

A HISTOPATHOLOGICAL STUDY OF TUMOUR AND NON-TUMOUR BREAST LESIONS IN KOLHAN, JHARKHAND

Shailendra Nath Paul¹, Saket Kumar²

¹Associate Professor, Department of Pathology, MGM Medical College and Hospital, Jamshedpur, Jharkhand.

²Tutor, Department of Pathology, MGM Medical College and Hospital, Jamshedpur, Jharkhand.

ABSTRACT

BACKGROUND

The objectives of the study are- 1) To evaluate the histopathological findings of neoplastic and non-neoplastic lesions of breast. 2) To correlate the clinico-radiological diagnoses and histopathological diagnoses.

MATERIALS AND METHODS

The present study was conducted in the Pathology Department of MGM Medical College, Jamshedpur, Jharkhand over a period of three years from January 2014 to December 2016. During this period, we have studied total 300 cases of breast lesions. Detailed gross examination of biopsy materials was done followed by fixation and tissue processing. Different lesions were studied by histopathological examination and reported.

RESULTS

Out of the 300 cases, 290 cases had neoplastic and 10 cases had non-neoplastic lesions. Out of the total 290 cases with neoplastic, 202 cases had benign breast tumours, 88 cases had malignant lumps. Fibroadenoma was the most common benign tumour with 147 cases. Invasive ductal carcinoma (NOS) was the most common malignant tumour with 73 cases. Most common nonneoplastic lesion was acute mastitis/abscess with 04 cases followed by duct ectasia and fibrocystic disease of breast. The tumours involved were in upper outer quadrant most frequently. The benign tumours were most frequent in 2nd, 3rd, and 4th decades. The malignant tumours were seen beyond 4th decade.

CONCLUSION

Histopathological study is still gold standard, not only for its diagnostic role but also its prognostic value. It is also important in the management of breast lumps.

KEYWORDS

Histopathological Examination (HPE), Fibroadenoma, Invasive Carcinoma, Duct Ectasia, Fibrocystic Disease of Breast.

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BACKGROUND

In female the breast is well developed while in men it remains rudimentary throughout the life.¹ Today many advanced techniques like mammography, USG, and increased use of fine needle aspiration cytology have greatly assisted the preoperative evaluation of breast lesions. Still the histopathological examination is the gold standard for differentiation between benign and malignant lesions.

In India breast cancer is 2nd most common cancer after cervical cancer. By 2020 the incidence of breast cancer in India is expected to double. More than half of all women will develop some form of benign breast disease after age 20. They have great risk for breast cancer, only a small fraction of those diagnosed ever develop malignant disease.²

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Corresponding Author:

Dr. Shailendra Nath Paul,

Associate Professor,

Department of Pathology,

MGM Medical College and Hospital,

Jamshedpur, Jharkhand.

E-mail: shailendra.paul61@gmail.com

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Recognition of different neoplastic and nonneoplastic breast lesions is important for the differential diagnosis from malignant lesions and ultimately for the management of the patients with breast disease. We have studied and analysed various neoplastic and nonneoplastic breast lesions from the specimens received in histopathology section of MGM Medical College, Jamshedpur and correlated the histopathology reports with clinical parameters.

MATERIALS AND METHODS

The present study was performed in the histopathology section MGM Medical College, Jamshedpur, Jharkhand from January 2014 to December 2016. A total of 300 cases of all ages and sexes, which presented with breast lumps, were incorporated in the study.

The requisition with written history and clinical findings, the lump was received for histopathological examination as biopsy, lumpectomy or modified radical mastectomy specimen in 10% formalin. After proper tissue processing, 5 microns thick sections were cut and stained with Haematoxylin and Eosin for HPE.



RESULTS

In this research, age of the patients was ranged from 10-80 years. The benign lesions were seen in 2nd to 4th decades of life and malignancies occurred after the 5th decade (Table 1). Of the 300 patients 291 were female and 09 were male.

Majority of lesions were located in the upper outer quadrant (45%), followed by upper inner quadrant (13.66%) (Table 2). All the patients in the research presented with the palpable breast lump, nipple retraction, and discharge was seen in malignancies only.

