

Clinicopathological Profile of Breast Diseases Managed Surgically in A Tertiary Hospital

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Abstract:

Background: Breast diseases contribute to a considerable percentage of the cases handled surgically both in outpatient and inpatient settings. The various disease entities involve benign and malignant disease states that are each associated with different clinical features, imaging findings, and pathology. It is vital to diagnose and surgically treat these patients so as to improve their results and minimize possible complications. Analysis of the clinicopathological pattern of surgically treated breast disease offers useful information on the prevalence and patterns of these diseases.

Aim: To evaluate the clinicopathological profile of breast diseases managed surgically in a tertiary hospital.

Materials and Methods: This hospital based observational study was carried out over a period of one year at the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India. The patients who presented with breast diseases which needed surgical intervention were recruited after taking their informed consent. Comprehensive demographic, clinical presentations, radiological features, surgical operations performed, and their respective histopathological diagnosis were noted down on a standard proforma. The collected data was then tabulated and statistically analyzed.

Results: The benign breast conditions formed the bulk of surgically treated lesions, and the fibroadenomas formed the most commonly seen condition in young females. The malignant conditions were mostly seen in middle-aged and older females, and the invasive ductal carcinoma formed the most common pathological condition. The breast lump was the most common presentation, followed by breast pain, nipple discharge, and ulcers. The pathological examination showed a strong relationship with the clinical and imaging diagnoses.

Conclusion: Breast pathologies of benign nature continue to form the majority of surgical breast pathologies; nevertheless, quite a number of patients have cancerous pathology which calls for urgent diagnosis and treatment. Clinical assessment combined with radiographic and histopathological findings allows one to diagnose pathology and plan an adequate surgery. Regular breast self-awareness programs and timely diagnostics may help improve the health state of the patients.

Keywords: Breast Diseases, Breast Lump, Fibroadenoma, Breast Carcinoma, Histopathology, Surgical Management, Tertiary Hospital.

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Introduction

Breast disease refers to a wide array of pathological disorders including developmental anomalies, inflammation, benign proliferation and malignant neoplasm [1]. They form some of the most common reasons for patients to seek surgical advice and account for significant health care utilization across the world. Breast diseases affect primarily women but there are some male breast pathologies like gynecomastia and breast carcinoma that require proper evaluation and management.

Amongst the various breast diseases, the benign types are more common and they include

fibroadenoma, fibrocystic change, breast abscess, duct ectasia, galactocele, phyllodes tumor and intraductal papilloma [2]. These are commonly found amongst young women and are manifested in the form of lump, pain and nipple discharge in the affected part of the breast. Although the prognosis of most benign lesions is good, they require detailed examination to differentiate them from malignant lesions and to determine whether they require surgery or not [3].

Breast carcinoma is the most common form of malignancy amongst women and forms the leading

cause of cancer death in this sex [4]. Incidence of breast cancer has steadily been on rise in both developed and developing countries due to changes in reproductive behavior, lifestyle factors, increased life expectancy and better diagnostic methods [5]. Delay in presentation and lack of awareness about breast cancer in addition to socio-economic constraints and insufficient screening programs often result in advanced stage disease at the time of presentation especially in resource poor settings [6].

Diagnostic work up of breast diseases involves the use of clinical examination along with radiological investigations and histopathological findings which are collectively known as triple assessment method [7]. Clinical examination gives vital information regarding the nature of lesion and ultrasonography and mammography help in radiological assessment. Fine needle aspiration cytology, core needle biopsy and histopathological examination provide the definite diagnosis and help in determining the management [8].

The mode of surgical management depends upon the pathology involved and can include excision biopsy, lumpectomy, incision and drainage, modified radical mastectomy, breast conserving surgery and other forms of treatment.

Histopathological examination forms the gold standard for the confirmation of breast lesions and provides crucial information about the nature of tumour, its grade, margins, presence of lymphovascular invasion and receptors in case of malignant tumors [9].

The knowledge of the clinicopathological profile of breast diseases at different centers is helpful in knowing the pattern of disease, operating practices and patient management [10]. Therefore, the present study was conducted to examine the clinicopathological profile of breast diseases treated surgically in a tertiary care hospital and the demographic profile, presentation, surgical management and histopathological findings were evaluated.

