

HISTOMORPHOLOGICAL STUDY OF BREAST LESION IN A TERTIARY CARE CENTRE IN KATHMANDU

Anu Khadka, Sujata Pudasaini, Shreesti Adhikari

Department of Pathology, Nepal Medical College Teaching Hospital, Attarkhel, Gokarneshwor-8, Kathmandu, Nepal

ABSTRACT

Various types of lesion from inflammation to carcinoma can affect the breast. Some lesions are common in young age group while others are more common in elderly age group. Accurate diagnosis is essential to relieve anxiety of patients. In case of carcinoma, early and accurate diagnosis can save the patient from metastases thus reducing mortality and morbidity. Histopathology plays a major role in distinguishing benign lesions from malignant lesions. Hospital based descriptive study was carried out in the Department of Pathology of a tertiary care centre in Kathmandu over a period of eleven months (1st September 2022 to 30th July 2023). A total of 52 cases of breast lesions were included in the study. Among 52 cases, 17 (33%) were non-neoplastic and 35 (67.0%) were neoplastic. Among neoplastic, 21 (40.3%) were benign and 14 (26.9%) were malignant. Among non neoplastic lesions, inflammatory lesion (17.3%) was the most common diagnosis. Among neoplastic lesion, fibroadenoma (34.6%) was the most common diagnosis. All cases of malignant breast lesions (26.9%) were diagnosed as invasive breast carcinoma, no special type. This study helped us to analyze the histopathological spectrum and prevalence of breast lesions in this part of our country. It is well known fact that the histomorphological study of the breast lesions is an important aspect for the diagnosis, management and prognosis of breast diseases.

KEYWORDS

Breast lesions, histomorphology, inflammatory lesion, fibroadenoma, invasive breast carcinoma

Received on: August 02, 2023

Accepted for publication: November 09, 2023

CORRESPONDING AUTHOR

Dr. Anu Khadka,
Lecturer,
Department of Pathology,
Nepal Medical College Teaching Hospital,
Attarkhel, Gokarneshwor-8, Kathmandu, Nepal
Email: anunikunja@gmail.com
Orcid No: <https://orcid.org/0000-0002-8832-555X>
DOI: <https://doi.org/10.3126/nmcj.v25i4.60931>

INTRODUCTION

Human breast is a modified sweat gland of ectodermal origin. During embryogenesis, breast tissue develops in both sexes along the paired milk lines, which extend from the axilla to the inguinal region. The breast is composed of two major structures (ducts and lobules), two types of epithelial cells (luminal and myoepithelial), and two types of stroma (interlobular and intralobular). Each of these elements is the source of both benign and malignant lesions.¹⁻³

Breast diseases ranges from disorders of development, inflammatory lesions, proliferative diseases of the epithelium and stroma to different types of benign and malignant neoplasm.⁴ Around 200,000 cases of breast diseases are diagnosed annually.⁵ Breast diseases can affect both males and female but females have more preponderance as compared to males. No age is immune.⁶ Benign epithelial lesions are classified into non proliferative breast changes, proliferative breast disease and atypical hyperplasia, each with a different risk for subsequent development of breast cancer.⁷ Benign breast diseases (BBD) are the commonest among all breast lesions.⁸ Fibroadenomas are the most common benign tumor of the breast.⁷

Breast carcinoma is the most common and deadly malignancy of women globally. Each year, 1.7 million women are diagnosed with breast cancer and one in three of those afflicted die of disease.⁷ In Asia, the incidence of breast cancer is increasing and may occur in younger age groups. About 25% of breast cancer occurs in younger patients in developing Asian countries as compared to Western countries.⁹ Less than 1% of all breast cancer cases develop in men, and only one in a 1000 men will ever be diagnosed with breast cancer. The malignant breast neoplasm comprises several tumor subtypes with distinct etiologies and clinical outcomes.¹⁰⁻¹⁵

Histopathological study of the breast lesions is an important aspect for the diagnosis and management of breast diseases. Pathological diagnosis helps us to understand more about prognosis and treatment of the diseases.

MATERIALS AND METHODS

This is a hospital based descriptive study carried out in the Department of Pathology of Nepal Medical College Teaching Hospital (NMCTH) over a period of eleven months (1st September 2022 to 30th July 2023). Ethical approval was taken from Institutional Review Committee,

NMCTH before starting the study. The surgical specimens were received in different forms like excisional biopsy, incisional biopsy, modified radical mastectomy, trucut biopsy and subtotal mastectomy. Breast tissue specimen were fixed in 10% buffered formalin. After the fixation of the specimen, grossing was done. Gross findings of the specimen was noted and representative sections were submitted. In case of trucut biopsy, entire tissue was submitted for routine histopathological processing. The tissue bits were processed to make paraffin blocks. Embedding and section cutting was done on rotary microtome. Appropriate sections of 4-5 micrometer thickness sections was produced and stained with Haematoxylin and Eosin (H and E) stain in all cases and special stains when required. All the stained slides were examined for various histopathological changes under light microscopy and the microscopic features were noted down.

