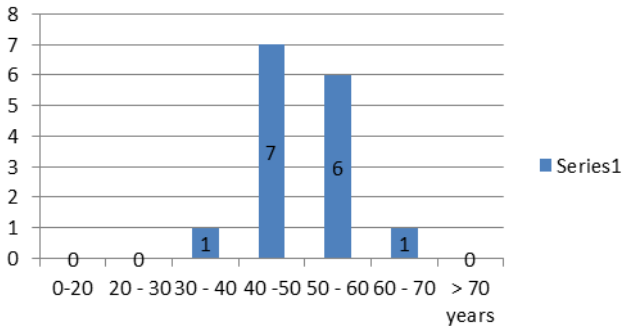

Fig. 1: Age wise distribution of Mastectomy specimens.

Out of 15 MRM cases, majority were involving left breast accounting to 9 cases (60%) and 6 cases (40%) involving right breast and no bilateral breast involvement were observed.

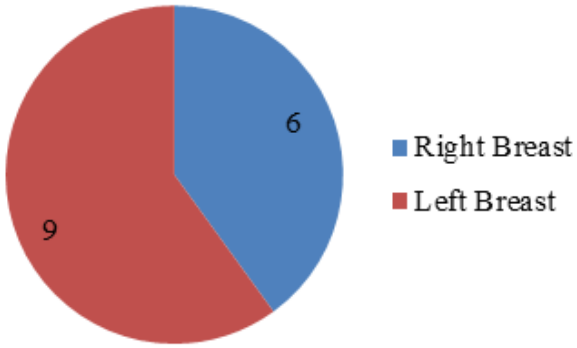

Fig. 2: Distribution ofLaterality of Breast carcinoma.

The chief presenting symptom was painless lump in most of the patients, although few of the patients also had additional symptoms such as pain, ulceration, Peaud' orange, nipple retraction and discharge.

The histologic typing of Breast carcinoma was done based on World health organization classification of tumors of breast.[4] In our study of 15 cases Invasive ductal carcinoma NST was most common variant accounting for 10 cases (66.66%) followed by 1 cases of Invasive Lobular Carcinoma breast, 1 case of Invasive micropapillary carcinoma, 1 case of Medullary carcinoma, 1 case of Metaplastic breast carcinoma. 1 cases of Mixed IDC with mucinous component + Lobuar Carcinoma.

The histological grading of breast carcinoma was done on the basis of Elston – Ellis modification of Scarff - Bloom - Richardson grading system. We found that Grade 2 tumours were more common accounting to 9 cases (60%) followed by Grade 1 tumour (26.66%).

Axillary lymph node was positive for metastasis in 12 out of 15 cases and remaining 3 cases were negative for micrometastasis on Hematoxylin and Eosin stained sections by microscopic examination.

A rare and interesting collision tumour of Invasive ductal carcinoma with mucinous component and Invasive lobular carcinoma was also encountered in the present study.

4. Discussion

Breast cancer is the top cancer in female population worldwide and incidence has increased at the rate of 3-4% in developing countries and often gets diagnosed at late stage.[5]

Breast cancer occurs in any of the cells of the mammary gland and exhibits a wide scope of morphological features, different immunohistochemical profiles, and unique histo-pathological subtypes that have specific clinical course and outcome.[6]

This study was conducted to analyze the histomor-phological variants of Carcinoma Breast in Mastectomy

Table 1: Incidence of various histologic variants of breast carcinoma

S. No	Histologic variants of breast carcinoma	Number of cases
1	Invasive Ductal Carcinoma NST*	10 (66.66%)
2	Invasive Lobular Carcinoma	1 (6.6%)
3	Medullary Carcinoma	1 (6.6%)
4	Metaplastic Breast Carcinoma	1 (6.6%)
5	Invasive Micropapillary Carcinoma	1 (6.6%)
6	Mixed IDC with mucinous component + Lobuar Carcinoma	1 (6.6%)
	Total	15 (100%)

Table 2: The histological grading of breast carcinoma based on modifiedScarff – Bloom – Richardson grading system.

S. No	Degree of Differentiation	Number of Cases
1	Well Differentiated - Grade 1	4(26.66%)
2	Moderately Differentiated – Grade 2	9(60%)
3	Poorly Differentiated – Grade 3	2(13.33%)
	Total	15(100%)

specimens and to determine its relation with age of the patient and clinical presentation.

In our present study majority of patients belonged to 4^{th} and 5^{th} decade which was in

According to our observations, most of patients presented with painless lump in left breast which is comparable with the study by Samir S et al[7] and Sunita Mistry et al.[8]

In our study Invasive ductal carcinoma NST was most common variant to be encountered which is in concordance with the studies conducted by Reddy et al,[9] Pathak R et al,[10] Malik Et al[11] and Sunita Mistry et al[8]

Fig. 3: Gross cut section of mastectomy specimen exhibiting firm, poorly circumscribed chalky whitetumour infiltrating surrounding stroma.

Medullary carcinoma, is a rare and special subtype with a favorable prognosis and better outcome than invasive ductal carcinoma. It accounts for less than 5% of mammary carcinomas in most series, but frequency as high as 7% has also been reported.[12] In our study we reported one case of medullary carcinoma accounting to 6.66%.

