

## Histopathological spectrum of neoplastic and non-neoplastic lesions of breast in a tertiary care centre in Bangalore

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### Abstract

**Introduction:** Breast lesions are a broad spectrum of lesions consisting of several distinct entities each with specific characteristics. Early evaluation of lesions with timely accurate diagnosis can alleviate anxiety of patients and also can be lifesaving. The most common cancer among Indian women is Breast cancer accounting to 25.8 per 100,000 women.

**Materials and Methods:** A total of 100 cases of neoplastic and non-neoplastic lesions of breast were evaluated from June 2015 to June 2018 which were sent to department of pathology, Dr B R Ambedkar Medical College, Bangalore, Karnataka. Specimens were fixed in formalin of 10%. Appropriate areas were selected from the specimen and grossed, processed, sectioned, stained using haematoxylin and eosin and were observed under microscope.

**Results:** out of 100 resected specimens, 19 cases were non-neoplastic, 46 were benign, and 35 cases were malignant. The most common benign breast lesion was Fibroadenoma (31%) and the most common malignant breast lesion was invasive carcinoma- No Special type (22%).

**Conclusion:** Histopathological evaluation helps in distinguishing benign, insitu, borderline and malignant breast lesions and is the mainstay of accurate and confirmatory diagnosis. This helps in evaluating the risk of patient in developing cancer and appropriate treatment can be planned accordingly for each case.

**Keywords:** Histopathology breast, Benign breast, Malignant breast lesions, Fibroadenoma, Invasive carcinoma.

### Introduction

Breast lesions are the leading cause of morbidity and mortality among women worldwide. Breast lesions are broad spectrum of lesions that comprise of many entities with different characteristics.<sup>1</sup> Around 200,000 cases of breast lesions are diagnosed annually.<sup>2</sup> The most common cancer among Indian women is breast cancer accounting to 25.8/100,000 women and mortality 12.7 per 100,000 women<sup>3</sup> Early evaluation of lesion with timely accurate diagnosis can alleviate anxiety of patients and can be life saving.<sup>4</sup>

Benign breast lesions are more common than malignant, which is seen more commonly in age group of 20 to 40 years as opposed to malignant diseases, for which the incidence increases as the age advances.<sup>6</sup> More than half of the women develop some form of benign breast lesion after 20 years of age.<sup>5,6</sup>

Since a majority of benign lesions are not associated with an increased risk for subsequent breast cancer, unnecessary surgical procedures can be avoided in such lesions.<sup>7</sup>

This study is conducted with the purpose of appreciating histopathological spectrum of various neoplastic and non-neoplastic lesions, their age distribution and clinical aspects from various types of biopsies, lumpectomy and mastectomy specimens.

### Materials and Methods

A total of 100 cases of neoplastic and non-neoplastic lesions of breast were evaluated from to June 2015 to June 2018 which were received in the pathology department, Dr B

R Ambedkar Medical College, Bangalore, Karnataka. The specimen was fixed in formalin of 10%.

Out of 100 specimens received 12 were biopsy specimens, 54 were lumpectomy specimens and 34 were mastectomy. Relevant history, examination findings, age and clinical diagnosis were recorded. Gross examination of specimen was recorded. Standard grossing techniques were followed. Appropriate areas were selected and grossed, processed, sectioned, stained with haematoxylin and eosin and were observed under microscope.

### Results and Observation

#### Total cases- 100

Majority of the Breast lesion including inflammatory, benign and malignant lesions in our study are seen in the age group 21 to 30 years, followed by 31 to 40 years. Peak age of inflammatory breast lesions is 21 to 30 years, benign lesions is 31 to 40 years and malignant lesions is 51 to 60 years. Youngest age of patient in this study is 17 years, diagnosed as fibroadenoma and eldest age of patient in this study is 75 years diagnosed as invasive ductal carcinoma-NST.

The most common location of the breast lesions in our study was upper outer quadrant (30%) followed by upper inner quadrant (19%), central quadrant (17%), lower outer (15%), lower inner (7%), multiple quadrant (7%) and diffuse (5%).

