



Six Years Histopathological Spectrum Of Breast Lesions In A Tertiary Care Hospital

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ABSTRACT

Breast lesions are quite common and vary from totally benign lesions to malignant ones with breast cancer as an important cause of morbidity and mortality in women. The present study was carried out to know about the histopathological spectrum of breast lesions.

A total of 1223 surgical specimens of breast tissue were subjected to histopathological examination in our tertiary care hospital over a period of Six years. All the cases were studied in detail and tabulated as benign and malignant. Cases were stratified according to WHO 2012 classification. A total of 1028 tumour were found in which 710 were benign and 318 were malignant. Fibroadenomas accounted for 573 cases making it almost half (46.85%) of the total cases for which surgery was done. Infiltrating ductal carcinoma of no special type was the most common type of malignancy (83.33%) encountered. Almost all forms of rare carcinomas were also seen.

Breast lesions show a wide range of morphology. A strict histopathological assessment with classification leads to proper diagnosis and thus the proper treatment of such common entity.

Keywords: Breast lesions, Breast carcinoma, Fibroadenoma, Phyllodes tumor.

INTRODUCTION

Breast although being an accessory organ is quite vital in terms of its varied pathologies and more importantly its accessibility to diagnostic procedures and potential of cure to its various life threatening conditions. Most of the breast lesions turn out to be benign, however the malignancies are nonetheless quite common. Diagnosis of breast lesions occurs usually by palpation in younger age groups and by screening mammographic procedures in the elderly.

Breast Carcinoma is the most common and feared malignancy of women globally, with 1.7 million women getting diagnosed every year with this disease and it kills one patient out of the three[1]. It stands second in the list of frequently occurring newly diagnosed cancers worldwide. It is estimated that nearly 70% of malignant tumours are caused by

environmental factors, whereas in breast cancer this percentage reaches 90–95%[2].

Breast cancer ranks just the second cause of cancer death in women. Evidence in literature simply shows that the ongoing research has a great role in improving clinical outcome in these patients[3]. Breast stands out among most of the organs of the body in terms of its commonality of lesions, both benign and malignant, convenience of self examination, accessibility to diagnostic work up, better prognosis, and better cure rates.

MATERIALS AND METHODS

All the breast specimens submitted for histopathological examination over a period of Six years were studied which is from Jan 2015-Dec 2020.

It is a descriptive and retrospective type of study. All the breast cases which included Lumpectomy, Excision biopsies, Tru cut biopsies, Mastectomy specimens and Blocks for Review were included in this study irrespective of age and sex. There were no exclusion criteria. Only the specimens which had the pure diagnosis of dermal pathology were excluded. Specimens were received in 10% formalin and were subjected to routine Hematoxylin and Eosin stains.

All the cases were reviewed in detail. Cases were segregated as tumours and non-tumorous lesions. Tumours were further categorised and classified according to the WHO 2012 Histological classification of breast tumors[4]. Total number of cases received in the departments every year for all the Six years was calculated. Necessary details and variations in histopathology were noted down.

RESULTS

A total of 65002 specimens were received in the surgical pathology (excluding Gynaecological and Obstetric specimens) section of the department of pathology in our Tertiary Care Hospital from Jan 2015–December 2020. Out of these 65002 specimens, 1223 were breast tissue specimens. The various lesions encountered have been depicted in the tables.

As total number of breast specimens received in our department in the last Six years was 1223, maximum cases which is 1177 were from females and 46 cases were from the male breast making the Male: Female ratio of 1:25.58. Most of the specimens from males were that of Gynaecomastia, One for reduction mammoplasty, however there were Nine cases of carcinomas from male category out of which Seven were Invasive carcinoma NST and two were Mucinous Carcinomas.

As shown in the Table 1, there were 68 (5.56%) inflammatory lesions, 6(0.49%) cystic lesions and 58 (4.74%) fibrocystic changes. The total number of tumors was 1028 tumors accounting for 84.05% of total cases. No pathology was found in 63 cases, which included the diagnostic categories of “normal breast tissue, no tumor, no residual tumor, no pathology, axillary tail of breast and a single case of reduction mammoplasty”. Regarding inflammatory lesions, most of these were chronic inflammations, chronic granulomatous mastitis and abscesses. In

Chronic granulomatous cases there were two cases of caseating granulomas with AFB proven Tuberculosis. There were two cases of Plasma cell mastitis also. Among the Six cystic lesions, five were non-specific breast cysts and there was One case of Primary hydatid cyst of breast[5].