Materials and Methods

This study was done with the aim of studying the spectrum of the breast diseases that undergo surgery at a tertiary care hospital. Patients who came with different types of benign and malignant breast diseases, which needed surgical treatment, were clinically examined through radiological investigations, surgical and histopathological examinations. Demographic and clinical information on the patients was obtained by means of a case record form, and the results were analyzed for the patterns of the diseases and the surgical procedure used.

Study Design: This current research was a hospital based observational and descriptive study designed to assess the clinicopathological profile of the diseases of the breast that were surgically managed.

Study Setting: This study was carried out at the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India.

Study Duration: The study was conducted over a period of one year.

Study Population: The subjects were those patients who came to the Department of General Surgery of the study hospital with breast-related problems and who were treated surgically during the study period.

Sample Size: A total number of 120 patients who met the inclusion criteria were enrolled into the study employing a consecutive sampling method.

Inclusion Criteria

- Patients of both sexes with breast diseases needing surgical treatment.
- Patients aged 18 years and older.
- Patients who gave their written informed consent to take part in the study and undergo surgical procedures.
- Patients having complete medical, radiographic, surgical and histopathological data.

Exclusion Criteria

- Patients managed non-surgically.
- Recurrent cases of breast disease having had a breast surgery somewhere else before.
- Patients with incomplete medical data or unavailable histopathological reports.
- Patients who refused to be involved in the study.

Data Collection: Informed consent was taken and relevant demographic and clinical data were recorded using a pre-designed structured case record form.

Data pertaining to the patient's age, sex, presenting complaints, duration of symptoms, laterality of lesion, any risk factors present, family history, and physical examination findings were collected. Appropriate diagnostic tests were done for all the patients; routine blood tests and imaging such as ultrasonography or mammography were performed wherever applicable. Fine-needle aspiration cytology (FNAC) or core needle biopsy were done in certain cases prior to surgery based on the clinical assessment. Surgical intervention was carried out depending on the type of breast disease. Histopathology of the surgical specimen was done by the Department of Pathology, which was the confirmatory diagnosis.

Study Variables: The variables analyzed include:

- Age and gender distributions.
- Presentation and presenting complaints.
- Location and laterality of breast masses.
- The clinical diagnoses made.
- The radiological findings.
- The type of surgery carried out.
- Histopathology diagnoses.
- Benign and malignant breast diseases distributions.
- Comparison between the clinical and histopathology.

Outcome Measures: The main objective of the research was the clinicopathological profile of breast disease conditions treated with surgical therapy. Other objectives were the distribution of benign versus malignant cases, the pattern of clinical presentation, operative procedure, and the comparison of clinical diagnosis with histopathological results.

Statistical Analysis: Data analysis was carried out by entering the collected data into Microsoft Excel and analyzing the data using statistical software. For continuous variables, the values were expressed in

terms of mean $\pm$ SD, while for categorical variables, the results were presented in terms of frequencies and percentages. Tables and graphs were used for presenting the results of this study whenever necessary.

Results

The subjects for this study were 120 patients who suffered from breast disease and had undergone surgical treatment within one year period. The demography, clinical features, surgical procedures carried out and the pathologic diagnosis of those patients were reviewed for assessing the clinicopathological profile of the breast diseases managed by surgery at the tertiary care center.

Demographic Characteristics of the Study Population:

The majority of the patients were those aged between 21-40 years, which accounted for over half of the study subjects. Females made up the majority of the patients, whereas the males formed a small percentage of the patient population, with gynecomastia being their major problem. The average age of the study subjects was 41.8 ± 13.6 years.

Table 1: Age and Gender Distribution of the Study Population (N = 120)

Age Group (Years)	Male n (%)	Female n (%)	Total n (%)
≤ 20	0	12	12 (10.0)
21-30	2	34	36 (30.0)
31-40	2	30	32 (26.7)
41-50	1	18	19 (15.8)
51-60	1	13	14 (11.7)
> 60	0	7	7 (5.8)
Total	6 (5.0)	114 (95.0)	120 (100)

