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ORIGINAL PAPER

Histopathological Spectrum of Breast Lesions - A Hospital Based Study

Gogoi Geetanjali[1], Borgohain Diganta[2]

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ABSTRACT

Objective: *A retrospective study of four years duration was undertaken to determine the histopathological spectrum of breast lesions including both the benign and malignant lesions.*

Methods: *The histopathological findings of the biopsied specimens were studied in 99 cases of all age groups and both sexes.*

Results: *Out of the 99 cases, benign lesions constituted 74.75% and malignant 25.25%. The commonest benign lesion was fibroadenoma and commonest malignant lesion was infiltrating duct carcinoma. Few uncommon lesions like inflammatory pseudotumour, atypical ductal hyperplasia, complex fibroadenoma, and myofibroblastoma were detected.*

Conclusion: *Breast lesions are a cause of concern not only for the patients but also for the pathologists and the surgeon. No data regarding benign breast diseases in this region is available as yet. Identification of benign lesions simulating malignancy and premalignant lesions is important for follow up of cases. It is important to distinguish between benign and malignant lesions like phyllodes tumour as approach to diagnosis and management differs.*

Keywords: *Atypical ductal hyperplasia, inflammatory pseudotumour, phyllodes tumour, fibroadenoma, infiltrating duct carcinoma*

INTRODUCTION

Histopathology plays an important role in management of breast diseases. It is a necessary component of diagnosis, treatment and prognosis in most breast disorders. Also, when assessing the adequacy of treatment in breast cancer, pathologic assessment is the main criterion.[1]

The main purpose of this study is to analyze the spectrum of breast lesions in patients attending a newly set up Medical college and Hospital at Jorhat, Assam. This new Medical College and Hospital caters to the people belonging to Jorhat, Majuli and the adjoining districts of Golaghat, Sibsagar and Karbi-Anglong. No data regarding breast diseases in this region is available as yet. Clinico-pathological features of both the benign and malignant breast lesions of all ages and both sexes were studied.

In India, carcinoma breast is the second most common malignancy in woman after cervical cancer and is detected in 20 per 1,00,000 women.[2, 3] But it is fortunate that the majority of the breast lesions in outpatient visits prove to have a benign pathology.[4]

Address for correspondence and reprint:
[1]Associate professor of Pathology
(**Corresponding Author**)
Jorhat Medical College and Hospital
Jorhat, Assam, Pin 785001
Mobile: 9435030238
Email: geetanjaligogoi@yahoo.com
[2]Associate Professor of Surgery, Assam Medical College, Dibrugarh, Assam

The term "benign breast diseases" encompasses a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial & stromal proliferations and neoplasms that may present a wide range of symptoms or may be detected as incidental microscopic findings. The incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continues to increase after menopause, although at a less rapid pace.[5] Breast cancer comprises 1.38 million cases (10.9% of total cancer cases) worldwide according to the global statistics 2008.[6]

MATERIALS AND METHODS

The study was conducted in the department of Pathology, Jorhat Medical College &Hospital from January 2011-December 2014. Clinical features and details were noted from the histopathology requisition forms. Histopathological examination was done on formalin fixed and paraffin processed tissues from surgically resected specimens and stained by haematoxylin and eosin.

OBSERVATIONS

Ninety-nine cases having breast lesions were studied over a period of four years (Jan 2011 to Dec 2014). In all the breast lesions the commonest presenting symptom was lump in the breast.

Out of the 99 cases, benign lesions constituted 74.75% and malignant 25.25% (**Figure 1**). The commonest benign lesion was fibroadenoma followed by fibrocystic disease and commonest malignant tumour was infiltrating duct carcinoma as shown in **Table 1**.

Of all the cases, four were males and ninety-five were females. Gynaecomastia formed the majority of the cases in the male (4.05%), which is higher than other Indian studies as shown in **Table** 2. The youngest male (12 years) was diagnosed with gynaecomastia and the youngest female (10 years) was diagnosed with fibroadenoma breast.

The ages of the cases ranged between 10 years to 60 years. The peak age of occurrence of the benign lesions was found to be in the 2nd and 3rd decades, youngest case detected as fibroadenoma at 10 yrs of age. The peak age of occurrence of the malignant lesions was found to be in the 4th and 6thdecades, youngest case diagnosed as infiltrating duct carcinoma at 30 yrs of age (**Figure 2**). Two peaks of occurrence of malignant cases one in premenopausal and the other in postmenopausal period were observed and this needs further evaluation.