Among the total of 1028 tumors, 710 (69.06%) were benign and 318(30.93%) were malignant. Out of the 710 benign tumors, 573 were fibroadenomas and 16 were benign phyllodes tumor. Among the various malignant tumors (Table 2), invasive carcinoma of no special type (NST) was the commonest malignancy (81.13%). Ten cases of Carcinoma with neuroendocrine differentiation and Six cases of Medullary carcinoma were seen. Eight cases of Invasive lobular Carcinoma (ILC), Two Tubular carcinomas and a Single Metaplastic Carcinoma with heterologous cartilaginous component was seen.

Of the various stromal tumors encountered, there were 21 cases of Phyllodes tumor. Out of these 16 were cases of benign phyllodes and Four were malignant and there was one case of Borderline phyllodes. Two cases of Stromal sarcoma (non-Phyllodes malignancies) with all malignant features were also reported. Among the rare benign lesions, One Periangiomatous Stromal Hyperplasia and one Adenomyoepithelioma were found.

Lesions in male breast were mostly Gynaecomastias (80%), however there were Seven cases of Invasive carcinoma NST and Two Mucinous carcinomas.

There were 63 cases which were reported as unremarkable breast tissue or no pathology found. These cases were actually cases of axillary breast tissue, reduction mammoplasty in One male, or cases with no residual tumor or no recurrence.

DISCUSSION

Pathology is a discipline of studying human illness and thus involves the morphologic and biologic recognition of abnormalities that are associated with the disease. Breast pathology is an excellent example of this branch. By providing diagnostic information and then characterizing the biologic behavior of a breast lesion, a pathologist plays a critical role in a patient's life. Understandably any mistake in this is associated with serious consequences. In order to better serve our patients, particularly medically underserved women and those living in third world

countries with limited resources, we must place emphasis on effectively using the talent and expertise of pathologists around the world[6]. At the same time pathologist have a role in we mitigating the over diagnosis and overtreatment in breast cancer[7].

Worldwide, breast carcinoma is one of the important causes of suffering in humans and premature mortality among womenfolk [8]. In the past 50 years great advances have been made in early diagnosis and, especially, less toxic and disfiguring primary therapy. Many of the advances in pathology have been in corroboration with efforts to support clinical initiatives, improve diagnostic reliability and translate basic science discoveries into tests that is needed in patient management. Pathologists, with the support of epidemiologists, have lead significant advancements in the description and clinical significance of benign breast disease and thus the overall management. Despite considerable efforts, the cure for breast cancer awaits better understanding of the pathophysiology of metastasis. Pathologists must be active in ensuring that discoveries in this field are optimized by assuring association with appropriate histological correlation and valid clinical endpoints[9].

We studied a total of all breast lesions coming to our department for a full period of Six years. As we enumerated and studied a total of 1223 breast lesions, these were categorised as Tumors and non- Tumor lesions (Table-1). Tumors were further tabulated (Table-2) as per WHO Classification. We found almost all the classes of tumors except a few.

Most of the cases we came across were tumors (1028), benign or malignant for which breast tissue is usually excised from the body. The remaining cases were those of non tumorous origin like inflammatory conditions (68), Cystic changes (6), non-proliferative breast changes (58) or the specimen which were excised for looking into residual tumor, axillary tail of breast masquerading as a fibroadenoma or mammoplasty tissue.

Epithelial tumors constituted a biggest portion of tumors in our study after Fibroepithelial lesions. A total of 305 epithelial tumors were reported and these constituted upto 96% of malignancies when taking both male and female patients into consideration. Amost all other rarer cases of epithelial malignancies were also seen in this study (Table 2). Out of these

ductal carcinoma of no special type (NST) constituted for 83.33% of all the malignant tumors (Fig1). Three microinvasive carcinomas, all in the female category were also seen.

Neuroendocrine carcinomas of breast although understood as a rare carcinoma category generally [10] was the second common epithelial tumour in this study making for 3.14% of tumors. All other tumours were lesser in number than this.

This was followed by Invasive lobular carcinomas and Mucinous carcinomas both of which constituted for 2.51% (n=8) of cases. Six of the Mucinous carcinomas were seen in females whereas two were seen male category. Invasive lobular carcinoma percentage has increased compared to the previous years from our department, it constituted for only 0.85% of cases in former two and a half years study[11]. This alludes to the awareness of diagnosing more Lobular carcinoma in recent years.

Medullary carcinoma which is a poor and aggressive histopathological entity of breast carcinoma but with a favourable clinical outcome as compared to Invasive ductal carcinoma[12]. A total of Six Medullary carcinomas were reported in this study all in the female category.