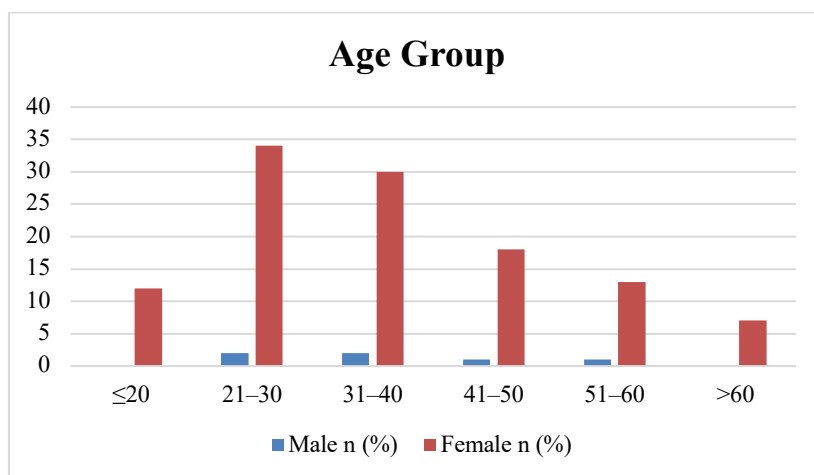


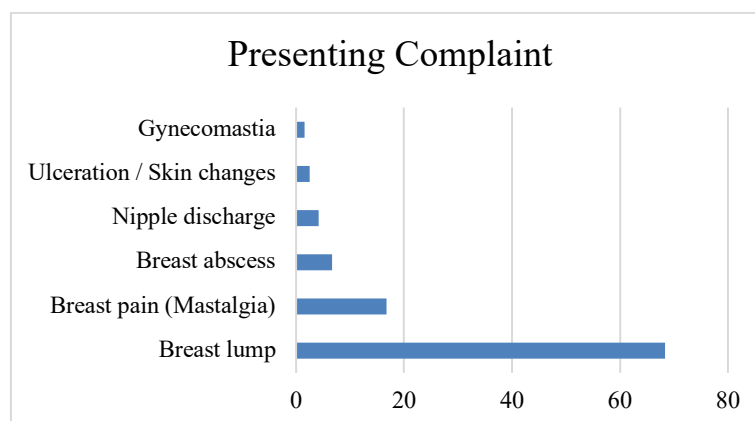
Figure 1: Graphical Representation of Age and Gender Distribution of the Study Population (N = 120)

Clinical Presentation: Breast lump constituted the most frequent complaint followed by breast pain. A small number of patients had nipple discharge,

breast abscess, ulcers, and skin lesions indicating that the cancer had advanced.

Table 2: Clinical Presentation of Patients

Presenting Complaint	Number (n)	Percentage (%)
Breast lump	82	68.3
Breast pain (Mastalgia)	20	16.7
Breast abscess	8	6.7
Nipple discharge	5	4.2
Ulceration / Skin changes	3	2.5
Gynecomastia	2	1.6
Total	120	100

**Figure 2: Graphical Representation of Clinical Presentation of Patients**

Breast lump continued to be the most common presentation for both benign and malignant breast disorders, stressing the need for early clinical and pathological confirmation.

Distribution of Surgical Procedures: The selection of surgery was based on the results of

clinical assessment, imaging studies, and pathology. Excisional biopsy or lumpectomy was the most frequently done operation for benign disease, while modified radical mastectomy was the surgical operation for malignant tumors of the breast.

Table 3: Surgical Procedures Performed

Surgical Procedure	Number (n)	Percentage (%)
Lumpectomy / Excision biopsy	52	43.3
Modified Radical Mastectomy	31	25.8
Incision and Drainage	8	6.7
Simple Mastectomy	9	7.5
Wide Local Excision	12	10.0
Subcutaneous Mastectomy (Gynecomastia)	2	1.7
Other Procedures	6	5.0
Total	120	100

