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Original Article

Histopathological Spectrum of Neoplastic and Non-neoplastic Breast Lesions: A Two Years Study

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Abstract

Introduction: Lump in the breast is a sensitive issue for female patients. Timely and accurate diagnosis of a breast lump can not only alleviate anxiety but also early intervention can be lifesaving. In India, breast cancer forms the second most common malignancy after cervical cancer and is detected in 20/1,00,000 women.

Purpose: Many studies have been done and published on the histopathology of breast lesions. The present study was done in collaboration with Department of General Surgery to know the histopathological spectrum of breast lesions at SVS Medical College, Mahbubnagar.

Materials and Methods: A total of 168 cases of breast lesions were evaluated, including benign and malignant cases. Relevant clinical data were recorded in a pro forma. Appropriate areas were selected from the specimens received, and after processing, sections were made from them. These were stained with hematoxylin and eosin and observed under microscope.

Results: The results were analyzed, which show that the benign breast disease (82.7%) is much more common than the malignant lesions (16%). Moreover, among all the lesions, fibroadenoma (50.5%) was seen to be the most common one.

Conclusion: This study emphasizes the importance to recognize benign lesions and to distinguish them from carcinoma - *in situ* and invasive breast carcinomas. It is also important to assess a patient's risk of developing breast cancer so that the most appropriate treatment modality for each case can be established.

Key words: Benign, Breast, Fibroadenoma, Histopathology, Malignant

INTRODUCTION

Lump in the breast is a sensitive issue for female patients. Timely and accurate diagnosis of a breast lump can not only alleviate anxiety but also early intervention can be lifesaving. Breast lesions have gained increasing importance and attained global attention because of increasing mortality and morbidity caused by breast cancer, which has become one of the leading causes of death among women. Awareness is widespread among women regarding lump in the breast.

Breast neoplasms are heterogeneous. Benign breast lesions being more common than malignant tumors. The incidence of benign breast lesions begins to rise during the second decade of life, peaks in the fourth and fifth decades. Increased risk of breast cancer is associated with proliferative and atypical lesions. Diagnostic modalities such as mammography, ultrasonography, and fine-needle aspiration cytology are being increasingly used.

In India, breast cancer forms the second most common malignancy after cervical cancer and is detected in 20/1,00,000 women. Many studies have been done and published on the histopathology of breast lesions. The present study was done to know the histopathological spectrum of breast lesions at SVS Medical College, Mahbubnagar.

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MATERIALS AND METHODS

This study was done for 2 years (July 2014-June 2016) in the Department of Pathology, SVS General Hospital, to study the frequency and histopathological spectrum of various breast lesions. Total number of cases included

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under the study were 168, out of which biopsy specimens accounted for 15 cases, lumpectomy specimens were 141, and mastectomy specimens were 12 in number.

Relevant clinical data regarding age, history, and examination were recorded in a pro forma. The lesions were identified, surgically resected, and sent for histopathological examination. Gross examination of the specimens was recorded. Standard grossing techniques were followed, and sections were given. They were then fixed in 10% formalin for 24-48 h. An automatic processor was used for further processing of tissue blocks. This was followed with dehydration using ethyl alcohol (70% alcohol for 1 h × two changes, 90% alcohol for 2 h × two changes, and 100% alcohol for 2 h × two changes). Clearing in two changes of xylene for one hour each was done. Tissues were impregnated in two changes of paraffin wax with a melting point of 56°C for 3 h. Following this, embedding of the tissues was done in paraffin wax using L-shaped metallic molds. These blocks were put in the refrigerator for 4-6 h. Each block was cut on a rotary microtome. About 3-4 μm thick sections were obtained and placed in a water bath with a temperature of 5°C below the melting point of wax. Cut ribbons of tissues were placed on albumenized glass slides and stained with hematoxylin and eosin (H and E).

Rapid Hematoxylin and Eosin Staining Procedure

Adopted from Culling CFA, Dunn WL. Handbook of Histopathologic and Histochemical Techniques. 3rd ed. p. 210.

- 95% ethanol – 2 dips
- Distilled water – 5 dips
- Harris hematoxylin – 2 min
- Tap water – 3 dips
- Acid alcohol – 2 dips
- Tap water – 2 dips
- 1% eosin – 10 dips
- 95% Alcohol – 2 changes of 5 dips each
- Absolute alcohol – 2 changes of 5 dips each
- Xylene – 2 changes of 5 dips each
- Mount with DPX
- Results – nuclei stain purple, cytoplasm stains pink.