Metaplastic carcinomas of breast are a heterogenous carcinoma group which can exhibit multiple morphologies with abroad differential diagnosis[13]. Two cases of metaplastic carcinoma of no special type were seen, whereas there was a single case of Metaplastic carcinoma with mesenchymal differentiation in which the mesenchymal component was a cartilage, were reported. Two cases of Tubular carcinoma and a single case of Inflammatory carcinoma were also reported.

There were 13 cases of Ductal carcinoma in situ (DCIS) in our study but we did not see any case of as Lobular carcinoma in situ. DCIS was a frequent component in Invasive carcinoma NST whereas all these 13 cases of DCIS enumerated were exclusively DCIS without Invasive ductal carcinoma and thus constituted for 1.26% of tumors.

In terms of intraductal proliferative lesions, we found 22 cases of Usual ductal hyperplasia and 4 cases of Atypical ductal hyperplasia. These were the cases other than those found in association with epithelial malignancies.

Other benign lesions we saw were, seven intraductal papillomas, three cases of sclerosing adenosis, one case of apocrine adenosis, two cases each of microglandular adenosis and apocrine adenoma. Six cases of lactating adenoma and four cases of apocrine adenoma were also seen.

Five Paget's disease of nipple were seen. Out of these two were reported as solely Paget's disease for the nipple biopsy that was undertaken and three were seen with an underlying component of Invasive ductal carcinoma or DCIS.

Fibroepithelial lesions comprise a spectrum of morphologically and biologically heterogeneous, biphasic tumors with epithelial and stromal components that demonstrate widely variable clinical behaviour. Fibroadenomas are common benign tumors with a number of histologic variants, most of which pose no diagnostic challenge. Cellular and juvenile fibroadenomas can have overlapping features with phyllodes tumors and should be recognized. Phyllodes tumors constitute a spectrum of lesions with varying clinical behaviour and are graded as benign, borderline or malignant based on a set of histologic features[14].

In our series we received a 614 total cases of Fibroepithelial lesions making for a total of 50% of all the cases with Fibroadenomas constituting for a big chunk of 46.66% (573). The age varied from 12 to 50 years. A wide range of proliferative changes and microscopic variations were encountered. The most common type was simple Fibroadenoma without any association, followed by Fibroadenomas with fibrocystic change, adenosis and epithelial hyperplasia. We encountered Juvenile Fibroadenoma, Myxoid Fibroadenoma, Giant Fibroadenomas and Fibroadenoma with stromal hyalinisation also.

A total of 21 Phyllodes tumor were present in our study which were classified as benign, borderline and malignant. The age varied from 17 to 25 years. Out of the total Phyllodes cases 16 (76%) were benign, One (4.7%) was borderline and Four (19%) were malignant phyllodes tumor. Malignant phyllodes constituted for 1.25% of the total malignant cases. One of the malignant phyllodes had Leiomyosarcoma component, in a patient of 25 years of age.

In addition to this we saw two stromal sarcomas, one case of Periangiomatous stromal hyperplasia and a lipoma too.

Conclusion: Breast lesions show a wide range of histopathological morphology which needs to be kept in mind for the proper diagnosis and thus treatment of this common disease.

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LEGENDS

Fig 1: Photomicrograph showing Infiltrating Ductal carcinoma directly ulcerating through skin in the epidermis taking staging directly to T4.