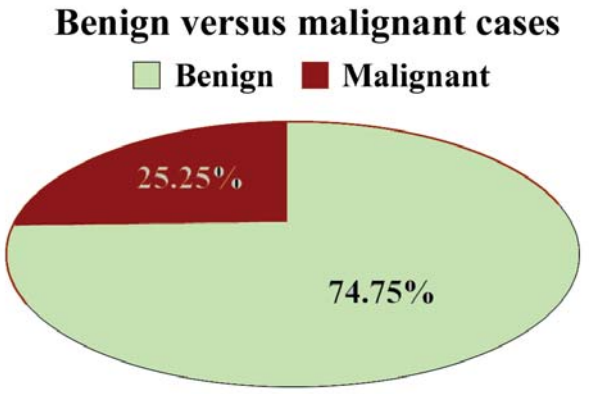

Figure 1 Pie chart showing % of benign & malignant cases

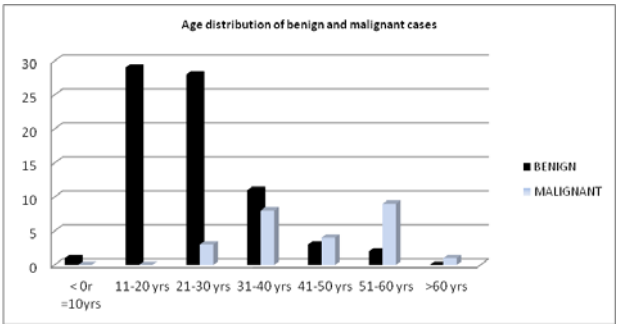

Figure 2 Bar diagram showing age distribution of both the benign and malignant cases

Table 1 Different histopathological lesion in benign and malignant groups

Histopathological diagnosis	Number of cases (%)	Overall Percentage	% of the group
Benign group (n-74)		(Total %)	(Benign%)
1. Fibroadenoma	48	48.48	64.87
2. Atypical ductal hyperplasia	03	3.03	4.05
3. Benign Phyllodes	03	3.03	4.05
4. Fibroadenosis	03	3.03	4.05
5. Sclerosingadenosis	01	1.01	1.35
6. Fibrocystic disease	06	6.06	8.11
7. Gynaecomastia	03	3.03	4.05
8. Myofibroblastoma	01	1.01	1.35
9. Inflammatory pseudotumour	01	1.01	1.35

Histopathological diagnosis	Number of cases (%)	Overall Percentage	% of the group
10. Fibrolipoma	01	1.01	1.35
11. Inflammatory lesion	02	2.02	2.70
12. Abscess	01	1.01	1.35
13. Galactocele	01	1.01	1.35
Malignant group (n-25)			(Malignant%)
1. Infiltrating duct carcinoma	21	21.4	84
2. Infiltrating lobular carcinoma	02	2.0	8
3. Malignant Phyllodes tumour	01	1.0	4
4. Mucinous carcinoma.	01	1.0	4

Figure 3 to 8 shows the photomicrographs of few cases of breast lesions with different histopathological spectrum.

