Histomorphological Patterns of Different Breast Lesions in a Tertiary Care Hospital

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Abstract

Objective: Breast lesions are heterogeneous diseases that consist of several distinct entities with remarkably different characteristic features. The present study was conducted to assess histopathological findings of breast lesions in excision biopsy samples.

Methods: This cross-sectional study was conducted in the Department of Pathology, Rajshahi Medical College over a period of one year from July 2021 to June 2022. A total of 105 cases of breast lesions were included in this study.

Result: Out of 105 cases of breast lesions studied, 59 cases (72%) were malignant and 46 cases were benign lesions. Fibroadenoma (18 cases out of 46) was the most common benign lesion followed by breast abscess (9 cases out of 46). On the other hand, invasive ductal carcinoma was the highest occurred malignant tumour (59 cases, 56%). The age range of breast lesion was 15 to 75 yrs and highest incidence was in between 31-50 years (both benign and malignant). Most of the breast lesions were occurred in left breast (62%).

Conclusion: Histopathological examination plays an important role in differentiating between benign and malignant lesions. In the present study the most common benign breast lesion was fibroadenoma and the most common malignant lesion was infiltrating ductal carcinoma. The

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Keywords: Histopathology, Malignant, Benign lesions, Breast lesion

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Introduction

The breast tissue consists of both specialized epithelial cells and stroma. It is a site of a broad array of pathological alterations.[1] Breast lesions are heterogeneous diseases that consist of several distinct entities with remarkably different characteristic features.[2] Lesions of the breast are diverse including several entities with remarkably diverse characteristic features extending from inflammatory non-neoplastic and benign lesions to life threatening invasive carcinomas.[3] Breast cancer accounts for about one-third of female cancers and nearly about one-fourth of all malignancy.[4] The WHO statistics in 2008 states that malignant breast lesions comprise 1.38 million cases (10.9% of total cancer patients).[5] Breast malignancy is the second most common malignancy in women after carcinoma cervix and is diagnosed in 20 in 100,000 women[2].

Majority of the breast lesions initially present with a lump in the breast. A timely and accurate diagnosis of a breast lump is crucial and early intervention alleviates anxiety and can be lifesaving. In recent years, breast lesions have gained increased importance and global attention due to the increased mortality and morbidity associated with breast cancer and more awareness is being spread among women regarding breast lumps.[6]

Now a days, there are many advances in imaging techniques like fine-needle aspiration cytology have greatly assisted the preoperative evaluation of breast lesions. However, in a large proportion of cases, still rests on histopathological examination. Therefore, histopathology plays an important role in the final diagnosis of breast lesions. Histopathological diagnoses are the main criteria to assess the adequacy of treatment modalities and are a necessary component in the diagnosis, treatment and prognosis of breast lesions.[7]

So, the purpose of this current study was appreciating the histo-morphology by conducting with neoplastic benign and malignant lesions as well as non-neoplastic lesions, their age distribution and clinical aspects, from biopsy specimens, lumpectomy and modified radical mastectomy specimens.[8]

Methods

This cross-sectional study was conducted in the Department of Pathology, Rajshahi Medical College over a period of one year from July 2021 to June 2022. A total of 105 cases of different breast lesions were included in the study. A purposive method of sampling was employed. Detailed gross examination of specimen were done followed by fixation with 10% formalin, tissue processing and stained with Hematoxylin and eosin stain. Histopathological diagnosis was correlated with age of the patient and side involvement (left or right). Statistical analysis was performed using Microsoft Excel.

Results

A total of 105 samples of breast lesions were received for histopathological evaluation at our Hospital, a tertiary care hospital located in Rajshahi, Bangladesh. In this current study, Most (58%) of the patients belongs to 3rd to 5th decade. There was no case below 16 years or above 70 years. The least number of samples was above 60 years of age (6cases,6%). Out of 105 histopathologically diagnosed breast lesions, 20 cases (19%) cases were diagnosed as benign tumor and 59 cases (56%). Rest 26 cases (25%) were diagnosed as inflammatory and non neoplastic breast lesions. Among the 105 cases, most of the breast lesions including both benign and

malignant lesions occurred in left breast (62 cases, 59%) followed by right breast (43 cases, 41%). In this current study, breast abscess were the most common inflammatory lesions (9 cases, 8.5%) followed by tubercular mastitis (8cases, 7.6%). Fibroadenoma were the common benign tumour (18 cases, 17.2%) and invasive ductal carcinoma had the highest occurrence (55 cases, 52.3%) amongst the malignant tumours. The age -wise distribution of the patients whose samples were received is given in Table III. Patients in the age group of 31-40 years constituted the majority of patients (39 out of 105; 37%).