Patients usually presented with unilateral breast lesion except 5 cases which presented as bilateral breast lesion, 3 cases are bilateral Fibroadenoma and the other 2 cases are diagnosed as angiosarcoma of right breast with possible metastasis to left breast and lobular carcinoma.

Most of the cases (69 cases) in our study presented as lump in the breast, 15 cases presented as painful lump in breast, 2 cases as mass in the breast with discharging sinus, 1 case as mass in the breast with fever, 4 cases as lump in the breast with milky nipple discharge. 5 cases as lump in the breast with retracted nipple and 4 cases as lump in the breast with bloody nipple discharge.

Out of 100 cases studied 19 cases are non- neoplastic and 81 cases are neoplastic (Table 1). The most common non-neoplastic lesion is breast abscess (Table 2), followed by duct Ectasia (Fig. 1), fat necrosis, galactocele, accessory breast and granulomatous mastitis. Out of 81 neoplastic breast lesions, 46 are benign and 35 are malignant (Table 1). The most common benign breast lesion is Fibroadenoma followed by fibrocystic disease, Sclerosing adenosis, benign phyllodes and duct papilloma (Table 3)

The most common malignant breast lesion is Invasive carcinoma, no special type (Fig. 4), followed by Invasive lobular carcinoma (Fig. 5), ductal carcinoma in situ (Fig. 2), Invasive papillary carcinoma, lobular carcinoma in situ (Fig. 3), hybrid variant of ductal carcinoma with lobular carcinoma, malignant phyllodes, medullary carcinoma, angiosarcoma (Fig. 6) and pleomorphic liposarcoma (Table 4).

For histological grading modified Scarff-Bloom – Richardson’s system has been used. In this study majority of the lesion showed Grade 2 (52%) followed by Grade 1 (35%) and Grade 3 (13%).

**Table 1: Nature of breast lesions**

	Non-neoplastic	Neoplastic		Total
		Benign	Malignant	
No of cases	19	46	35	100
Percentage	19%	46%	35%	100%

**Table 2: Morphological spectrum of non-neoplastic breast lesions**

Lesions	Number of cases	Percentage
Breast Abscess	8	42%
Duct Ectasia	2	11%
Fat Necrosis	2	11%
Galactocele	4	21%
Accessory Breast	1	5%
Granulomatous Mastitis	2	11%
Total	19	100%

**Table 3: Morphological spectrum of benign breast lesions**

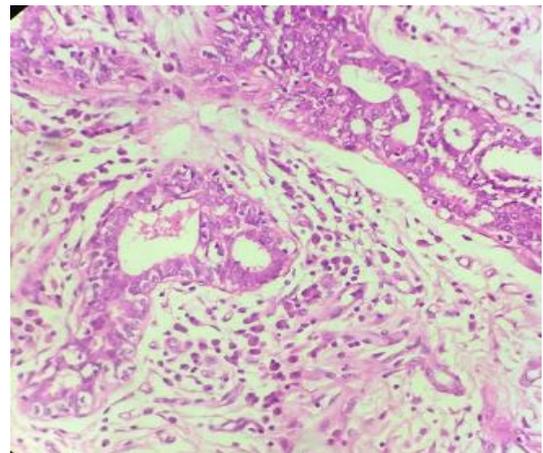
Lesions	Number of cases	Percentage
Fibroadenoma	31	67%
Fibrocystic disease	9	20%
Sclerosing Adenosis	3	7%
Ductal Papilloma	1	2%
Benign Phyllodes	2	4%
Total	46	100%

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

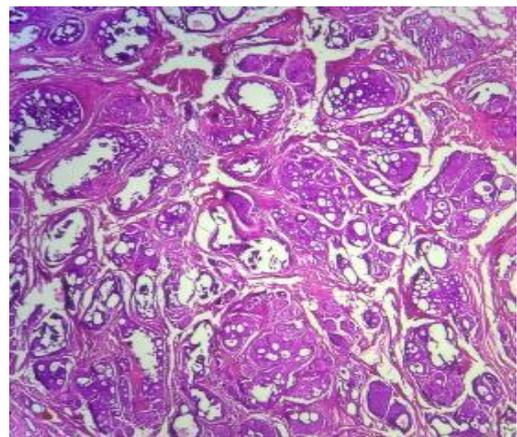
Lesions	Number of cases	Percentage
Ductal carcinoma In Situ	3	9%
Lobular carcinoma In Situ	1	3%
Infiltrating Carcinoma - NST*	22	60%
Invasive Lobular Carcinoma	3	9%
Hybrid variant – IDC + ILC*	1	3%
Invasive Papillary Carcinoma	2	6%
Medullary Carcinoma	1	3%
Angiosarcoma	1	3%
Pleomorphic Liposarcoma	1	3%
Malignant Phyllodes	1	3%
Total	35	100%

