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Clinicopathological study of rare invasive epithelial tumors of breast: An institutional study

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Abstract:

INTRODUCTION: Invasive breast cancer (BC) is the most common carcinoma in women. It accounts for 22% of all female cancers. Most tumors are derived from mammary duct epithelium, and up to 75% of BCs are ductal carcinomas. The second most common tumor is invasive lobular carcinoma. However, there are many variants which are less common but well defined by the World Health Organization classification. They comprise <10% of breast tumors. Their clinical behavior differs greatly. Hence, it is important to know their main histomorphological features to make the best treatment of choice and to foresee prognosis.

AIMS AND OBJECTIVES: To study the histomorphological features, incidence, and clinical features of rare invasive epithelial tumors of the breast.

MATERIALS AND METHODS: This study was done in the department of pathology, Sri Devaraj Urs Medical College, Kolar. All the neoplastic breast lesions over a period of 5 years (July 2010–September 2015) are included in the study. Clinical features and other details (estrogen receptor/progesterone receptor, human epidermal receptor-2, lymph nodes) are obtained from the department (surgery) records. Specimens are received and preserved in 10% formalin and are subjected to routine histopathological processing. Hematoxylin and eosin sections are studied, and a morphological diagnosis is given. All rare invasive epithelial breast tumors will be reviewed meticulously.

RESULTS AND CONCLUSION: A total number of invasive epithelial tumors of breast were 105. The most common presenting symptom was breast lump. Rare invasive epithelial breast tumors account to 28.5%. The age range from 15 to 70 years. Most common, rare invasive epithelial tumor in our study is medullary carcinoma. Hence, it is imperative to always maintain a Hawk's vigil during microscopic diagnosis to know prognosis of the condition and to facilitate early and prompt treatment to the patient.

Key words:

Breast, epithelial, invasive

Breast cancer (BC) is a heterogeneous disease that encompasses several distinct entities with remarkably different characteristics. Although breast lesions are more common than other organ lesions, they deserve a special place in every pathologist mind due to the diversity of lesions which can range from simple fibroadenoma to various carcinomas including most common infiltrating ductal carcinomas to rarer entities such as medullary carcinoma, angiosarcoma, lobular carcinoma, papillary carcinoma, metaplastic carcinoma, and neuroendocrine carcinoma, which can be compared to an oasis in desert.^[1]

One of the very important cancer characteristics is its histological type. Histological type is associated with different epidemiology, diagnostic issues, clinical course, and prognosis.^[2] The World Health Organization (WHO) presents a detailed classification of BCs. According to this classification, cancers are divided into epithelial (such as invasive ductal carcinoma, invasive lobular carcinoma, tubular carcinoma, medullary carcinoma,

mucinous carcinoma, and others), mesenchymal tumors (such as hemangioma, myofibroblastoma, lipoma, neurofibroma, leiomyoma, and others), fibroepithelial tumors (fibroadenoma, phylloides tumor, mammary hamartoma).^[1] Malignant lymphoma (diffuse large b-cell lymphoma, Burkitt lymphoma, follicular lymphoma), metastatic tumors can also be found in the breast. The WHO also marks tumors of the nipple, male BC, and myoepithelial lesions.^[3]

Invasive BC is the most common carcinoma in women. It accounts for 22% of all female cancers.

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Most tumors are derived from mammary duct epithelium, and up to 75% of BCs are Invasive ductal carcinomas – not otherwise specified.^[4] The second most common tumor is invasive lobular carcinoma. However, there are many variants which are less common but well defined by WHO classification. They comprise <10% of breast tumors.^[5]

Their clinical behavior differs greatly. Hence, it is important to know their main histomorphological features to make the best treatment of choice and to foresee prognosis.^[6]

Aims and objectives

To study the histomorphological features incidence and clinical features of rare invasive epithelial tumors of the breast at our Institution.

Materials and Methods

This retrospective study was done in the Department of Pathology, Sri Devaraj Urs Medical College, Kolar. All the neoplastic breast lesions over a period of 5 years (July 2010–September 2015) were included in the study.

Clinical features and other details (estrogen receptor/progesterone receptor, human epidermal receptor-2, lymph nodes) were obtained from the department records.

Histopathological examination was done on 10% formalin fixed and paraffin processed tissues from surgically resected specimens and stained by hematoxylin and eosin. Hematoxylin and eosin sections were studied, and a morphological diagnosis was given. All rare invasive epithelial breast tumors were reviewed meticulously by two different pathologists and reported.

Results

A total of 387 cases were studied over a period of 5 years. Of the 387 cases, benign lesions constituted 72.8% of cases whereas malignant lesions were 27.1% as shown in Table 1. The age ranged between 15 and 70 years. The most common presenting symptom was lump in both benign and malignant groups. Table 1 shows different histopathological lesions in benign and malignant groups. In the benign group, fibroadenoma was the most common lesion encountered in 64.5% of cases.