Table I: Distribution of study subject according to age group (n=105)

Age group	Frequency (n)	Percentage (%)
≤20	07	7.0
21-30	17	16.0
31-40	39	37.0
41-50	22	21.0
51-60	14	13.0
≥61	06	6.0
Total	105	100.0

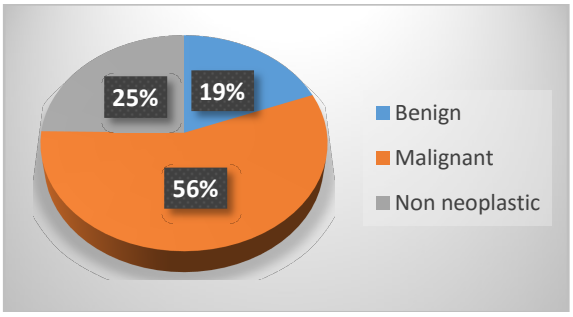

Figure 1. Frequency of breast lesions based on histological diagnosis (n=105)

Table II: Distribution of breast Lesions according to side (n = 105)

Side determination	Benign (%)	Malignant (%)	Total (%)
Left Breast	26	36	62 (59%)
Right Breast	20	23	43 (41%)
Total	46	59	105 (100%)

Table III: Frequency of breast lesions based on histopathology (n = 105)

Nature of tumours	Number of cases	Percentage (%)
A. Inflammatory lesions		
1. Chronic mastitis	01	0.9
2. Breast abscess	09	8.5
3. Tubercular mastitis	08	7.6
B. Non neoplastic lesions		
1. Fibrocystic change	07	6.7
2. Gynocomastia	01	0.9
C. Benign Tumours		
1.Fibroadenoma	18	17.2
2. Benign Phyllodes tumour	02	2.0
D. Malignant tumours		
1. Ductal carcinoma in situ	01	0.9
2. Invasive ductal carcinoma	55	52.3
3. Invasive lobular carcinoma	03	3.0
Total	105	100

Table IV: Frequency of breast lesions in different age group (n = 105)

Histopathological Variant	< 20 age (yrs)	21 - 30	31 - 40	41 - 50	41 - 60	>60	Total
Inflammatory lesions	03	05	04	03	01	02	18
Benign tumours	03	07	06	03	01	00	20
Malignant tumours	00	02	27	15	11	04	59
Non neoplastic lesions	01	03	02	01	01	00	08
Total	07	17	39	22	14	06	105

Figure 2. Photograph showing a breast mass with nipple and areola before sectioning.

Figure 3. Diffuse whitish thickened area is seen after sectioning the solid mass

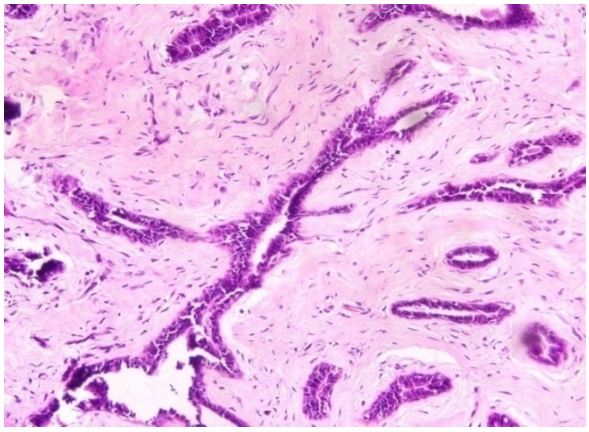

Figure 4. Photomicrograph , a case of fibroadenoma (case no 3, H&E stain 400x)

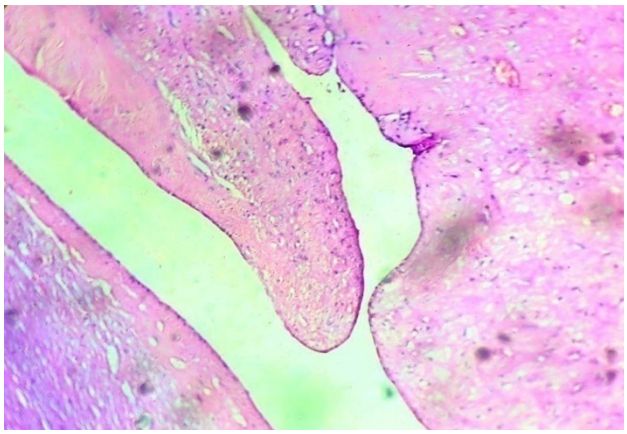

Figure 5. Photomicrograph, a case of phylloides tumour (case no 11, H&E stain 400x)

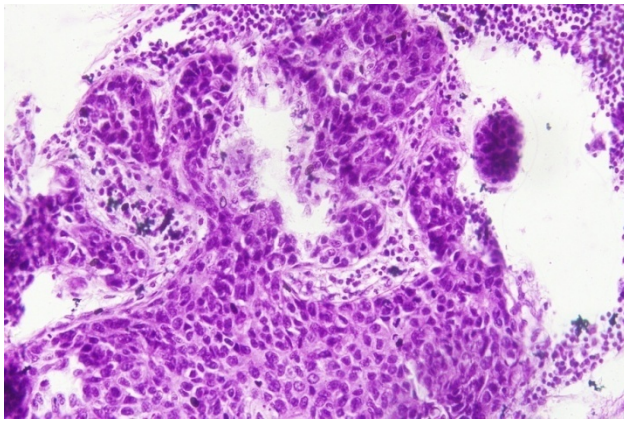

Figure 6. Photomicrograph, a case of invasive in ductal carcinoma (case no - 18,H&E stain 400x)