RESULTS

Total cases – 168.

Results of the study are shown in Tables 1-3 (Charts 1-3 and Figures 1-6).

Following this study, it is observed that the incidence of benign breast disease (82.7%) is higher than breast malignancies (16%). The most common cause of breast lump in this series remained fibroadenoma (50.5%), followed by fibrocystic change (17.8%). Age range in this study is 13-90 years, with mean age being 33.63 years.

DISCUSSION

The mean age in our study which is 33.63 years is found to be much lower compared to that in the western literature where the mean age is 54 years. Reported frequency of fibroadenoma in England[1] is 7.7% and in the USA,[2] it is 8.5%. In our study, it is 50.5%. It is also identified as the most common breast lesion in the study from PNS Shifa, Naval Hospital, Karachi, where it constituted 25%, followed by fibrocystic change 22.5% and carcinoma 18.7%. The high frequency of fibroadenoma in Indian females is similar to what has been observed in colored American,[3] African,[4] and Pakistani[5] females and in contrast with the lower frequency in the Western Caucasian females. These findings are seen to be consistent with other studies in India.[6] Fibrocystic change is the most common reported lesion in the UK and USA, with 37% in the UK[1] and 33.9% in the USA.[7] In Saudi Arabia,[8] it is reported to be 24.1%, and in our study, it is 17.8%.

The series by Anyanwu[9] 20 years ago reported only a case of phyllodes tumor, but no case of granulomatous mastitis

Table 1: Incidence of various breast lesions in the study is as follows

Incidence of various lesions			
Inflammatory	**Benign epithelial lesions**	**Malignant epithelial lesions**	**Stromal tumors**
Chronic suppurative mastitis-8	Non-proliferative breast lesions Cysts-18 Adenosis-9 lactating adenoma-3	Carcinoma - *in situ*-4	Fibroadenoma-85 (including 16 complex fibroadenoma cases)
Granulomatous maslitis-3	Proliferative breast lesions without atypia Epithelial hyperplasia-5 Papilloma-1	Paget's disease-2 (with underlying ductal carcinoma)	Phyllodes tumor-6 Benign phyllodes-2 Borderline phyllodes-2 Malignant phyllodes-2
Duct ectasia-1	Proliferative breast lesions with atypia Atypical ductal hyperplasia-3 Atypical lobular hyperplasia-1	Invasive carcinoma Ductal carcinoma (NOS)-14 Medullary carcinoma-2 papillary carcinoma-1 Lobular carcinoma-1 Mucinous carcinoma-1	

NOS: Not otherwise specified

Table 2: Age distribution of various breast lesions

Age (years)	Inflammatory	Benign lesions	Borderline	Malignant lesions
10-20	0	34	0	0
21-30	3	34	0	2
31-40	6	39	0	2
41-50	4	14	2	13
51-60	1	2	0	5
61-70	0	1	0	3
71-80	0	0	0	2
81-90	1	0	0	0

Table 3: Incidence of various types of complex fibroadenoma

Type of complex fibroadenoma	Number (%)
Adenosis and cystic change	8 (50)
Focal epithelial hyperplasia	2 (12.5)
Sclerosing adenosis	3 (18.75)
Apocrine metaplasia	3 (18.75)

was reported. Furthermore, Akhator[10] reported only one case of phyllodes tumor with 2 cases of granulomatous mastitis. Our study reported 6 cases of phyllodes tumors, showing an incidence of 3.5%, which is well within the 2-4.4% reported in various other studies. In the present study, fibroadenoma - 85 (50.5%), is the most common benign lesion which is corresponding to Kulkarni *et al.*'s study[11] in which fibroadenoma accounted for 62.32% of benign lesions. In the current study, infiltrating ductal carcinoma (56%) is the most common malignant lesion which is similar to the observations of Kumar.[12] In the study, it is observed that benign lesions are more common (83.4%) in ≤40 years age group, whereas malignant lesions are more common (85.1%) in >40 years age group, which correspond to the findings of Kumar.[12]

CONCLUSION

In the present study, the most common benign lesion is fibroadenoma - 50.5%. The most common malignant