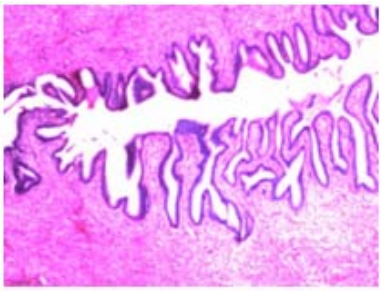

Figure 3 Photomicrograph showing malignantphyllodes

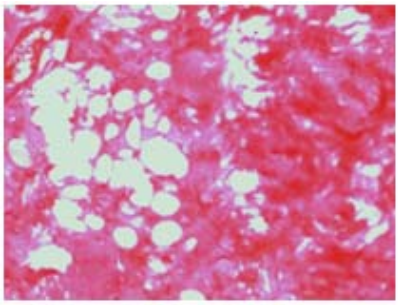

Figure 4 Photomicrograph showing Mylofibroblastoma

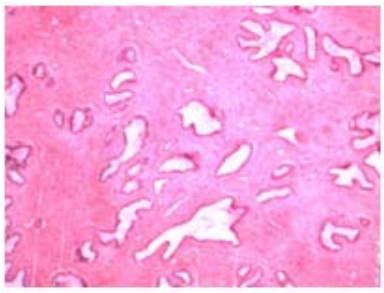

Figure 5 Photomicrograph showing Fibroadenoma

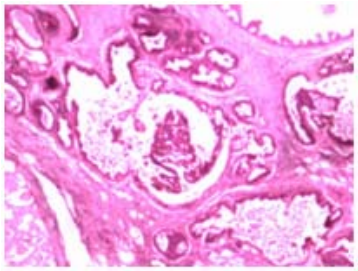

Figure 6 Photomicrograph showing Fibrocystic disease

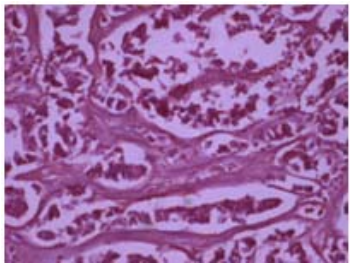

Figure 7 Photomicrograph showing Infiltrating Duct Carcinoma

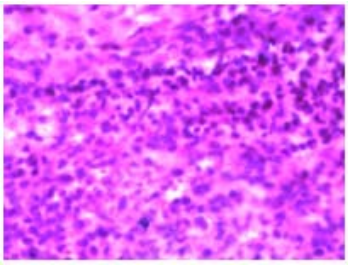

Figure 8 Photomicrograph showing Inflammatory Pseudotumours

DISCUSSION

Breast problems for which patients consult doctors are breast pain, nipple discharge and palpable masses. Pathological or physiological nipple discharge is worrisome. 10 to 15% of women with benign breast diseases will complain of pathological nipple discharge. A breast mass and a cyst need histological diagnosis whereas the breast pain (mastalgia) remains the most common symptom in women.[7] In our study, majority of the patients presented with breast lump.

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.[8] Benign breast diseases are more prevalent as compared to malignant and inflammatory, as seen throughout the world.[9] Risk factors for benign and

malignant breast diseases include low parity, nulliparity, low age at first birth and late menopause, highlighting the fact towards excessive circulating oestrogens.[10, 11]

Benign conditions of breast are significantly more common than the malignant conditionsworldwide.[9] In our study too, benign lesions comprised74.75% of the total lesions and malignant lesions 25.25%.The percentage of carcinoma appears to be slightly higher than that in the west (10%) [12] and closer to Africa (21%).[13] The benign to malignant ratio was3:1 in the Calcutta study and exactly similar i.e. 3:1 in our study. At Calcutta the % of malignancy was 24.44% as compared to our study (25.25%). [14, 15]

Table 2 Comparative study of spectrum of benign breast lesions.

Benign group	Malik R (% of benign)	Kulkarni S (% of benign)	Our study (% of benign)
1. Fibroadenoma	55.0	62.32	64.87
2. Atypical ductal hyperplasia	--	--	4.05
3. Benign Phyllodes	1.27	1.45	4.05
4. Fibroadenosis	0.32	4.35	4.05
5. Fibrocystic disease	28.38	11.5	8.11
6. Gynaecomastia	--	--	4.05
7. Myofibroblastoma	--	--	1.35
8. Inflammatory pseudotumour	--	--	1.35
9. Fibrolipoma	--	--	1.35
10. Inflammatory lesion	--	--	2.70
11. Abscess	--	1.45	1.35
12. Lactating adenoma	0.87	4.35	--
13. Chronic mastitis	6.84	2.90	--
14. Plasma cell mastitis	1.83	--	--
15. T.B. mastitis	2.46	1.45	--
16. Intraduct papilloma	0.48	1.45	--
17. Duct ectasia	0.56	2.90	--
18. Galactocele	--	0.72	1.35
19. Sclerosingadenosis	--	--	1.35
20. Misc	1.99	5.07	--

Table 3 Comparative study of spectrum of malignant breast lesions

Malignant group	Malik R (% of malignant)	Kulkarni S (% of malignant)	Our study (% of malignant)
1. Infiltrating duct carcinoma	88.20	84.85	84
2. Infiltrating lobular carcinoma	3.21	3.03	08
3. Malignant Phyllodes tumour	--	--	04
4. Mucinous carcinoma.	0.64	3.03	04
5. Medullary carcinoma	2.57	--	--
6. Papillary carcinoma	0.86	3.03	--
7. Squamous cell carcinoma	0.64	--	--
8. Undifferentiated carcinoma	0.64	--	--
9. Non hodgkin's lymphoma	0.42	3.03	--
10. Intraduct carcinoma	1.50	3.03	--
11. Miscellaneous	1.29	--	--

