

“A RETROSPECTIVE ANALYSIS OF HISTOPATHOLOGICAL SPECTRUM OF BREAST LESIONS IN FEMALE PATIENTS AT TERTIARY CARE HOSPITAL”.

Histopathology

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ABSTRACT

Introduction: Breast lumps or masses are prevalent, especially in women of reproductive age. More than 25% of women experience breast disease at some point in their lives.[1] Breast cancer (BC) is the most prevalent type of cancer and the primary cause of cancer-related deaths among women globally.[2] It represents one-third of cancers in women and one-quarter of all malignancies. The typical strategy should generally adhere to the triple-assessment method, which includes clinical evaluation, imaging studies, and analysis of tissue samples. [3] **Aim And Objective:** -To describe age wise distribution of breast lesions in female patients. To describe gross features of breast lesions in female patients. To describe the morphological features of breast lesions by histopathology in female patients. To classify breast lesions according to WHO classification-2019. **Material And Method:** -This retrospective study of 800 cases was conducted in the Department of Pathology, CU Shah Medical College and Hospital, Surendranagar, from January 2015 to July 2024. Inclusion criteria: All breast tissue specimens submitted for histopathological analysis, which were suspected of neoplastic and non-neoplastic breast lesions during the study timeframe, were incorporated into the study. The histopathological characteristics were recorded, and the tumors were categorized according to the WHO classification -2019. **Result:** This study involves 800 cases aimed at identifying both benign and malignant breast lesions through histopathological examination. Breast tissue samples from patients of all age groups presenting with symptoms, primarily breast lumps, pain, and nipple discharge, are included in the research. The majority of diagnoses are benign, with fibroadenoma being the most frequently encountered. Among malignant lesions, invasive ductal carcinoma is the most prevalent. **Conclusion:** The research highlights the significance of identifying and managing benign lesions early on, as well as differentiating them from in situ and invasive breast cancers. Histopathology is crucial in diagnosing and treating breast conditions, in conjunction with mammography, MRI, and FNAC results.

KEYWORDS

Breast lesions, Classification-Benign & Malignant, Morphology.

INTRODUCTION:

Breast lumps or masses are prevalent, especially in women of reproductive age. More than 25% of women experience breast disease at some point in their lives.[1] Breast cancer (BC) is the most prevalent type of cancer and the primary cause of cancer-related deaths among women globally.[2] It represents one-third of cancers in women and one-quarter of all malignancies. The typical strategy should generally adhere to the triple-assessment method, which includes clinical evaluation, imaging studies, and analysis of tissue samples. [3] Recently, breast lesions has grown, attracting global focus due to rising mortality and morbidity associated with breast cancer, alongside heightened awareness among women about breast lumps.[4] Histopathology is crucial in diagnosing breast cancer. It serves as the primary criterion for evaluating treatment effectiveness and is essential for diagnosing, treating, and predicting the outcomes of breast diseases.[5]

Aims And Objectives:

- To describe age wise distribution of breast lesions in female patients.
- To describe gross features of breast lesions in female patients.
- To describe the morphological features of breast lesions by histopathology in female patients.
- To classify breast lesions according to WHO classification-2019.

MATERIAL AND METHODS:

-This retrospective study of 800 cases was conducted in the Department of Pathology, CU Shah Medical College and Hospital, Surendranagar, from January 2015 to July 2024. Inclusion criteria: All breast tissue specimens submitted for histopathological analysis, which were suspected of neoplastic and non-neoplastic breast lesions during the study timeframe, were incorporated into the study. Out of the 800 specimens, the majority were lumpectomy samples, with a small number consisting of modified radical mastectomy and tissue biopsy specimens. Information regarding the clinical presentation, ultrasound (USG), fine-needle aspiration cytology (FNAC), mammography results, and other pertinent details were gathered from the histopathology registration form. The histopathological characteristics were recorded, and the tumors were categorized according to the WHO classification -2019.

RESULT:

This study involves 800 cases aimed at identifying both benign and

malignant breast lesions through histopathological examination. Breast tissue samples from patients of all age groups presenting with one or more symptoms, primarily breast lumps, pain, and nipple discharge, are included in the research. The majority of diagnoses are benign, with fibroadenoma being the most frequently encountered. Among malignant lesions, invasive ductal carcinoma is the most prevalent.

