

## A Study of Histopathological Spectrum of Breast Lesions in a Tertiary Care Hospital in Bangalore

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### Abstract

**Introduction:** Female breast lesions are much more common than lesions of the male breast, which is seldom affected. The lesions are usually present in the form of palpable lump, sometimes painful, nodules or masses. Accurate and timely diagnosis of a breast lump can prevent anxiety of the patient and also early intervention can be life saving. Carcinoma breast is the most common and deadly malignancy of women globally. Each year, 1.7 million women are diagnosed with breast lesions and one in three die of the disease. It is the most common cancer among women in India accounting for 27% of all cancers in women.

**Objective:** 1 To study the spectrum of benign and malignant breast lesions. 2 To identify the most common age group and type of breast lesion.

**Materials and method:** 100 cases of neoplastic and non neoplastic lesions of the breast were evaluated from Jan 2018 to Jan 2020 which were sent to the department of Pathology, The Oxford Medical College and Hospital, Bangalore, Karnataka. Specimens were fixed in 10% Formalin. Specimens were grossed, processed, sectioned and stained using routine Haematoxylin and Eosin and were observed under microscope.

**Result:** Out of the 100 resected specimens, 4 cases were non neoplastic, 79 were benign and 17 cases were malignant. Fibroadenoma was most common (44%) benign lesion and Invasive ductal carcinoma – No Special Type (NST 14%) was the most common malignant breast lesion. Other uncommon lesions like Tubular adenoma, blunt duct adenosis with columnar cell hyperplasia and Papillary Carcinoma were also seen.

**Conclusion:** In differentiating benign, in situ, borderline and malignant breast lesions, histopathological examination is the mainstay of accurate and confirmatory diagnosis. It helps in assessing the risk of the patient in developing cancer and appropriate treatment plan for each case.

**Keywords:** Fibroadenoma; Ductal carcinoma; Phyllodes; Tubular adenoma; Benign, Malignant.

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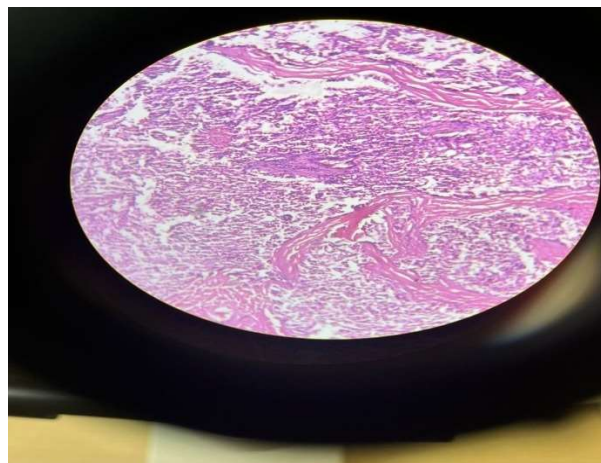
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## INTRODUCTION

Breast lesions constitute heterogeneous group of lesions and show variety of disease patterns which ranges from inflammatory, benign breast disease to invasive breast cancers.<sup>1</sup> Greater than 90% of symptomatic breast lesions are benign. Around 200,000 cases of breast lesions are diagnosed annually globally.<sup>2</sup> In India breast cancer is the most common cancer among women accounting for 27% of all cancers among women. But majority of the breast lesions are proven to have a benign pathology.<sup>3</sup> Benign Breast diseases are more common as compared to malignant and inflammatory breast diseases.<sup>4,6</sup> Majority of benign lesions are not associated with an increased risk for subsequent breast cancer, therefore unnecessary surgical procedures can be avoided in such lesions.<sup>7</sup> The main objective of this study is to study the spectrum of breast lesions in patients attending the Oxford medical college and hospital, Bangalore.

## MATERIALS AND METHODS

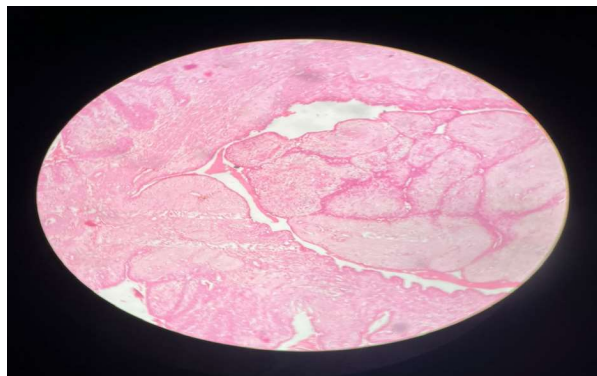
100 specimens of neoplastic and non neoplastic lesions of the breast were evaluated from Jan 2018 to Jan 2020 which were received in the Department of Pathology, The Oxford Medical College and Hospital, Bangalore, Karnataka. The specimens were fixed in 10% Formalin. Relevant history, examination findings, age and clinical diagnosis were recorded. The specimen were routinely processed in our laboratory and then embedded in Paraffin for the preparation of blocks. The sections were stained in routine H and E stains and slides were observed under microscope.