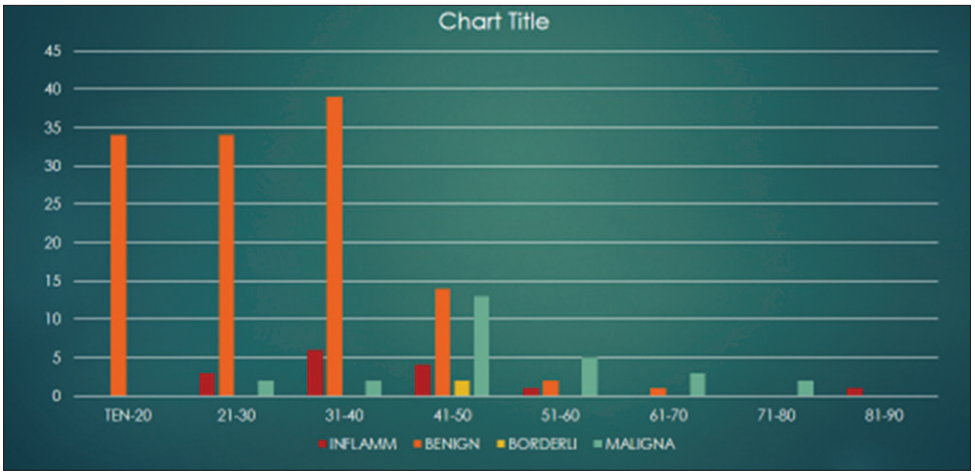

Chart 1: Age distribution of various breast lesions

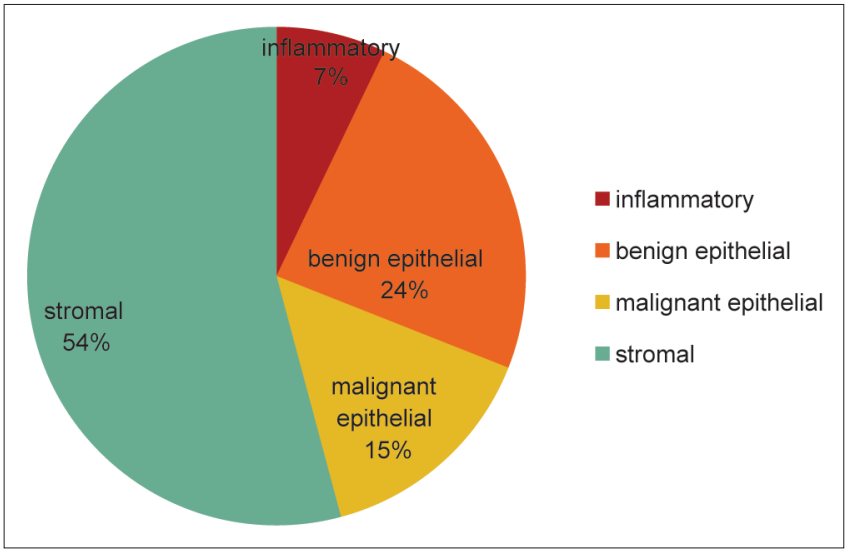

Chart 2: The frequency of incidence of various types of breast lesions

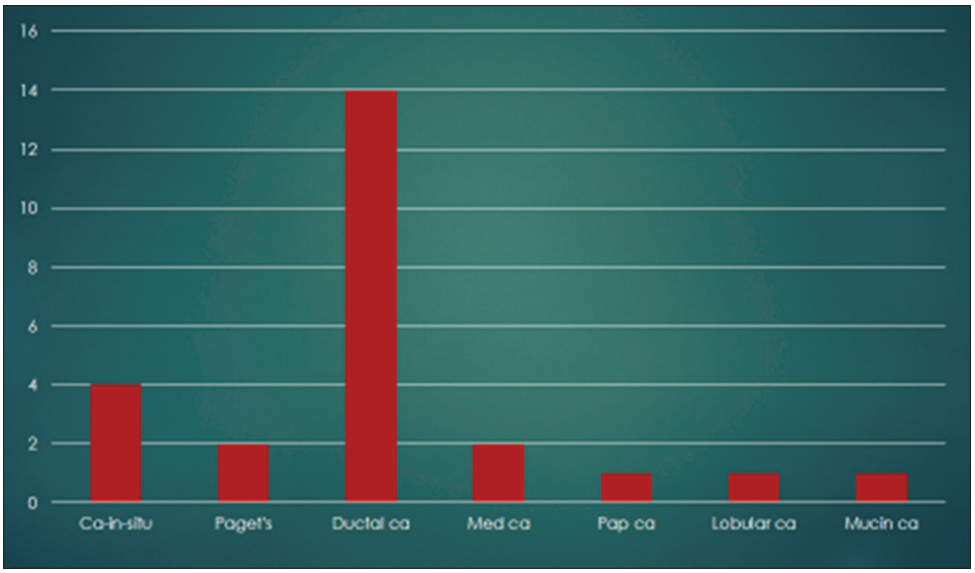

Chart 3: Incidence of various malignant epithelial lesions of breast