Table 1 Distribution of breast lesions according to year

Sr. No	Year	Total case		Malignant		Benign	
		Number	(%)	Number	(%)	Number	%
1	2015	56	7	11	7.33	45	6.9
2	2016	51	6.37	06	4	45	6.9
3	2017	40	5	05	3.33	35	5.36
4	2018	41	5.13	02	1.34	39	6
5	2019	47	5.87	04	2.66	43	6.61
6	2020	61	7.63	22	14.66	39	6
7	2021	109	13.63	20	13.34	89	13.68
8	2022	148	18.50	33	22	115	17.68
9	2023	151	18.87	24	16	127	19.64
10	2024 (6 month)	96	12	23	15.34	73	11.23
Total		800	100	150	100	650	100

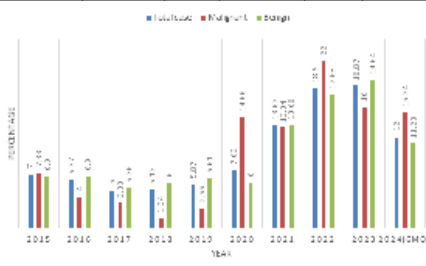


Chart 1 Distribution of breast lesions according to year

- Out of 800 cases, maximum 151 (18.87%) presented in 2023 and minimum 40(5%) presented in 2017.
- Out of 150 malignant cases, maximum 33 (22%) presented in 2022, and minimum 02 (1.34%) presented in 2018.
- Out of 650 benign cases, maximum 127 (19.64%) presented in

2023, and minimum 35 (5.36%) presented in 2017.

Table 2 Distribution Of Breast Lesions According To Age Group

Sr No	Age group (Year)	Total case		Malignant	
		Number	Percentage	Number	Percentage
1	<20	148	18.50	01	0.66
2	21-30	249	31.13	10	6.67
3	31-40	172	21.50	29	19.33
4	41-50	125	15.62	39	26
5	51-60	64	8	39	26
6	61-70	26	3.25	20	13.34
7	>70	16	2	12	8
Total		800	100	150	100

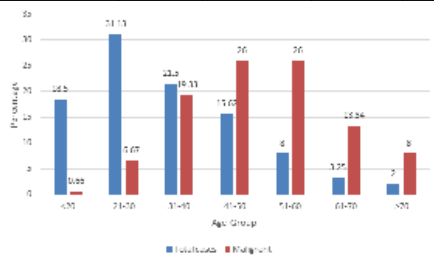


Chart 2 Distribution Of Breast Lesions According To Age Group

Out of 800 cases, a maximum of cases 249 (31.13%) were presented in the 21-30 year age group, and a minimum cases 16(2%) was presented in >70 year age group.

Out of 150 cases, a maximum case of 39 (26%) was presented in the 41-50 and 51-60 years of age group and a minimum case of 1 (0.66%) was presented in the <20 years of age group.

Table 3 Distribution of breast lesions according to histopathological type

Sr. No	Diagnosis	No of cases	Percentage (%)
Benign			
1	Fibroadenoma	398	49.75
2	Fibrocystic	58	7.25
3	Fibroadenosis	29	3.63
4	Phyllode	17	2.13
5	Mastitis	98	12.25
6	UDH	7	0.9
7	ADH	5	0.64
8	Galactocele	14	1.75
9	Fat necrosis	3	0.38
10	Cellular leiomyoma	1	0.14
11	Schwannoma	1	0.14
12	Myofibroblastoma	1	0.14
13	Abscess	11	1.38
14	Duct ectasia	6	0.75
Malignant			
15	IDC	130	16.25
16	ILC	8	1
17	DCIS	9	1.14
18	LCIS	3	0.38
Total		800	100

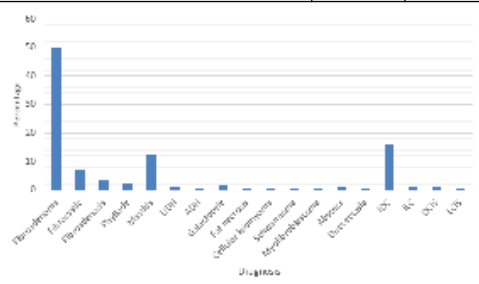


Chart 3 Distribution of breast lesions according to histopathological type

Out of 800 cases, maximum cases 398 (49.75%) are of fibroadenoma and minimum case 1(0.14%) is of Cellular leiomyoma, Schwannoma, Myofibroblastoma.