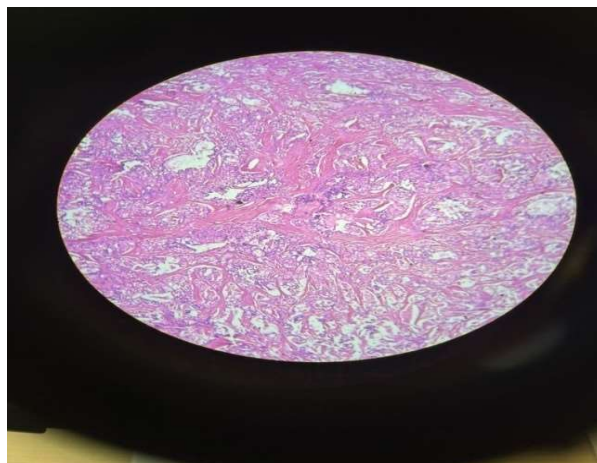
**Fig. 2:** Invasive ductal carcinoma no special type (NST)

## RESULTS AND OBSERVATION

Total cases - 100. In our study, majority of the breast lesion including inflammatory, benign and malignant lesions are seen in the age group 31 to 40 years followed by 21 to 30 years. The commonest presenting complaint was lump in the breast. Out of the 100 resected specimens, 4 cases were non neoplastic, 79 were benign and 17 cases were malignant (Table 1). Majority of the benign cases were Fibroadenoma (Fig. 1) followed by fibrocystic disease, gynaecomastia, benign phyllodes, Fibroadenosis, Tubular adenoma, Blunt duct adenosis with columnar cell hyperplasia, Fibromatosis, Fibroadenomatoid hyperplasia, Fibroadenomatosis with reactive hyperplasia (Table 4). The most common non neoplastic lesion is breast abscess followed by galactocele. Of the malignant breast lesion, the most common type is Invasive ductal carcinoma no special type (NST) (Fig 2), followed by Ductal carcinoma in situ, Malignant phyllodes (Fig 3) and Invasive Papillary carcinoma (fig 4).



**Fig. 1:** Fibroadenoma



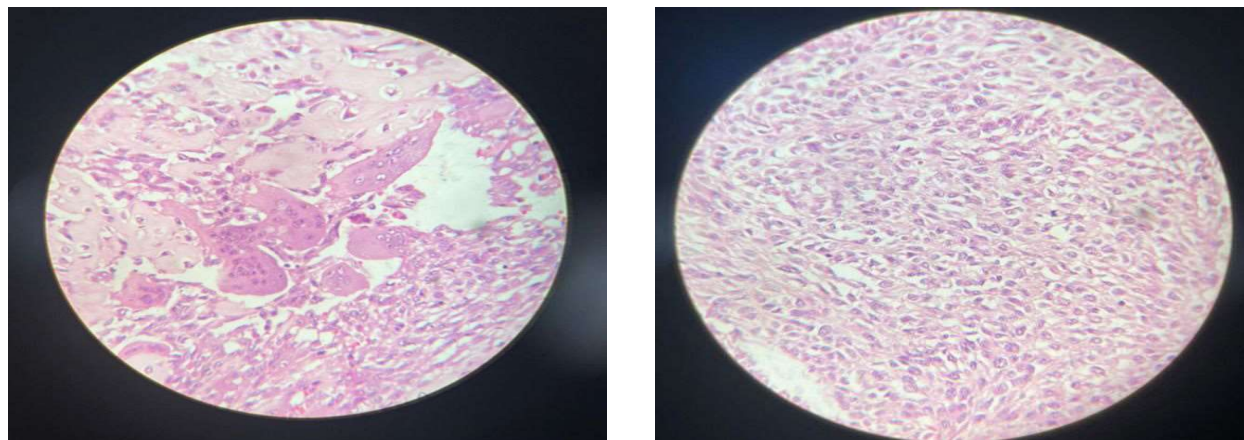


Fig. 3: Malignant Phyllodes

Table 1: Nature of breast lesions

	Non neoplastic	Neoplastic		Total
		Benign	Malignant	
Number of cases	04	79	17	100
Percentage	4%	79%	17%	100%