Table 4 Comparison with similar studies

Study group	Benign %	Malignant %
Our study	74.75	25.25
UR Singh et al 2009	80.7	19.3
Rasheed A. et al (2009-201[16]	72.97	27.3
Malik et al (2003)[17]	80.7	19.30
Kulkarni S. et al (2009)[18]		

Out of the four male cases, three were of gynaecomastia and one was of fibroadenoma. In our study, commonest benign tumour was found to be fibroadenoma and commonest malignant tumour was infiltrating duct carcinoma. Similar results were noted in the other studies as mentioned in **Table 3** and **Table 4**. In a similar study in Nepal by UR Singh et al in 2000, it was found that Fibroadenoma (28.28%) followed by fibrocystic disease (21.71%) formed the majority of breast lesions sent for histopathology, which is similar to that seen by Khanna et al[19] from Banaras-India. It has been seen that in women between adolescence and the mid 20's, the lobules and the stroma may respond to hormonal stimuli in an exaggerated fashion with the development of single and multiple fibroadenomas. Fibrocystic change is one of the breast lesions with peak range of incidence at 31–35 years. Our findings were slightly lower than past studies as shown in **Table 2**. It occurs during ovulation and just before menstruation. During these times, hormone level changes, which often causes the breast cells to retain fluid and develop into nodule or cyst which feels like a lump when touched. These nodules and cysts spread throughout the breast. As hormone level rises just before and during menstruation, mammary blood vessels swell. The real incidence of fibrocystic disease is difficult to estimate and diagnosis depends a great deal on individual clinician or pathologist acumen.[20]

However there is a slight rising trend of phyllodes tumour showed in our study compared to the other study groups. Phyllodes tumor present histologically as intraductal growth of intralobularstroma with leaf life projections. In our study Phyllodes tumor accounts for 4.05%of all the breast lesions and have a peak incidence in premenopausal age. These findings were comparable with other published studies.[7, 21]

The importance of many benign lesions lies in their ability to mimic cancers and not all benign lesions are completely free of risks. The clinical significance of sclerosing adenosis lies in its mimicry of cancer. It may be confused with cancer on physical examination, by mammography, and at gross pathologic examination.[21,22] Inflammatory lesions of the breast are of clinical significance because of their potential for confusing them with cancer.[17]

In our study, the peak age of occurrence of the benign lesions was found to be in the 2nd and 3rd decades, youngest case detected as fibroadenoma at 10 yrs of age. The peak age of occurrence of the malignant lesions was found to be in the 4th and 6thdecades, youngest case diagnosed as infiltrating duct carcinoma at 30 yrs of age. Similar results were noted by other authors.[16, 23, 24] Our study showed 2 peaks of occurrence of malignant lesions i.e. 4th and 6th decades with slight decline in the 5th decade. Maximum numbers of malignant cases were found in the postmenopausal group. This needs further evaluation.

During this study, few uncommon breast lesions like atypical ductal hyperplasia, myofibroblastoma, inflammatory pseudotumour, complex fibroadenoma and malignant phyllodes tumour were encountered.

Breast cancer and breast diseases screening programs should be developed at the hospitals. These programs should ideally include clear objectives, plans and managements. Programs should be free of cost, to encourage large number of women to enroll in such screening programs.

CONCLUSION

Benign breast diseases are the commonest breast diseases, in which fibroadenoma is the most common variety. Patients normally present late with locally advanced diseases due to lack of awareness, knowledge and dearth of organized screening programmes.

With the increase use of mammography, more and more women are diagnosed with benign and malignant breast diseases.[25] Identification of benign lesions simulating malignancy and premalignant lesions is important for follow up of cases. It is important to distinguish between benign and malignant lesions like phyllodes tumour as approach to diagnosis and management differs.

Invasive breast carcinoma is associated with a high mortality rate due to invasion in lymph nodes, adjacent tissues and due to metastasis. Invasive ductal carcinoma is the most common histological type with a poor prognosis rate of 30-35% 10-year survival rate. Peri-tumor lymphatic and blood invasion are the main factors related to presence of metastasis to lymph nodes and they are more closely related to tumor size and histological grade.[26] Histopathology plays an important role in the diagnosis of breast diseases. When correlated with clinical data, mammographic findings, breast ultrasonography and fine needle aspiration cytology, the histopathological examination can lead to the early diagnosis of an occult malignant breast lesion. The need of the hour is to launch breast cancer awareness campaign and screening

programmes at the local and national level so that breast cancer can be diagnosed and cured at the earliest.

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Conflict of interest: None

Ethical clearance: Done

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