In the malignant group, infiltrating duct carcinoma was the most common lesion seen in 71.4%. Among the rare invasive epithelial tumors of breast, medullary carcinoma was most common and encountered in 13.3% followed by metaplastic carcinoma (4.7%), lobular carcinoma (2.8%) [Figure 1].

Discussion

For correct diagnosis of breast diseases, background knowledge of general features of individual breast diseases such as incidence, age distribution, symptoms, and palpatory findings are very important.^[7] Benign conditions of breast are significantly more common than the malignant conditions in the developing countries. The limited literature available suggests that benign breast disease is a common problem in the developing countries as well.^[8] 387 cases were studied over a period of 5 years. The spectrum of breast lesions in female patients in our study showed 72.8% benign lesions of various etiology and 27.1% of malignant lesions.

Malik in his study of 1724 cases over a period of 20 years reported benign lesions in 72.97% and malignant lesions in 27.3% of cases.^[9] Similar results were obtained by Iyer in 2000^[10] and Mayun *et al.* in 2008.^[11] In the present study, 55.07% of the benign lesions were noted in the patients below the

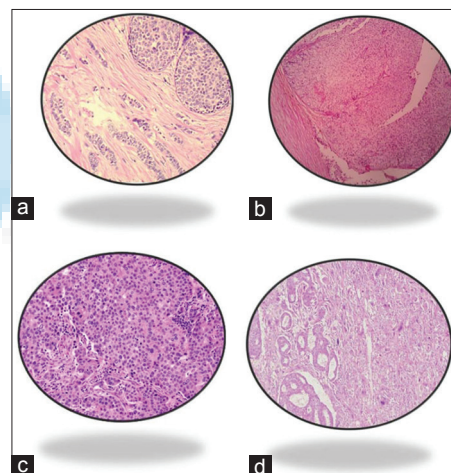


Figure 1: (a) Lobular carcinoma, (b) pleomorphic liposarcoma, (c) medullary carcinoma, (d) metaplastic carcinoma

Table 1: Distribution of various benign and malignant breast lesions

Benign lesions	Number of cases (n=282)	Percentage	Malignant lesions	Number of cases (n=105)	Percentage
Fibroadenoma	182	64.5	Infiltrating ductal carcinoma	75	71.4
Fibrocystic disease	56	19.8	Medullary carcinoma	14	13.3
Lactating adenoma	6	2.1	Tubular carcinoma	2	1.9
Abscess	14	4.9	Metaplastic carcinoma	5	4.7
Duct ectasia	12	4.2	Neuroendocrine variant	2	1.9
Intraductal papilloma	11	3.9	Lobular carcinoma	3	2.8
Galactocele	1	0.3	Adenoid cystic carcinoma	2	1.9
			Pleomorphic liposarcoma	1	0.9
			Papillary carcinoma	1	0.9

age of 25 years. In the same age group, Malik noted benign lesions in 51.19% of the cases^[9] and Bauer *et al.* in 95% of the cases.^[12] The incidence is higher in the study of Bauer *et al.*^[12] as the age group selected for the study was between 12 and 22 years. In the malignant group, only one case was found below 25 years of age in our study. Similar results were noted by other authors.^[10,11] This shows that malignant lesions are very rare in adolescent females. Lump in the breast was the most common presenting symptom in both benign and malignant groups followed by pain in 10.14% in the benign group and 12.12% in the malignant group. Dixon and Mansel^[13] conducted a study and found breast lump in 69%, breast pain in 50%, and nipple discharge in 5% of cases. Griffith^[14] studied the frequency of presenting symptoms in benign breast diseases. He found common symptoms as lump in 33% of cases followed by pain and nipple discharge and noted that the patients may present with one or more of the symptoms. In the present study, fibroadenoma was the most common benign lesion constituting 64.5% followed by fibrocystic disease in 19.8% of the patients. The study by Malik^[10] reported 55% of fibroadenoma. It has been seen that in women between adolescence and the mid-20s, the lobules and the stromal may respond to hormonal stimuli in an exaggerated fashion with the development of single and multiple fibroadenomas.^[15]

In a study done by Kumar *et al.* among malignant breast lesions infiltrating ductal carcinoma was encountered maximum number of cases 65.5% which is similar to our study 71.4%.

While in his study, the second predominant lesion was lobular carcinoma followed by medullary and mucinous types, while in our study, the second most common malignancy is Medullary carcinoma followed by Metaplastic and Lobular carcinoma.^[5]

Conclusion

Diagnosing rare tumors of any organ system is a challenge to every pathologist because it involves a high index of suspicion and an "Eagles Eye" to identify it, even more so when this is based on histopathology alone. Rare tumors present a treat to pathologists and clinicians because things that we do not come across very often in our life become more special when encountered suddenly. In this study, the highest incidence of rare tumor we come across is medullary carcinoma (13.3%) followed by metaplastic and lobular carcinoma. Hence,

it is imperative to always maintain a Hawks vigil during microscopic diagnosis to know the prognosis of the condition and to facilitate early and prompt treatment to patient, lest we come so close to the tree that we lose sight of the forest.

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Conflicts of interest

There are no conflicts of interest.

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