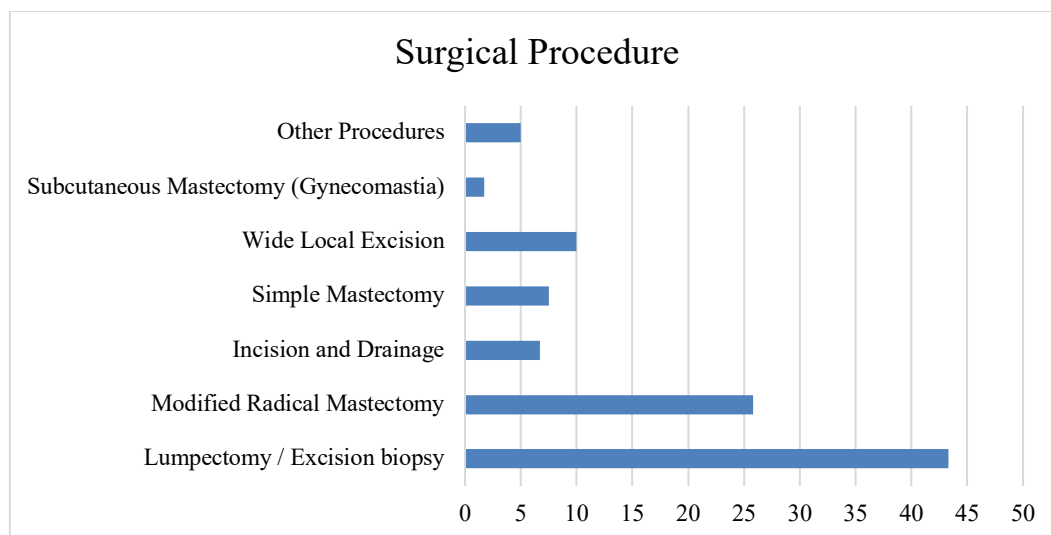


Figure 3: Graphical Representation of Surgical Procedures Performed

Histopathological Diagnosis: Histopathological findings revealed that benign lesions formed the majority of lesions among those that were treated

surgically. The most common benign lesion was fibroadenoma while the most common malignant lesion was invasive ductal carcinoma.

Table 4: Histopathological Diagnosis

Histopathological Diagnosis	Number (n)	Percentage (%)
Fibroadenoma	42	35.0
Fibrocystic Disease	18	15.0
Invasive Ductal Carcinoma	30	25.0
Breast Abscess	8	6.7
Phyllodes Tumour	6	5.0
Duct Ectasia	5	4.2
Intraductal Papilloma	4	3.3
Gynecomastia	2	1.7
Others	5	4.1
Total	120	100

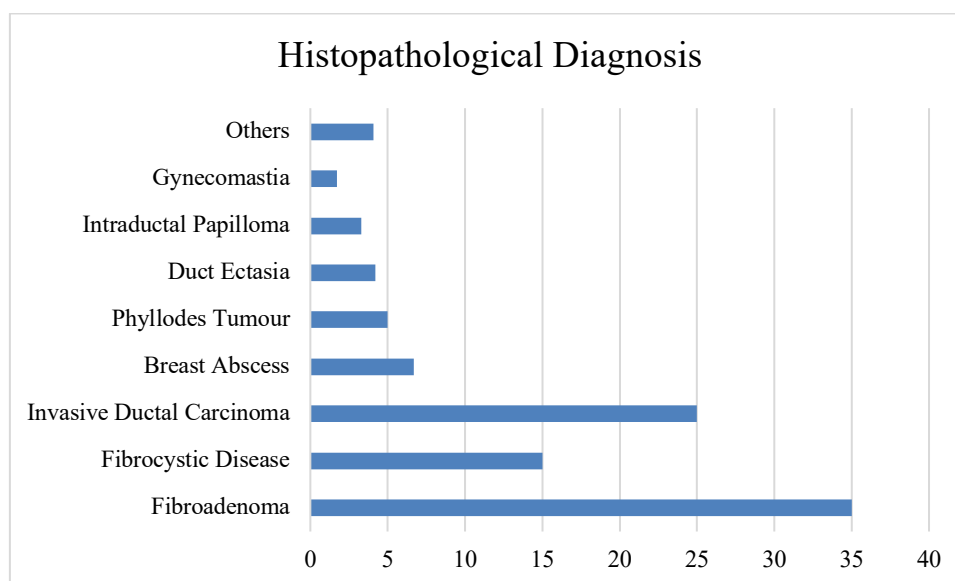


Figure 4: Graphical Representation of Histopathological Diagnosis

In total, benign breast disorders contributed to 70 cases (58.3%), whereas 50 (41.7%) were malignant breast disorders.

Clinicopathological Correlation: Clinical diagnosis correlated highly with histopathological analysis. The latter was able to confirm diagnosis in

most patients, and it still remains the gold standard for accurate diagnosis.

Table 5: Correlation Between Clinical Diagnosis and Histopathological Findings

Clinical Diagnosis	Histopathological Confirmation	Confirmed Cases n (%)
Fibroadenoma	Fibroadenoma	40 (95.2)
Fibrocystic Disease	Fibrocystic Disease	16 (88.9)
Carcinoma Breast	Invasive Ductal Carcinoma	29 (96.7)
Breast Abscess	Acute Suppurative Inflammation	8 (100)
Phyllodes Tumour	Phyllodes Tumour	5 (83.3)
Duct Ectasia	Duct Ectasia	4 (80.0)
Overall Diagnostic Concordance	—	102 (85.0)

Clinical pathologic correlation showed that there was 85% agreement between the diagnosis reached clinically and that obtained from histopathology. The role of histopathology in diagnosing breast lesions and determining the mode of surgery could not be overemphasized.