Age Wise Distribution in Years	No. of Cases of Inflammatory Lesions	No. of Cases of Benign Breast Lesions	No. of Cases of Malignant Breast Lesions
11-20	0(0%)	28(13.86%)	0(0%)
21-30	3(30%)	108(53.46%)	1(1.13%)
31-40	3(30%)	51(25.24%)	6(6.81%)
41-50	2(20%)	13(6.43%)	28(31.81%)
51-60	1(10%)	2(0.99%)	35(39.77%)
61-70	1(10%)	0(0%)	13(14.77%)
71-80	0(0%)	0(0%)	5(5.68%)
Total	10(100%)	202(100%)	88(100%)

Table 1. Age Distribution of Inflammatory, Benign and Malignant Breast Lesions

Quadrant	Number of Cases	Percentage
Upper Outer	135	45%
Upper Inner	41	13.66%
Lower Outer	36	12%
Lower Inner	21	7%
Central	30	10%
Multiple Quadrant	14	4.66%
Diffuse	23	7.66%
Total	300	100%

Table 2. Frequency of Occurrence of Breast Lesions in Different Quadrants of Breast

Category	Diagnosis	No. of Cases	Percentage of Inflammatory Lesions	Percentage of All Lesions
Inflammatory	Acute mastitis/abscess	4	40%	1.33%
	Chronic non-specific Mastitis	1	10%	.33%
	Fat necrosis	1	10%	.33%
	Ductal ectasia	2	20%	.66%
	Granulomatous mastitis	1	10%	.33%
	Plasma cell Mastitis	1	10%	.33%
	Total	10	100%	3.31%

Table 3. Typing and Frequency of Occurrence of Different Inflammatory Lesions on Histopathology

Category	Diagnosis	No. of Cases	Percentage of Benign	Percentage of All Lesions
<i>Benign Non-Neoplastic Lesions</i>				
Non-Proliferative Breast Disease	Fibrocystic Disease	18	8.9%	6%
	Gynecomastia	8	3.9%	2.66%
	Ductal Epithelial Hyperplasia	1	0.5%	.33%
Proliferative Breast Disease with or without Atypia	Sclerosing Adenosis	9	4.4%	3%
	Lobular Hyperplasia	1	0.5%	.33%
	Fibroadenosis	5	2.4%	1.66%
	Pseudoangiomatous Stromal Hyperplasia	1	0.5%	.33%

<i>Benign Neoplastic Lesions</i>				
Benign Tumours	Fibroadenoma	147	72.7%	49%
	Tubular Adenoma	4	1.9%	1.33%
	Lactating Adenoma	2	1%	.66%
	Phyllodes	6	2.9%	2%
	Total	202	100%	67.3%

Table 4. Typing and Frequency of Occurrence of Different Benign Lesions on Histopathology

Category	No. of Cases	Percentage of Malignant Cases	Percentage of All Lesions
Carcinoma in Situ			
Ductal	2	2.27%	.66%
Lobular	0	0%	0%
Invasive Carcinoma			
Invasive Ductal Carcinoma	73	83%	24.33%
Paget's Disease of Nipple (IDC)	4	4.55%	1.33%
Papillary Carcinoma	1	1.14%	.33%
Invasive Lobular Carcinoma	2	2.27%	.66%
Medullary Carcinoma	4	4.55%	1.33%
Mucinous Carcinoma	1	1.14%	.33%
Metaplastic Carcinoma	1	1.14%	.33%
Total	88	100%	29.3%

Table 5. Histopathological Categories and Frequency of Occurrence of Malignant Lesions of the Breast

Clinical Diagnosis	No. of Cases	Histopathological Diagnosis
Abscess / Acute Mastitis	7	4 Abscess, 1 Chronic mastitis, 2 invasive ductal carcinomas
Ductal Ectasia	1	1 ductal ectasia
Fibroadenoma	175	140 fibroadenoma, 8 fibrocystic disease, 5 sclerosing adenosis, 4 tubular adenoma, 4 fibroadenosis, 4 each of phyllodes tumor & invasive ductal carcinoma, 2 lactating adenoma, 1 each of pseudoangiomatous stomal hyperplasia, Granulomatous mastitis, ductal fibroplasia, ductal carcinoma in situ.
Fibrocystic Disease	13	8 fibrocystic disease, 4 fibroadenoma, 1 fibroadenosis.
Phyllodes	3	2 phyllodes, 1 fibroadenoma.
Gynaecomastia	8	8 Gynaecomastia.
Paget's disease	1	1 Paget's disease.
Malignancy	92	67 Invasive ductal carcinoma, 4 Medullary carcinoma, 2 fibrocystic disease, 4 sclerosing adenosis, 2 each of invasive lobular carcinoma& fibroadenoma, 3 Paget's disease of nipple, 1 each of ductal carcinoma in situ, mucinous carcinoma, metastatic carcinoma, papillary carcinoma, lobular hyperplasia, Plasma cell mastitis, fat necrosis, duct ectasia.