\*Infiltrating Carcinoma NST – Infiltrating Carcinoma No Special Type

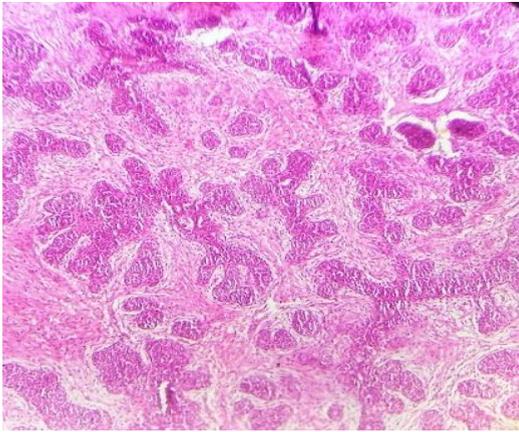
\*Hybrid variant IDC + ILC – Hybrid variant Invasive Ductal Carcinoma + Invasive Lobular Carcinoma



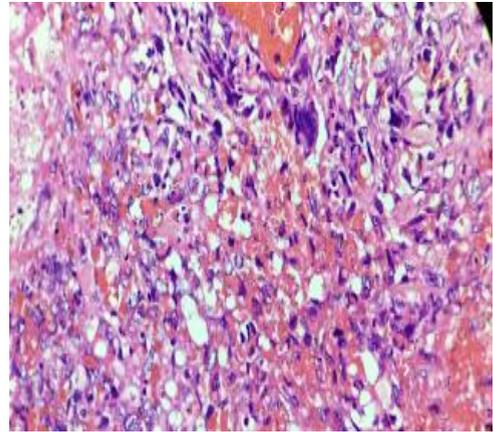
**Fig. 1: Duct ectasia**



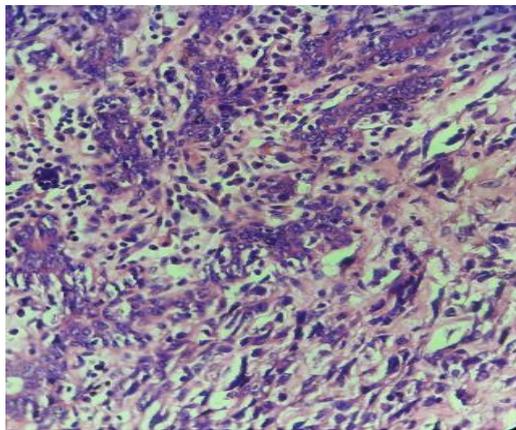
**Fig. 2: DCIS (Cribriform pattern)**



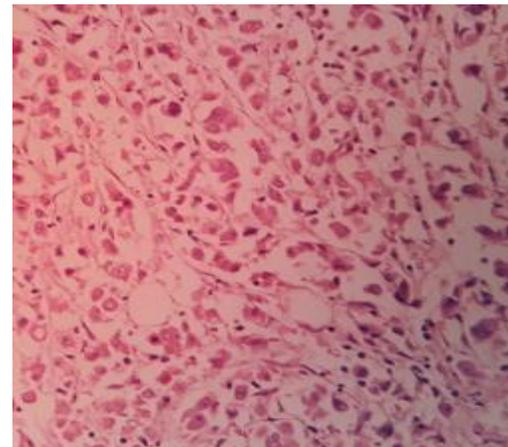
**Fig. 3: Lobular carcinoma in situ**



**Fig. 6: Angiosarcoma**



**Fig. 4: Invasive ductal carcinoma-NOS**



**Fig. 5: Lobular carcinoma**

### Discussion

Currently, female breast is the most commonly biopsied tissue because of myriads of diseases and lesions that arise from it. The importance of many benign lesions lies in their ability to mimic malignancy, and not all benign lesions are completely free of risks.<sup>8</sup> Clinical significance of sclerosing adenosis lies in its mimicry of cancer. It may be confused with cancer by physical examination, mammography and at gross examination.<sup>9</sup> Researchers widely believe that cancer risk is increased in patients with atypical ductal and atypical lobular hyperplasia.<sup>10</sup> Few other studies have also shown that women with atypical ductal hyperplasia, atypical lobular hyperplasia and in situ carcinomas were followed for an average of 17.5 years with a 90% rate of follow-up success.<sup>11</sup>

In our study mean age of presentation is 34.23 years which is comparable to Reddy et al,<sup>4</sup> Jadhav Dnyaneshwar S. et al<sup>5</sup> where the mean age of presentation was 33.63 years and 36.75 years. In the present study, the upper outer quadrant was most commonly involved which is also highlighted in Mudholkar et al.<sup>12</sup> Non- neoplastic and benign breast lesions accounted for lesions accounted for 65% and malignant lesions accounted for 35% in our study. This similar finding was also highlighted by Reddy et al,<sup>4</sup> Jadhav Dnyaneshwar S. et al.<sup>5</sup> and Iraj Harirchi et al<sup>13</sup> (Table 5). Inflammatory breast lesions accounted for 18 cases and breast abscess accounted for 8% of cases due to fact that most abscesses are drained and rarely biopsied. Awatif A. Jamal<sup>14</sup> had smaller number of inflammatory lesion (11%) in their studies, also had similar explanation.