A total of 52 cases of breast lesions were included in the study. Data collected were compiled and analysed using MS Excel spreadsheet. Descriptive statistics was analyzed for the quantitative outcomes. The qualitative data was presented with frequency and percentage.

RESULTS

A total of 52 cases of breast lesions were included in the study. The age of the patients ranged from 14 years to 86 years. The most common age group was 21-30 years (30.8%), followed by 31-40 years (23.0%). The least common age group was >71years (1.9%) (Table 1).

Table 1: Age distribution of the patients

Age group (Years)	n	%
≤20	7	13.5
21-30	16	30.8
31-40	12	23.0
41-50	11	21.2
51-60	2	3.8
61-70	3	5.8
>71	1	1.9
Total	52	100

Among all the patients, 2 (3.8%) were males and 50 (96.2%) were females with M: F ratio of 0.04:1. Females were more commonly affected than males.

Table 2: Laterality of breast lesion

Site	n	%
Left	30	57.7
Right	21	40.4
Bilateral	1	1.9
Total	52	100.0

Unilateral lesions (98.1%) were much more common than bilateral lesions (1.9%). The left breast (57.7%), was more involved than right breast (40.4%) (Table 2).

Table 3: Types of surgical specimen

Type of surgical specimen	n	%
Excisional biopsy	33	63.5
Incisional biopsy	8	15.4
Modified Radical Mastectomy	6	11.5
Trucut biopsy	4	7.7
Subtotal mastectomy	1	1.9
Total	52	100.0

Excisional biopsy (63.5%) was the most common type of surgical specimen received, which is followed by incisional biopsy (15.4) and modified radical mastectomy (11.5%) (Table 3).

Among 52 cases, 17 (33.0%) were non-neoplastic and 35 (67.0%) were neoplastic. Among neoplastic, 21 (40.3%) were benign and 14 (26.9%) were malignant. Among non-neoplastic lesions, inflammatory lesion (17.3%) was the most common diagnosis followed by fibrocystic changes (5.8%). Hypertrophic fatty tissue and gynecomastia were seen in 2 cases (3.8%) each. A single case (1.9%) of galactocele was also seen. Among inflammatory lesion, there were 5 cases (9.6%) of acute mastitis and it was the most common finding. Chronic mastitis and granulomatous mastitis was seen in 2 cases (3.8%) each. Gynecomastia was seen in 2 male patients (3.8%) (Table 4).

Among neoplastic lesion, fibroadenoma was the most common diagnosis 18 (34.6%), followed by duct papilloma 2 (3.8%) and benign phylloides tumor 1 (1.9%). All cases of malignant breast lesions 14 (26.9%) were diagnosed as invasive breast carcinoma, no special type.

Table 4: Histomorphological findings of breast lesions

Breast lesion	Diagnosis	n	%
Non neoplastic			
Inflammatory Lesions	Acute mastitis	5	9.6
	Chronic mastitis	2	3.8
	Granulomatous mastitis	2	3.8
	Hypertrophic fatty tissue	2	3.8
Others	Lactational changes	1	1.9
	Gynecomastia	2	3.8
	Fibrocystic changes	3	5.8
Total (Non neoplastic)		17	33.0
Neoplastic			
Benign	Fibroadenoma	18	34.6
	Duct papilloma	2	3.8
	Benign phyllodes tumor	1	1.9
Malignant	Invasive carcinoma, no special type	14	26.9
Total (Neoplastic)		35	67.2
Total no. of cases		52	100.0

DISCUSSION

The breast is composed of specialized epithelium and stroma that is capable of turning into benign or malignant lesions.¹⁶ Various types of lesion from inflammation to carcinoma can affect the breast. Some lesions are common in young age group while others are more common in elderly age group. Accurate diagnosis is essential to relieve anxiety of patients. In case of carcinoma, early and accurate diagnosis can save the patient from metastases thus reducing mortality and morbidity.¹⁷

Histopathology plays a major role in distinguishing benign lesions from malignant lesions. Nowadays, incisional biopsy/trucut biopsy serves as a simple and effective method of diagnosis prior to extensive surgery. After surgery, the excised specimen would add extra information with immunohistochemistry for further management of the patients. All this will reduce the burden for practicing surgeons to treat the patients smoothly and effectively.¹⁸

Breast lesion is a common presentation in our hospital. For the last few years, we are seeing many cases of breast carcinoma even in young patients. Histomorphological study of breast lesion can differentiate neoplastic from non-neoplastic lesions and help the clinician to plan the management.