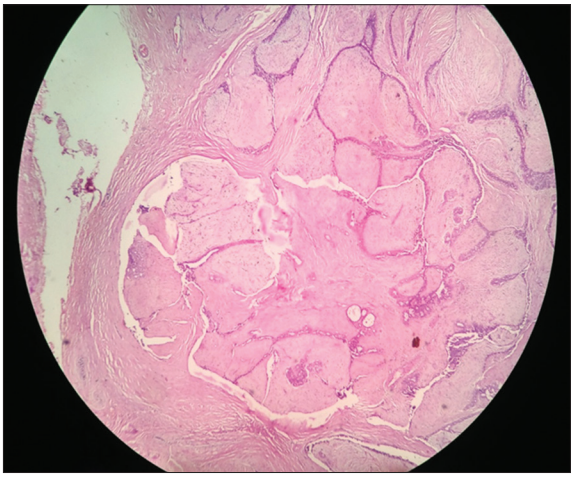

Figure 1: Fibroadenoma

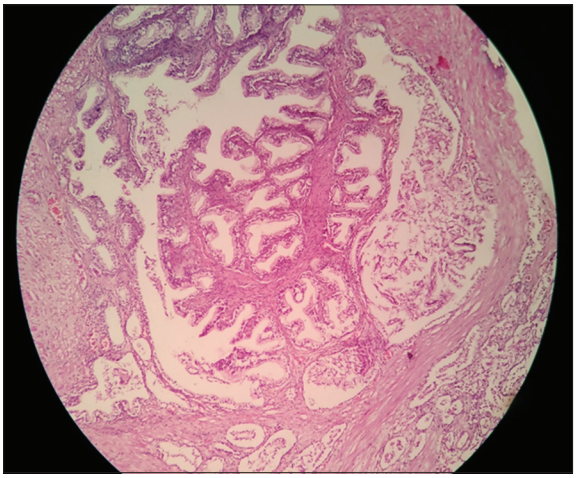

Figure 3: Intraductal papilloma

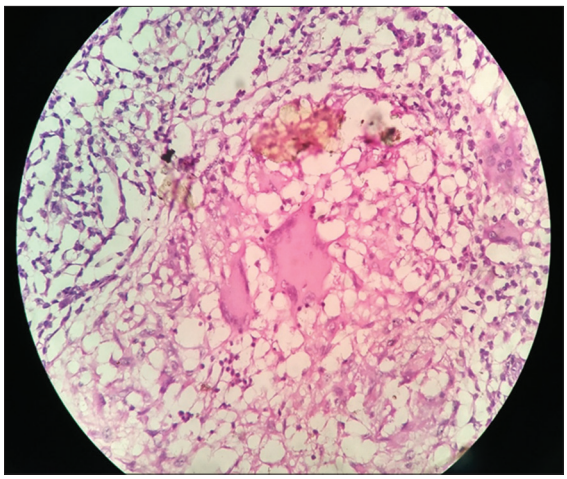

Figure 2: Granulomatous mastitis

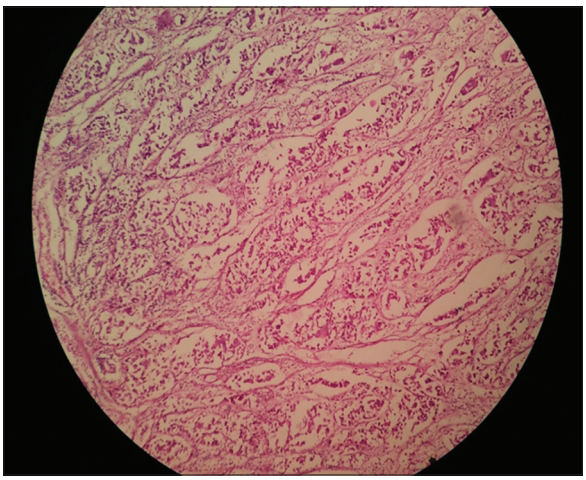

Figure 4: Ductal carcinoma (not otherwise specified)