Fibroadenoma is the most common benign breast lesion in this study accounting for 31% of cases in contrast to Kiran H. S et al.<sup>8</sup> were fibrocystic disease was most common lesion (41%) followed by Fibroadenoma (28%). But Fibroadenoma was common benign lesion in other studies also such as Nandam et al<sup>17</sup> and Sulhyan et al<sup>15</sup> which was 37.26% and 59% (Table 6). Fibroadenoma is thought to represent as a group of hyperplastic breast lobules called aberrations of normal development and involution.<sup>16</sup>

Invasive Carcinoma, No Special Type is the most common malignant lesion in our study accounting to 22% of all cases which is similar to Nandam et al<sup>17</sup> (Table 6), Mudholkar et al,<sup>11</sup> Nazeer et al<sup>18</sup> and Geetanjali et al.<sup>13</sup>

**Table 5: Comparison of incidence of non-neoplastic, benign and malignant lesions**

	Reddy. et al <sup>4</sup>	Jadhav Dnyaneshwar S. et. al. <sup>5</sup>	Iraj Harirchi et al <sup>13</sup>	Present study
Non neoplastic	7.1%	3.64%	2.4%	19%
Benign	76.9%	67.88%	60.9%	46%
Malignant	16%	28.46%	36.7%	35%

**Table 6: Comparison of most common non neoplastic, benign and malignant lesions of breast in various studies**

Most common lesion	Awatif A. Jamal <sup>14</sup>	Sulhyan et al <sup>15</sup>	Nandam et al <sup>17</sup>	Present study
Non-Neoplastic	Chronic Mastitis (3.2%)	Acute/chronic Mastitis (7.45%)	Chronic Inflammatory pathology (4.5%)	Breast Abscess (8%)
Benign	Fibro-adenoma (25%)	Fibroadenoma (37.26%)	Fibroadenoma (59%)	Fibroadenoma (31%)
Malignant	IDC-NST (24.7%)	IDC-NST (26.7%)	IDC-NST (16.6%)	IDC-NST (22%)

## Conclusion

Breast cancer is more than twice as common as cancer at any other site<sup>19</sup> Histopathological evaluation helps in distinguishing benign, in-situ, borderline and malignant breast lesions which is the mainstay of accurate and confirmatory diagnosis. This helps in assessing risk of patient in developing cancer and appropriate treatment modality for each case can be planned accordingly.