In this study among 52 cases, male: female ratio was 0.04:1. There was a female preponderance in our study. Similar observations were seen in the studies done by Paudel *et al*¹⁹ and Yogalakshmi *et al*.²⁰

Breast lesions can be seen in patients ranging from very early to advanced age. In this study, the youngest patient was 14 years old and oldest patient was 86 years old. The most common age group of presentation was 21-30 years (30.8%). This correlates well with studies done by Devkota *et al*²¹ and Bajracharya *et al*²² where the common age group was 21 to 30 years with 49.1% cases and 33.6% cases, respectively.

The left breast, 30 (57.7%) was more commonly involved than right breast 21 (40.4%). Bilateral breasts were involved in a single case (1.9%). Similar to this study, Krishna *et al*²³ and Yerakly *et al*²⁴ also reported that the left breast involvement was more common in their study. In contrast to these studies, Poojasree *et al*²⁵ found out that right breast was more commonly affected than the left in their study.

In the present study, excisional biopsy was the most common type of specimen received

among all types of surgical specimen. Similar to the present study Mudholkar *et al*²⁶ and Sulhyan *et al*²⁷ also found excisional biopsy as most commonly received surgical specimen.

Among 52 cases, 33.0% were non-neoplastic and 67.0% were neoplastic. Benign cases (40.3%) were more common than malignant. Inflammatory lesion accounted for 17.3% cases and acute mastitis was the most common inflammatory lesion in our study. Sulhyan *et al*²⁷ also reported mastitis (7.4%) as most common non neoplastic lesion. Aslam *et al*²⁸ reported 11.8% inflammatory lesions among which 2.8% cases were of acute mastitis. Granulomatous mastitis was seen in 3.8% in our study. This finding was comparable with the studies done by Aslam *et al*²⁸ and Raza *et al*¹⁷ who had 1.6% and 2.6% cases of granulomatous mastitis respectively. Chronic mastitis was seen in 3.8% cases in our study and it was the common inflammatory lesion. Similar to this, other studies done in different parts of the world also showed that chronic mastitis was a common breast lesion.^{24,29-31}

There was 1.9% cases of galactocele in this study. Paudale *et al*¹⁹ and Haque *et al*³² also reported very few cases of galactocele in their study, 1.67% and 0.96%, respectively.

Among neoplastic lesion, fibroadenoma was the most common diagnosis 18 (34.6%), followed by duct papilloma 2 (3.8%) and benign phylloides tumor 1 (1.9%). Similar to our study Khalid *et al*,¹⁷ Chandra *et al*³³ and Khanna *et al*³⁴ also revealed fibroadenoma being the most common benign breast lesion. Similar to our study, Thomas *et al*³⁵ and Chandra *et al*³³ reported 3.4% and 3.6% cases of duct papilloma, while Divyasree *et al*³⁶ reported only 0.6% cases of duct papilloma in their study.

There were 1.9% cases of phyllodes tumor in this study. Phyllodes tumor is not very common among the breast lesions but other studies showed slightly higher number of phyllodes tumor in their studies. Pandey *et al*³⁷ found 5.0% cases and Aslam *et al*²⁸ found 4.0% cases of phyllodes tumor in this studies.

Of 2 cases (3.8%) of breast lesion encountered in males, all cases were of gynecomastia. Similar to this study, Aslam *et al*²⁸ also found gynecomastia (3.8%) as common breast disease among males. Gynecomastia was the most common benign male breast disease accounted for 3.8% and 4.0% of all cases of benign breast disease in studies done by Adeniji *et al*³⁸ and Ochicha *et al*.³⁹

Breast cancer among female population is on rise in Nepal as evidenced by various studies done in last few decades. All cases of malignant breast lesions 14 (26.9%) were diagnosed as invasive breast carcinoma, no special type in this study. Studies done in various parts of Nepal by Sharma *et al.*⁴⁰ Pandey *et al.*²⁹ and Pathak *et al.*⁴¹ reported 21 (91.3%), (90.5%) and 75% cases of invasive ductal carcinoma (no specific type), respectively. Study done among Asian Indian/Pakistani women by Kakarala *et al.*⁴² also reported invasive ductal carcinoma as the common breast carcinoma than other histological subtypes. Male breast carcinoma was not found in our study. In contrast to this, a study done in India by Singh *et al.*⁴³ found 0.9% breast carcinoma in their study. A similar study conducted in Nepal by Singh *et al.*⁴⁴ found a single case of infiltrating duct carcinoma in a male patient.

This study showed fibroadenoma was the most common benign tumor and invasive breast carcinoma of no special type was the most common malignant tumor with 26.9% of malignant lesions. We can see the rising trend of breast carcinoma and hence early diagnosis plays an important role in reducing the morbidity and mortality associated with breast carcinoma. There is also a need to conduct breast cancer screening program regularly and to report the doctor at an early stage in case if any breast lump or lesion is noticed. Recognition of benign lesions at an early stage not only alleviates the anxiety of the patient but also distinguish them from malignant lesions. Histopathology always plays a major role and is the gold standard in the diagnosis of breast lesions.

Conflict of interest: None

Source of research fund: None

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