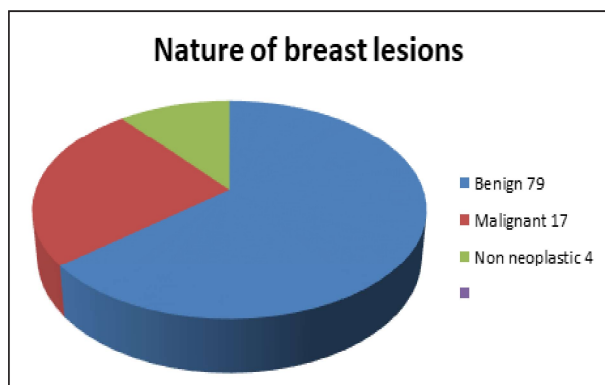


Chart 1: Nature of breast lesions

Table 2: Age distribution of benign and malignant breast lesions

Age in Years	Benign	Malignant	Total
11-20	16	Nil	16
21-30	26	02	28
31-40	34	05	39
41-50	06	04	10
51-60	01	01	02
61-70	Nil	03	03
71-80	Nil	02	02
Total	83	17	100

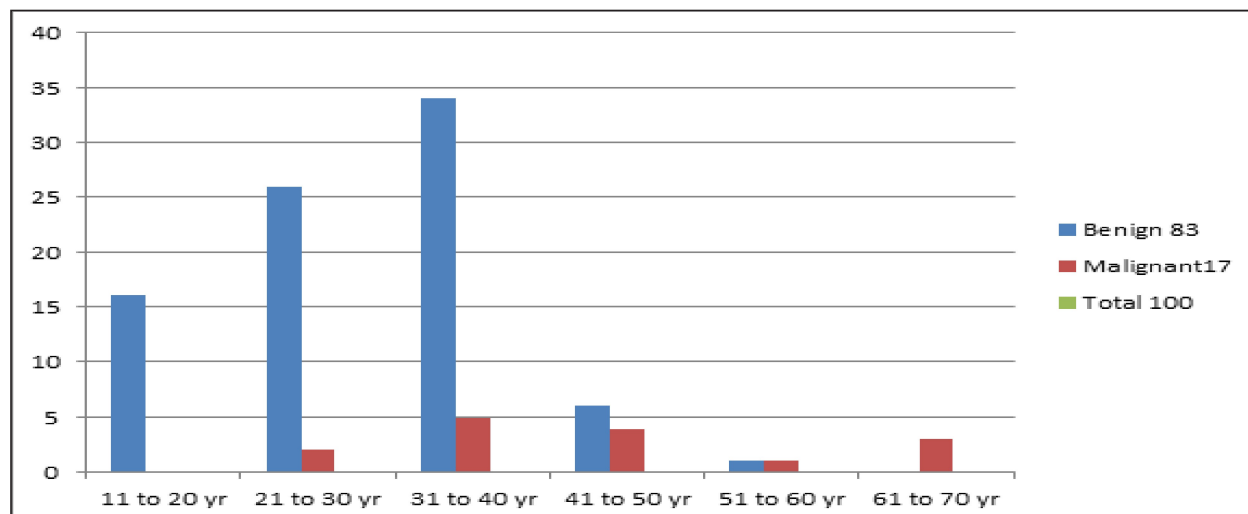


Chart 2: Age distribution of benign and malignant breast lesions

**Table 2:** Benign Breast Lesions distribution

Type of lesion	No of patients	% overall
Fibroadenoma	44	53
Fibrocystic change	09	10.8
Benign phyllodes	04	4.8
Galactocele	01	1.2
Gynaecomastia	09	10.8
Fibroadenosis	04	4.8
Breast abscess	03	3.6
Tubular adenoma	02	2.4
Blunt duct adenosis with columnar cell hyperplasia	02	2.4
Fibromatosis	02	2.4
Fibroadenomatoid hyperplasia	01	1.2
Fibroadenomatosis with reactive hyperplasia	02	2.4

**Table 3:** Morphological spectrum of non neoplastic breast lesions

Lesions	Number of cases	Percentage
Breast abscess	03	75%
Galactocele	01	25%
Total	04	100%

**Table 4:** Morphological spectrum of benign breast lesions

Lesions	Number of cases	Percentage
Fibroadenoma	44	55.6%
Fibrocystic change	09	11.3%
Benign phyllodes	04	5.06%
Gynaecomastia	09	11.3%
Fibroadenosis	04	5.06%
Tubular adenoma	02	2.5%
Blunt duct adenosis with columnar cell hyperplasia	02	2.5%
Fibromatosis	02	2.5%
Fibroadenomatoid hyperplasia	01	1.2%
Fibroadenomatosis with reactive hyperplasia	02	2.5%
Total	79	100%