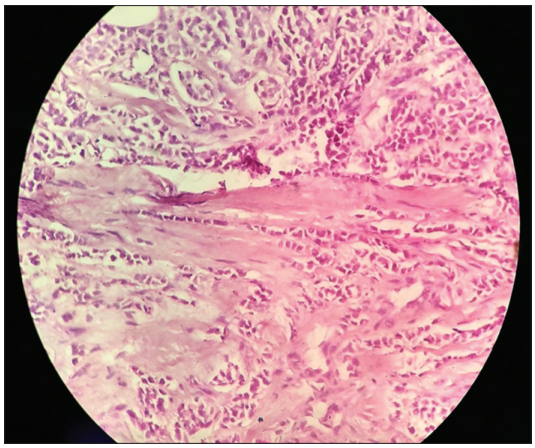

Figure 5: Lobular carcinoma

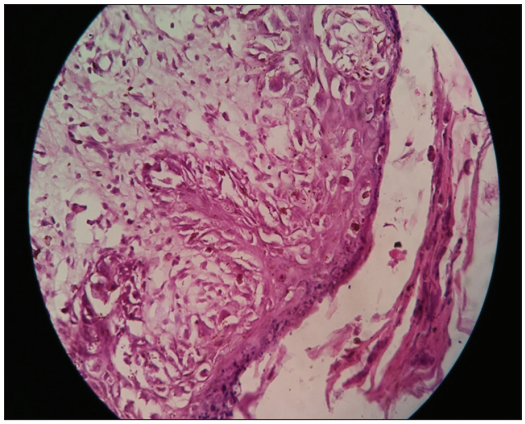

Figure 6: Paget's disease

lesion is infiltrating ductal carcinoma - 56%. Peak incidence of benign lesions is in the age group of 31-40 years, and peak incidence of malignancy is seen in 41-50 years.

This study emphasizes the importance to recognize benign lesions and to distinguish them from *in situ* and invasive breast carcinomas. It is also important to assess a patient's risk of developing breast cancer so that the most appropriate treatment modality for each case can be established.

REFERENCES

1. Ellis H, Cox PJ. Breast problems in 1000 consecutive referrals to surgical out patients. Postgrad Med J 1984;60:653-66.
2. Yonernoto R. Breast cancer in Japan anti United States: Epidemiology, hormone receptors, pathology and survival. Arch Surg 1980;115:1056-62.
3. Oluwole SF, Freeman HP. Analysis of benign breast lesions in blacks. Am J Surg 1979;137:786-9.
4. Ajayi OO, Adekunle O. Non-malignant breast masses in an African population. Br J Surg 1973;60:465-8.
5. Abdullah P, Mubarik A, Zahir N. Breast lumps what they actually represent. J Coll Physicians Surg Pak 1999;9:46-8.
6. Raju GC, Naraynsingh V. Benign breast disease in a West Indian population. Br J Surg 1985;72:17-8.
7. Bloom HJ, Richardson WW. Histological grading and prognosis in breast cancer; A study of 1409 cases of which 359 have been followed for 15 years. Br J Cancer 1957;11:359-77.
8. Amr SS, Sadi MA, Ilahi F, Sheikh SS. The spectrum of breast diseases in Saudi Arab females: A 26 years pathological survey at Dhahran Health Center. Ann Saudi Med 1995;15:125-32.
9. Anyanwu SN. Spectrum of breast disease among Nigerian Igbos. Orient J Med 1990;2:14-5.
10. Akhator A. Benign breast masses in Nigeria. Niger J Surg 2007;17:105-8.
11. Kulkarni S, Voralla M, Ghorpade K, Shanu S. Histopathological spectrum of breast lesions with reference to uncommon cases. J Obstet Gynecol India 2009;59:444-52.
12. Kumar R. A clinicopathologic study of breast lumps in Bhairahwa, Nepal. Asian Pac J Cancer Prev 2010;11:855-8.

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