Table 6. Correlation of Clinical Diagnosis with Histopathological Diagnosis

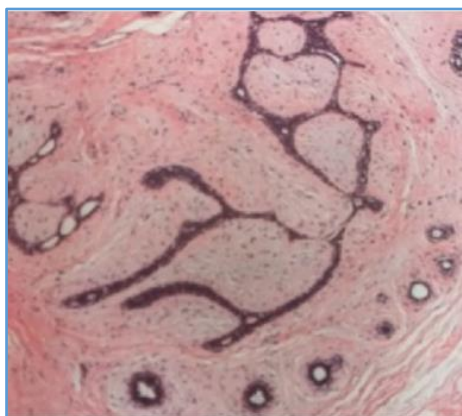


Figure 1. Fibroadenoma Breast showing both Intracanalicular and Pericanalicular Pattern of Growth

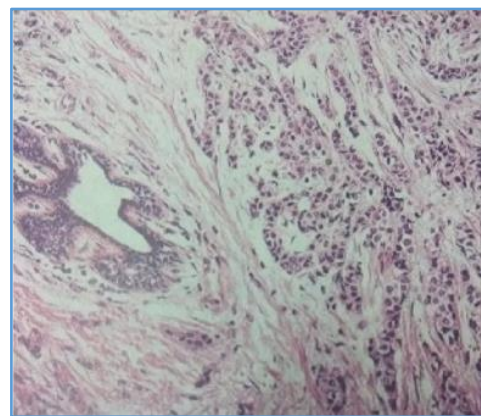


Figure 2. Invasive Ductal Carcinoma Reveals Solid Sheets of Tumor Cells with Stromal Invasion

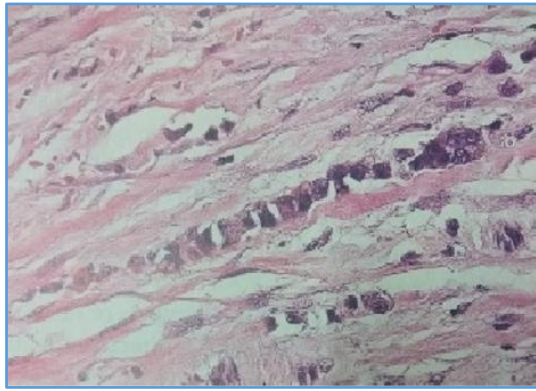


Figure 3. Infiltrating Lobular Carcinoma Showing Indian File Arrangement of the Tumour Cells

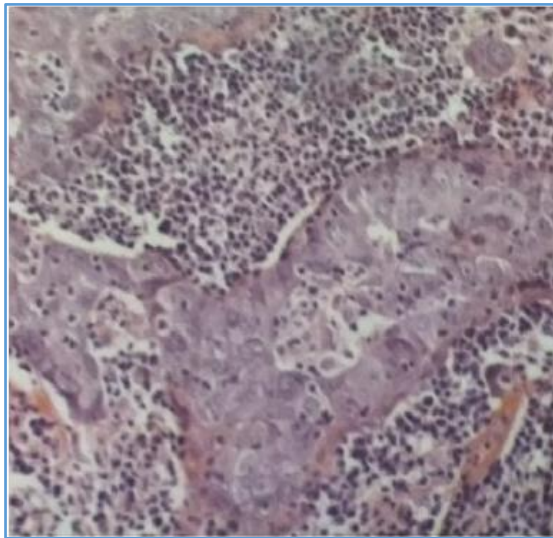


Figure 4. Medullary Carcinoma of Breast Showing Neoplastic Cells in Syncytium with Pushing Borders and Surrounding Lymphocytic Infiltrate

The lesions were histologically grouped as inflammatory, benign, and malignant; the benign category being further subdivided into benign nonneoplastic and neoplastic groups. Overall the percentage of inflammatory lesions was 3.31%, benign lesions was 67.3% and malignant lesions was 29.3% (Table 3, 4, 5). The most frequent inflammatory lesion found was acute mastitis/abscess (Table 3).