Table 4 Distribution of breast lesions according to laterality

	Total case		Malignant	
	Number	Percentage	Number	Percentage
Left	428	53.46	86	57.33
Right	372	46.54	64	42.37
Total	800	100	150	100

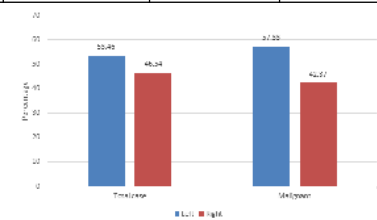


Chart 4 Distribution of breast lesions according to laterality

Out of 800 cases, 428 (53.46%) from left breast and 372 (46.54%) from right breast.

Out of 150 cases, 86 (57.33%) from the left breast and 64 (42.67%) from right breast.

Out of 800 cases, 70 cases are of Tru cut biopsy. So remaining 730 cases are taken for the Distribution of breast lesions according to gross features.

Out of 150 malignant breast lesions, 28 cases are of Tru cut biopsy. So remaining 122 cases are taken for the distribution of breast lesions according to gross features.

Table 5 Distribution of breast lesions according to gross features

Gross	Total case		Malignant	
	Number	Percentage	Number	Percentage
Solid	589	80.69	108	88.52
Solid+Cystic	141	19.13	14	11.48
Total	720	100	122	100

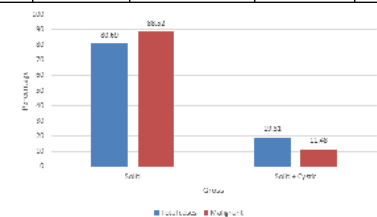


Chart 5 Distribution of breast lesions according to gross features

Out of 800 cases, 589 (80.69%) have having solid gross appearance and 141 (19.31%) have having solid with cystic gross appearance.

Out of 150 cases, 108 (88.52%) have having solid gross appearance and 14 (11.48%) have having solid with cystic gross appearance.

-Out of 800 cases, 71 specimens with lymph nodes are received.

Table 6 Distribution of MRM specimen according to lymph node involvement

LN	No of cases	Percentage (%)
Positive	37	52.11
Negative	34	47.89
Total	71	100

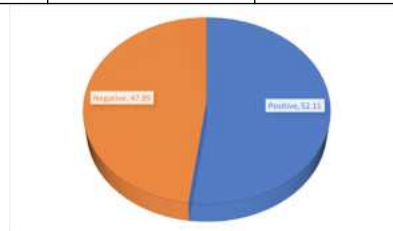
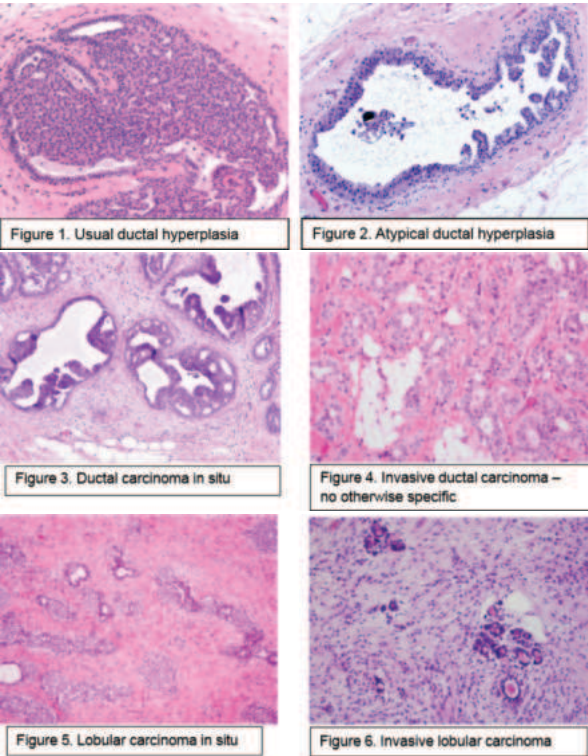


Chart 6 Distribution of MRM specimen according to lymph node involvement

Out of 71 cases, 37 (52.11%) cases presented with lymph node involvement and 34 (47.89%) cases presented without lymph node involvement.



DISCUSSION:

In the present study, 800 cases of excision biopsy specimens of the breast for histopathological examination referred to a histopathological section of the pathology department of CU Shah Medical College, Surendranagar over a period of January 2015 to July 2024 were analyzed and various aspects were studied which were discussed below.