Discussion

Breast diseases consist of a number of benign and malignant conditions. The former ones include fibroadenomas, duct ectasia, gynecomastia, etc., and the latter ones comprise malignant tumours such as invasive ductal carcinoma (Ramji, 2019) [11]. It is worth mentioning that breast diseases belong to the most common causes of consultations in a hospital. The current paper presents the results of the study conducted to evaluate the clinicopathological profile of breast diseases surgically managed in a tertiary care hospital during one year.

Most of the patients of the present study are female (95.0%), whereas male patients constitute a small proportion. Such data are in line with the generally acknowledged epidemiology of breast diseases, which are predominantly diagnosed in women owing to their hormonal and reproductive factors (Samal et al., 2019) [12]. The male patients' diseases are rare and consist predominantly of cases of gynecomastia requiring surgery.

Patients of the age group 21-40 constitute the largest percentage. This is explained by the predominance of benign breast lesions in young women such as fibroadenoma (Sharma et al., 2018) [13]. Malignant diseases are mostly diagnosed in middle-aged and elderly patients, which demonstrates age dependence of the incidence of breast carcinoma. Thus, the obtained data correspond to the general trend described in literature.

Breast lump is the most common symptom; then come breast pain, breast abscess, nipple discharge, and ulcerative lesions. Presence of breast lump remains the most significant clinical presentation, which requires detailed examination, since it can either signal about benign lesion or malignancy. Relatively low incidence of nipple discharge and ulcerative lesions can indicate that many patients

consulted the doctor when the disease had not developed fully.

Lumpectomy and excision biopsy are the most common operations performed in the studied sample (Singh et al., 2018) [14]. Modified radical mastectomy is used mostly for malignant diseases, thus remaining the major operation in breast carcinoma management. The selection of surgical procedures in the current study depends on clinical and radiological characteristics of the disease and histopathological diagnosis.

Benign diseases of breasts constitute the major part of surgically managed patients. Fibroadenoma is the most frequent benign lesion, while invasive ductal carcinoma is the most frequent malignant tumor. The obtained results are consistent with the clinicopathological profile of breast diseases known from the tertiary care centers. Histopathological examination not only confirms the diagnosis but also gives necessary information for treatment and prognosis.

Clinicopathological correlation shows good concordance between initial clinical diagnosis and final histopathological diagnosis. However, there are still some discrepancies, which indicate that clinical examination does not always allow to determine whether the lesion is benign or malignant. Thus, the combination of all the methods mentioned above allows conducting accurate diagnosis and making proper decisions about surgery.

The results of the current study indicate the significance of early detection and prompt treatment of breast diseases. Increased public awareness concerning breast health, regular clinical breast examination, prompt radiological examination, and tissue diagnostics will help to make earlier interventions. Improved diagnostic services of the tertiary care hospitals will allow to improve the care of patients and decrease the morbidity.

The current study has several limitations. It is a single centre hospital-based study and the obtained results may not be generalized to the general population (Yadav et al., 2020) [15]. Also, the sample includes only surgically managed patients,

while patients receiving conservative treatment were excluded. In addition, the long-term follow-up after surgery and survival rates are not covered by the current study.

Conclusion

This current study has shed light on the clinical and pathological spectrum of diseases of breast requiring surgery in a tertiary care center within a span of one year. Most cases were benign, with fibroadenoma being the most commonly seen benign disease, and invasive ductal carcinoma being the main type of malignancy. A breast lump was the most common presentation in the patients included in this study, which calls for early clinical diagnosis. It was found that a combination of clinical evaluation, radiological investigations, and histopathological examination is sufficient enough for a proper diagnosis and surgical management of these diseases. Histopathological examination will continue to be the mainstay for the diagnosis of breast lumps. Early diagnosis, early surgery, and increased knowledge about breast diseases can have beneficial effects on the patients' outcomes. The findings of the study will help the clinicians to understand the local pattern of breast diseases better, which will aid in formulating a proper diagnosis and treatment plan. Further multi-centric studies with larger number of participants are required to establish these findings.

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