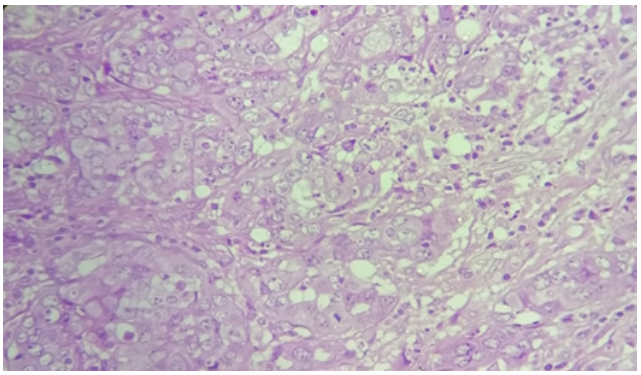

Fig. 4: Medullary carcinoma breast: Microphotograph shows polygonal to round medium sized cells with vesicular nuclei and prominent nucleoli admixed with prominent lymphocytic infiltration.

Metaplastic breast carcinomas are a highly heterogeneous group of tumors characterized by

ductal carcinoma with areas of spindle, squamous, chondroid and/or osseous differentiation. Chondroid and osseous differentiation occur focally in 0.2% of breast carcinomas, and osseous metaplasia is the rarest component.[13] In the present study, one case of metaplastic carcinoma were reported.

In our present study we found majority of tumors were moderately differentiated Grade 2 as in the studies done by Acharya et al[14] Reddy et al[9] and Pathak R et al.[10]

We also encountered a rare and interesting hybrid variant of Invasive ductal carcinoma with mucinous component and Invasive lobular carcinoma. A study concluded that patients with this variant had a better prognosis, particularly among postmenapausal women, which may impact follow – up strategies.

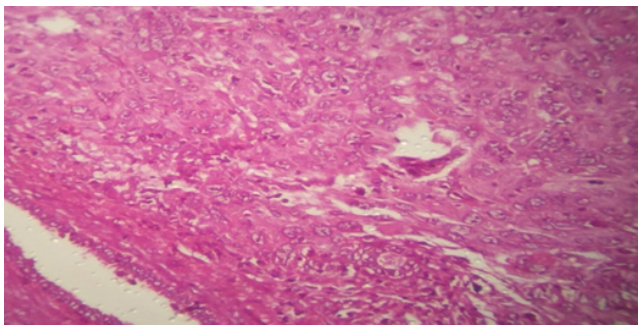

Fig. 5: Metaplastic Carcinoma breast: Microphotograph shows highly pleomorphic spindle cells admixed with abnormal mitosis with breast duct in the left.

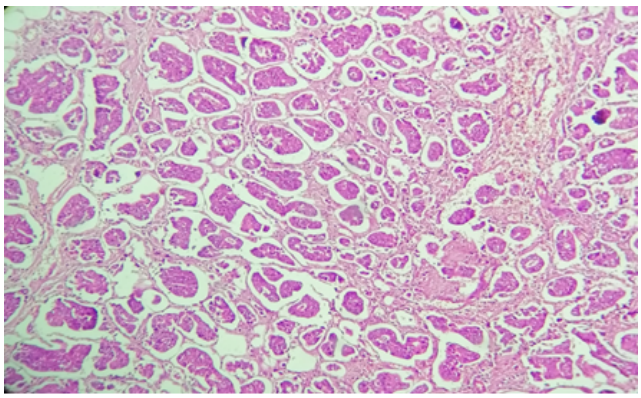

Fig. 6: InvasiveMicropapillary carcinoma: Micrograph shows malignant neoplastic cells arranged small micropapillary tufts surrounded by clear cleft around the clusters.

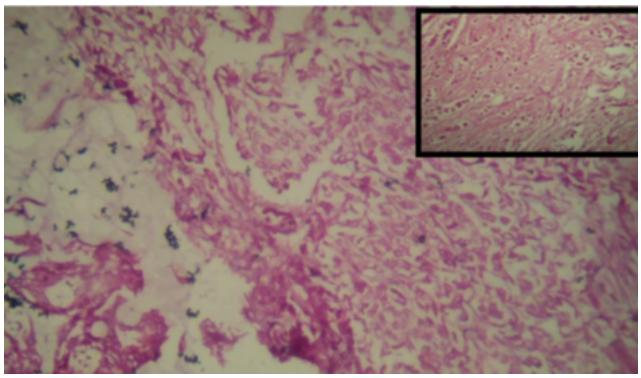

Fig. 7: Mixed Invasive Ductal carcinoma with Mucinous component with Inset showing Invasive Lobular carcinoma.

5. Conclusion

Breast carcinoma is the most common malignant tumour and leading cause of death among women. The present study provides a limelight on various histomorphological variants of carcinoma breast in our institution. This study also supports the usefulness of histomorphological examination in breast lumps not only in establishing the final diagnosis, but also in predicting the prognosis by typing, histological staging and grading of breast carcinoma.

6. Source of Funding

None.

7. Conflict of Interest

None.

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