The most common benign non-proliferative lesion was fibrocystic disease while sclerosing adenosis and fibroadenosis were the commonest proliferative lesions. Overall fibroadenoma was commonest neoplastic lesion (Table 4), whereas invasive ductal carcinoma (NOS) was the commonest malignant counterpart (Table 5). The final histological diagnoses were correlated with those made on clinical grounds (Table 6).

DISCUSSION

In our study, the male cases were 3%, whereas the proportion of male cases in various studies ranged from 4% to 8%.³⁻⁷ Female proportion in various studies varies from 91.85% to 98.26%;³⁻⁷ in this study it was 97%. High

proportion of the female cases shows that breast diseases are more common in female than male.

In this study the maximum inflammatory lesions (30%) were present in each 21-30 and 31-40 years age group while Godwin's et al (2011)⁸ and Kanchana et al (2015)⁹ reported majority cases i.e. 37.04% and 27.27% in 41-50 years age group respectively.

Most of the benign lesions are found in reproductive age group; in our study maximum benign lesions (53.46%) were present in 21-30 years age group; Ibrahim et al (2015)¹⁰ also reported approximately same i.e. 41.73% in this age group. While Mudholkar et al (2012)¹¹ reported 37% of case in 11-20 years age group.

Most of the malignant lesion cases are found after the age of 40 years. The present study reported 71.58% of the malignant lesions in the 6th and 7th decades of life which was comparable to the 70% of breast malignancies reported by Malik R et al (2003).¹²

In our study, the benign breast lesions were most common i.e. 67.3% of all lesions, a finding comparable to that of Hussain et al (2005),¹³ Aslam et al (2013),⁶ Rathi et al (2015)¹⁴ and Kanchana et al (2015)⁹ who reported 54.08%, 79.13%, 78.68%, 76.96% of the benign-lesion cases respectively. In this study the malignant lesions were 29.3% which is comparable to the study done by Hussain et al (2005)¹³ who reported it in 24.10% of the cases.

We announced 3.31% cases in inflammatory lesions which is comparable to the study done by Rathi et al (2015).¹⁴

Our study reported the frequency of occurrence of fibroadenoma to be 72.7% of all benign lesions which is similar to that reported by Aslam et al (2013)⁶ and Dayanand et al (2015)¹⁵ i.e. 71.3% and 62.4% respectively.

The present study noted fibrocystic disease as 8.91% of benign cases which was compared to Godwins et al (2011),⁸ Dayanand et al (2015)¹⁵ and Ibrahim et al (2015)¹⁰ reported in 31.8%, 16.2% and 25.4% respectively.

Our study announced phyllodes tumour at 2.9% of all benign lesions, as compared to Dayanand et al (2015)¹⁵ and Ibrahim et al (2015)¹⁰ who reported it in 7.6% and 4.8% respectively.

In the present study the occurrence of infiltrating duct carcinoma was 83% of malignant lesions, which was comparable with the frequencies recorded by Mudholkar et al (2012)¹¹ and Dayanand et al (2015)¹⁵ at 88% and 85.5% of malignant lesions respectively.

In this study the invasive lobular carcinoma accounted for 2.27% of malignancies, Mudholkar et al (2012)¹¹ reported it in only 0.75% of the malignant cases.

Medullary carcinoma was seen in 4.55% of all malignant lesions in our study; nearly similar frequency was reported by Dayanand et al (2015)¹⁵ in 4.8% of the malignant cases.

Considering histopathological diagnosis as the gold standard, we found that the sensitivity and specificity of clinical diagnosis to detect a benign case and a malignant case was very high. Similar study was done by Rathi et al (2015)¹⁴ and have found similar results with high sensitivity and specificity of clinical diagnosis.

CONCLUSION

We have studied 300 cases of breast lesions histopathologically, which has given us the information as neoplastic lesions. They were more common than nonneoplastic lesions. The benign tumours were most frequent in 2nd, 3rd and 4th decades, malignant tumours were seen beyond 4th decades. All the tumours involved upper outer quadrant most frequently. Fibroadenoma was the most common benign tumour. Invasive ductal carcinoma-no special type (NOS) was the most common malignant tumour. Mastitis was the most common nonneoplastic lesion. Histopathological study plays very important role in the diagnosis of breast lesions and hence in treatment and prognosis.

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