(1) Age

Age group	Khanna et al ^[6] (1998) n=1315	Manna et al ^[7] (2009) n=66	Bhatti et al ^[8] (2010) n=100	Malay et al (2011) n=200	Present study (2024) n=800
In year	%	%	%	%	%
<20	18.20	-	-	19	18.50
21-30	36.90	31.80	80	33	31.13
31-40	44.90	36.30	20	20	21.50
41-50	-	22.70	-	17	15.62
51-60	-	7.60	-	6	8
61-70	-	1.60	-	4	3.25
>70	-	-	-	2	2
Total	100	100	100	100	100

The majority of patients were in the age group of 21-30 years (31.13%) followed by 31- 40 years (21.50%) which correlates with the results of the previous study.

(2) Laterality

Laterality	Bhatti et al ^[8] (2010) n=100	Malay et al (2011) n=200	Present study (2024) n=800
	%	%	%
Left	55.0	53.0	53.46
Right	45.0	47.0	46.54
Total	100	100	100

Out of 800 patients, 428 (53.46%) patients had lesions in the left breast and 372 (46.54%) patients had lesions in the right breast which correlates with the result of the previous study.

(3) Benign Breast Lesion

Histopathological diagnosis	Ajao et al ^[10] (1979) n=44	Khanna et al ^[6] (1998) n=1315	Xu et al (2007) ^[11] n=36	Malik et al ^[12] (2010) n=954	Ahmed et al ^[9] (2010) n=200	Malay et al (2011) n=200	Present study (2024) n=800
	%	%	%	%	%	%	%
Fibroadenoma	70.5	37	27.7	41.4	28.0	42.5	61.23
Phyllode	02.3		00.0	0.4	1.0	04.5	2.62
Fibrocystic disease	15.9	9.3	11.1	6.7	11.5	05.5	8.92
Sclerosing Adenosis	04.5		02.7	0.0	0.0	04.5	4.46
Duct papilloma	02.3	0.3	08.3	0.2	0.0	01.0	0.30

Out of 650 cases, the maximum cases 398 (61.23%) are of fibroadenoma followed by mastitis (15.08) and fibrocystic disease (8.92).

(4) Malignant Breast Lesion

Histopathological diagnosis	Khanna et al ^[6] (1998) n=1315	Xu et al (2007) ^[11] n=36	Manna et al (2009) ^[7] n=66	Malik et al ^[12] (2010) n=954	Ahmed et al ^[9] (2010) n=200	Malay et al (2011) n=200	Present study (2024) n=800
	%	%	%	%	%	%	%
Invasive ductal carcinoma	36.3	33.3	-	21.5	-	19.5	60.67
Invasive lobular carcinoma	0.6	0.0	-	2.3	-	0.5	5.33
Overall malignant tumor	38.7	38.4	36.36	28.4	34.0	23.0	34.0

Out of 150 cases, a maximum cases 73 (48.67%) are of invasive ductal carcinoma followed by invasive breast carcinoma 39(26 %).

(5) Lymph Node Metastasis

Lymph node metastasis	Khanna et al ^[6] (1998) n=1315	Malay et al (2011) n=2011	Present study (2024) n=800
	%	%	%
Positive	29.7	23.9	52.11

Out of 71 cases, 37 (52.11%) cases are positive for lymph node metastasis.

CONCLUSION:

In the present study, 800 cases of excision biopsy specimens of breasts for histopathological examination referred to a histopathological section of the pathology department of CU Shah Medical College, Surendranagar over a period of January 2015 to July 2024 were analyzed.

The majority of breast lesions were observed in the young reproductive age group (21-40 years).

- Fibroadenoma of the breast was found to be the most frequently occurring case.
- Invasive ductal carcinoma (IDC) was identified as the most prevalent malignant lesion.
- The left side of the breast was most often affected. The majority of the breast tissue presented as solid when grossly examined.
- >50% of the modified radical mastectomy specimens exhibited lymph node involvement.

This study is crucial for early identification and treatment of benign lesions, as well as for differentiating them from in situ and invasive breast carcinomas.

Histopathology is vital in the diagnosis and management of breast diseases, in conjunction with physical examination, ultrasonography (USG), mammography, magnetic resonance imaging (MRI), and fine needle aspiration cytology (FNAC) findings.

Breast cancer screening initiatives and fundamental training will encourage women to consult a doctor promptly if a breast lump is detected upon palpation, which can ultimately decrease the morbidity and mortality linked to breast tumors.

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