**Table 5:** Morphological spectrum of malignant breast lesions

Lesions	Number of cases	Percentage
Ductal carcinoma in situ	01	5.8%
Invasive ductal carcinoma NST	14	82.3%
Malignant phyllodes	01	5.8%
Invasive Papillary carcinoma	01	5.8%
Total	17	100%

## **DISCUSSION**

A study of 100 breast lesions showed that most of the benign tumors occurred between 31 to 40 years while the malignant lesions also presented commonly between 31 to 40 years. The most common benign lesion was fibroadenoma (53%) followed by fibrocystic disease (10.8%). Similar results are observed in other studies as well.<sup>8,9</sup> Gynaecomastia was diagnosed in 9 cases (10.8%) in males. It occurs as a result of an imbalance between estrogens, which stimulate breast tissue, and androgens, which counteract these effects.

Two-thirds of fibroadenomas harbor driver mutations in MED12.

The pathogenesis of the remainder is uncertain. Fibroadenomas vary in size from less than 1 cm to large tumors that replace most of the breast. In our study the other benign lesions were Phyllodes tumor, Fibroadenosis, Tubular adenoma, Blunt duct adenosis with columnar cell hyperplasia, Fibromatosis, Fibroadenomatoid hyperplasia. The morphology of phyllodes tumor is that it has leaf like projections due to the presence of nodules of proliferating stroma covered by epithelium.

Majority of the malignant lesions are found after 40 yrs of age. But the present study reported the highest incidence of malignant lesions in age group below 40 yrs. Similar results were observed in other studies as well.<sup>10</sup>

Histopathological spectrum of breast lesions differs among different countries and ethnic groups.<sup>11</sup>

Being female is the most important risk factor (99% of those affected are female) followed by increasing age, lifetime exposure to estrogen, genetic inheritance, and, to a lesser extent, environmental and lifestyle factors. Environmental contaminants may increase the risk of breast cancer which is concerning but no proof is implicated so far.

There is importance in early detection of benign and pre malignant lesions as they act as stimulant factors of malignancy and the approach and management differ for both the lesions. Ductal carcinoma in situ is increasing in incidence and has become a clinical challenge. In this study ductal carcinoma in situ accounted for 1 case (5.8%) of all breast cancer cases. Almost similar report by Nggada et al. 2008 in Maiduguri, North Eastern Nigeria<sup>12</sup> and Kene et al. 2010 in Zaria, North-

Western Nigeria revealed that ductal carcinoma in situ constituted 6.0 % and 3.0 % respectively.<sup>13</sup>

In our study phyllodes tumor was detected in 5 cases (6%) of which 4 were benign and 1 was malignant Phyllodes which is higher than studies done by Malik and Bharadwaj<sup>14</sup> and Sangeeta et al.<sup>15</sup> which is 1.2%.

Invasive ductal carcinoma was seen in 14 specimens of the total of 17 malignant specimens received (82.3% incidence). Similar findings were also seen in Kalyani *et al* and Dnyaneshwar J S *et al*.<sup>1,16</sup>

The risk of death in those who develop invasive breast cancer has gradually declined in both younger and older women, most recently by 1% to 2% per year; The current overall risk of death is about 20%.<sup>17</sup>

Invasive papillary carcinoma is a rare subtype of invasive ductal carcinoma having infiltrative papillary growth pattern with a variety of differential diagnosis and therefore diagnostically challenging. Papillary carcinoma was found in one specimen in the study and accounted for 1(5.8%) of all the malignant cases in the study. The diagnosis is done in breast tumors showing greater than 90% papillary morphology. Similar finding was also reported by S. Yogalakshmi, M. Kavitha in their study in 2019.<sup>18</sup>

## **CONCLUSION**

Breast disease in females are more commonly benign than the malignant lesions. Histopathological examination is important role in distinguishing between benign and malignant lesions. This study highlights the importance of identifying and treating benign breast lesions at an early stage and differentiates benign breast lesions from in situ and invasive breast carcinomas. In all the breast lesions included in the study, the commonest presenting complaint was lump in the breast. It is therefore essential to conduct breast cancer awareness studies, basic trainings screening programs and motivation for women to seek medical attention as soon as a breast lump is palpated. This can lower the morbidity and mortality associated with breast tumors as breast carcinoma can have a good prognosis when it is detected in an early stage. Distinguishing, staging and grading the disease can facilitate the opportunity of giving the best and appropriate treatment.

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