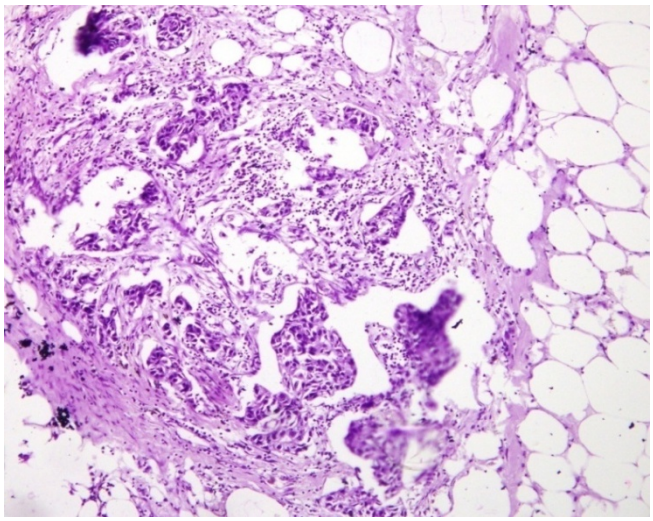

Figure 7. Photomicrograph, a case of invasive ductal carcinoma (case no 68, H&E stain 400x)

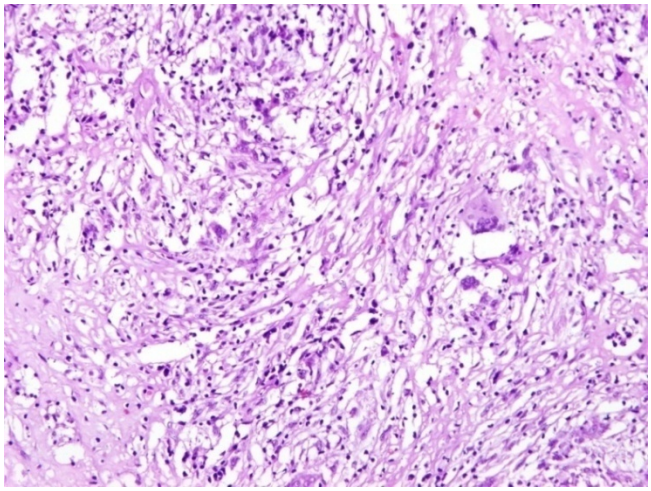

Figure 8. Photomicrograph, a case of invasive lobular carcinoma (case no 92, H&E stain 400x)

Discussion

We studied 105 cases of breast lesions histopathologically. This study highlighted the distinct incidences and histopathological characteristics of wide range of breast diseases. The study emphasizes the importance to recognize and treat benign breast lesions at an early stage and distinguish them from in situ and invasive breast cancers.

As per many previous studies, the incidence of benign breast disease is more than that of malignant breast neoplasm. In our study, among the 105 cases of different breast lesions, 46 cases (44%) were benign while 59 cases (56%) were malignant. This was similar to previous results conducted by Mayun AA et al.[9] and Siddiqui MS et al.[10] in Pakistan.

Among the benign breast lesions in the study group, the commonest lesion was fibroadenoma breast in 18 cases out of 46 (39%) which is comparable to other studies like Reza AK et al (2017)[11] and Khanna R et al.[11] It however contrasts with the Dogo D et al.[13] study where fibrocystic diseases was the most common benign lesions.

In this current study, the left breast was the most commonly affected (59%) followed by right breast accounting in 41 %. This is almost similar to other studies done by Dharmakanta in India, which was accounted for 50.76% and 44.31%, respectively. This is also similar to work carried out by other researchers locally and globally.

Infiltrative duct cell carcinoma was seen in 54 specimens, of the total 59 malignant specimens received (91% incidence). This incidence was similar to Malik and Bharadwaj study (88.20%) and Kulkarini et al. study (84.85%) conducted in the year 2003 and 2009, respectively.[14,15]

In our study, malignant breast neoplasms were predominantly seen at the age of 31 - 50 years which are in concordance with previous study by Reetu Baral, 2014 (41 – 50 years)[14] and Mayun AA et al., 2008.[9]

Conclusion

Histopathological examination plays an important role differentiating between benign and malignant lesions. In the present study the most common benign breast lesion was found fibroadenoma and the most common malignant lesion was infiltrating ductal carcinoma. The peak incidence of benign lesion was in the group of third decade and the peak incidence of malignant lesion was seen above 61 years of age.

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