**Conflict of Interest:** None.

## References

- Nikumbh D, Kanthikar S, Suryawanshi K, Jagtap S, Dravid N, Gondane S. Histopathological Spectrum of Unusual Breast Lesions: A Seven Year Retrospective Review. *Indian J Pathol Oncol* 2016;3(3):456.
- Aslam H, Saleem S, Shaikh H, Shahid N, Mughal A, Umah R. Clinico-pathological profile of patients with breast diseases. *Diagnostic Pathol* 2013;8(1).
- Malvia S, Bagadi S, Dubey U, Saxena S. Epidemiology of breast cancer in Indian women. *Asia-Pacific Journal of Clinical Oncology*. 2017;13(4):289-295
- Manasa Reddy M, Raghu K. Histopathological Spectrum of Neoplastic and Non-neoplastic Breast Lesions: A Two Years Study. *Int J Sci Stud* 2017;4(11):158-162.
- S. J, B. K, Apoorv G, G. V. A Histopathological Study of Neoplastic and Non-Neoplastic Breast Lesions at a Rural Tertiary Care Centre in India. *Indian Journal of Pathology: Research and Practice*. 2017;6(2 (Part-2):387-392.
- Guray M. Benign Breast Diseases: Classification, Diagnosis, and Management. *The Oncologist*. 2006;11(5):435-449.
- Vilasini Patil, Archana Khandelwal, Kanchanmala G. Ghorpade. Histopathological Spectrum of Benign Breast Lesions, *J Res Med Dent Sci*, 2017, 5 (4): 9-14, DOI: 10.24896/jrmds.2017543
- Kiran HS, Shetty J, Rao C. Histomorphological spectrum of breast lesions. *J. Evolution Med. Dent. Sci*. 2016;5(54):3577-3581, DOI: 10.14260/jemds/2016/825
- Gogoi G, Diganta B. Histopathological Spectrum of Breast Lesions - A Hospital Based Study. *International Journal of Health Research and Medico Legal Practice*. 2016;02(01):73-78.
- Dayanand V, Shashidhar HB, Sandhya M, Ashwini NS, Bharathi M. Spectrum of Breast Neoplasms in Females: A 10 Years Histopathological Review in a Tertiary Care Hospital. *Int J Sci Stud* 2015;3(2):79-84.
- Page D. Atypical hyperplastic lesions of the female breast: A long-term follow-up study. *Plastic and Reconstructive Surgery*. 1986;77(4):688
- G. Mudholkar V, B. Kawade S. Histopathological Study of Neoplastic Lesions of Breast. *Indian Medical Gazette*. 2012;:353-364
- Harirchi I, Karbakhsh M. Breast Cancer in Iran: Results of a Multi-center study. *Asian Pacific Journal of Cancer Prevention*. 2004;5:24-27.
- A. Jamal A. Pattern of breast diseases in a teaching hospital in Jeddah, Saudi Arabia. *Saudi Medical Journal*. 2001;22(2):110-113.
- Sulhyan K.R, Anvikar A.R, Mujawar I.M, Tiwari H. Histopathological study of breast lesions. *Int J Med Res Rev*2017;5(01):32-41. doi:10.17511/ijmrr. 2017.i01.05
- M D, Rao D, Shekar D, Balakrishnan D, M D, K D et al. Prevalence of Benign Breast Disease and Risk of Malignancy in Benign Breast Diseases. *IOSR Journal of Dental and Medical Sciences*. 2016;15(08):32-36.
- Nandam M, Shanthi V, Grandhi B, Byna S, Vydehi B, Conjeevaram J. Histopathological spectrum of breast lesions in association with Histopathological Grade versus Estrogen receptor and Progesterone receptor status in breast cancers : A Hospital based study. *Annals of Pathology and Laboratory Medicine*. 2017;4(5):A496-A501
- Adnan Nazeer M, Ahmed K. The Frequency of Benign & Malignant Breast Lesions at a Tertiary Care Hospital in Lahore. *Pakistan Journal Of Medical Sciences*. 2012;6(3):570-572.
- Lakhani S, O. Ellis I. WHO classification of tumours of the breast. 4th ed. 69372 Lyon Cedex 08, France: International Agency for Research on Cancer (IARC); 2012.

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