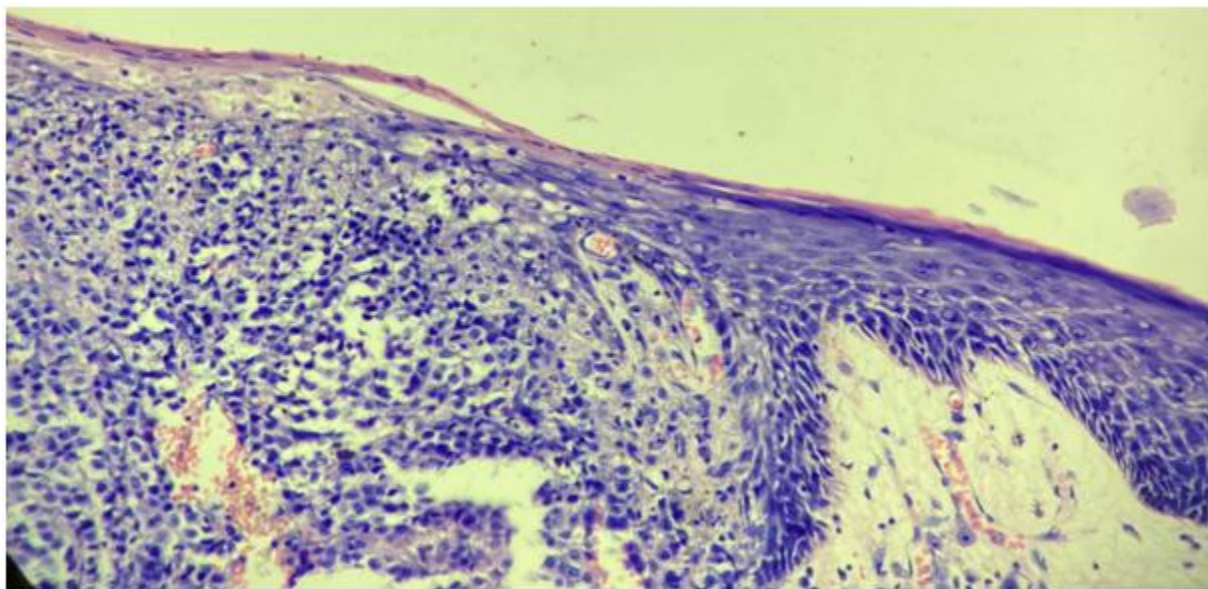


Table 1: Showing incidence of various breast lesions encountered in present study

Lesions	No of cases	%
Inflammatory conditions	68	5.56
Cystic lesions	6	0.49
Non Proliferative Breast changes (Fibrocystic changes)	58	4.74
Tumors	1028	84.05
No Pathology	63	5.15
Total	1223	

Table 2: Showing incidence and pattern of various tumors of breast in the present study

Lesions	No of cases	% of all cases(n=1223)	% among tumors(n=1028)	% of malignant tumors(n=318)
Epithelial tumors	296(305*)	24.20	28.79	93.08(95.91*)
Microinvasive carcinoma	3	0.24	0.29	0.94
Invasive carcinoma of no special type (NST)	258(+7*)	21.09	25.09	81.13(83.33*)
Invasive lobular carcinoma	8	0.65	0.77	2.51
Tubular carcinoma	2	0.16	0.19	0.62
Mucinous carcinoma	6(+2*)	0.49	0.58	1.88(2.51*)
Medullary carcinoma	6	0.49	0.58	1.88
Metaplastic carcinoma with heterologous component (Cartilagenous)	1	0.08	0.09	0.31
Metaplastic carcinoma with SCC	2	0.16	0.19	0.62
Carcinoma with neuroendocrine features	10	0.81	0.97	3.14
Epithelial-myoepithelial tumors				
Adenomyoepithioma	1	0.08	0.09	0.31
Precursor lesions				
Ductal carcinoma in situ	13	1.06	1.26	4.08
Lobular carcinoma in situ	0	0	0	0
Intraductal proliferative lesions				
Usual ductal hyperplasia	22	1.72	20.37	6.91

Atypical ductal hyperplasia	4	0.32	0.38	1.25
Papillary lesions				
Intraductal papilloma	7	0.57	0.68	2.20
Intraductal papillary carcinoma	0	0	0	0
Benign epithelial proliferations				
Sclerosing adenosis	3	0.24	0.29	0.94
Apocrine adenosis	1	0.08	0.09	0.31
Microglandular adenosis	2	0.16	0.19	0.62
Apocrine adenoma	2	0.16	0.19	0.62
Tubular adenoma	4	0.32	0.38	1.25
Lactating adenoma	6	0.49	0.58	1.88
Mesenchymal tumors				
Periangiomatous stromal hyperplasia (PASH)	1	0.08	0.09	0.31
Lipoma	1	0.08	0.09	0.31
Stromal sarcoma	2	0.16	0.19	0.62
Fibroepithelial tumors	614	50	59.72	
Fibroadenoma	573	46.66	0.55	
Phyllodes tumor	21	1.71	2.04	
Benign	16	1.30	1.55	
Borderline	1	0.08	0.09	
Malignant	4	0.32	0.38	1.25
Tumors of the nipple				
Nipple adenoma	0	0	0	0
Paget disease of the nipple	5	0.40	0.48	1.57
Malignant lymphoma	1	0.08	0.09	0.31
Metastatic tumors	0	0	0	0
Tumors of the male breast	43	3.50	4.18	13.52
Gynaecomastia	34	2.76	3.30	10.69
Carcinoma (NST)	7	0.57	0.68	2.20
Mucinous carcinoma	2	0.16	0.19	0.62
Clinical pattern				
Inflammatory carcinoma	1	0.08	0.09	0.31