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Histomorphological Study of Benign Breast Lesions

Preethi Soni

Assistant Professor, Department of Pathology, Shri Shankaracharya Institute of Medical Sciences, Junwani Road, Bhilai, Durg, Chhattisgarh

Corresponding author: Preethi Soni
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Abstract

Benign breast lesions encompass a wide range of non-cancerous conditions that can mimic malignancies both clinically and radiologically. These lesions vary in histopathological patterns, and their accurate diagnosis is essential for appropriate management. This study aims to evaluate the histomorphological spectrum of benign breast lesions in a tertiary care hospital. A cross-sectional analysis was conducted on 200 cases of benign breast lesions diagnosed through histopathological examination. The most common benign lesion was fibroadenoma (60%), followed by fibrocystic changes (20%) and inflammatory lesions (10%). Other less frequent lesions included intraductal papilloma, phyllodes tumor, and duct ectasia. The study highlights the importance of histopathological evaluation in differentiating benign from malignant breast lesions and guiding clinical decisions.

Keywords: Benign breast lesions, Fibroadenoma, Fibrocystic changes, Histopathology, Phyllodes tumor

Introduction

Breast lesions are a significant health concern for women, and while breast cancer remains a leading cause of mortality, benign breast diseases are more common and account for a substantial number of breast-related complaints (1). Benign breast lesions include a spectrum of non-malignant conditions, ranging from developmental abnormalities and inflammatory lesions to hyperplastic and fibroepithelial tumors (2).

The most frequently encountered benign breast lesion is fibroadenoma, which commonly affects young women and presents as a firm, mobile, and painless mass (3). Other common benign lesions include fibrocystic changes, mastitis, intraductal papillomas, and phyllodes tumors. These conditions, though non-cancerous, often pose diagnostic challenges due to overlapping clinical and radiological features with malignant breast diseases (4).

Histopathological evaluation remains the gold standard for diagnosing benign breast lesions. Proper identification of these lesions is crucial to avoid unnecessary surgical interventions and to provide appropriate management (5). Inflammatory breast lesions such as mastitis and abscesses require differentiation from inflammatory breast carcinoma, while proliferative lesions with atypia necessitate close follow-up due to their potential risk of malignancy (6).

This study aims to analyze the histomorphological spectrum of benign breast lesions in a tertiary care hospital to understand their frequency, histological features, and clinical significance.

Aim

To evaluate the histomorphological spectrum of benign breast lesions and their clinical significance.

Objectives

1. To determine the prevalence of various benign breast lesions based on histopathological examination.

2. To analyze the histomorphological patterns of these lesions and their clinical implications.

Materials and Methods

This cross-sectional study was conducted in the pathology department of a tertiary care hospital. A total of 200 histopathologically confirmed cases of benign breast lesions were included.

Inclusion criteria:

- All biopsy-confirmed benign breast lesions.
- Patients of all age groups presenting with breast lumps.

Exclusion criteria:

- Malignant breast lesions.
- Inadequate or inconclusive biopsy samples.

Hematoxylin and eosin (H&E) stained sections were reviewed to classify the lesions. Special stains and immunohistochemistry were used where necessary for confirmation. The frequency and histomorphological patterns of each lesion were analyzed.

Results

Table 1: Distribution of Benign Breast Lesions

Lesion Type	Number of Cases	Percentage (%)
Fibroadenoma	120	60.0
Fibrocystic Changes	40	20.0
Mastitis and Abscesses	20	10.0
Phyllodes Tumor (Benign)	10	5.0
Intraductal Papilloma	5	2.5
Duct Ectasia	5	2.5

Fibroadenoma was the most common lesion (60%), followed by fibrocystic changes (20%) and inflammatory conditions such as mastitis and abscesses (10%).

Table 2: Histomorphological Features of Benign Breast Lesions

Lesion Type	Histopathological Features
Fibroadenoma	Well-circumscribed, proliferating ductal epithelium with stromal expansion.
Fibrocystic Changes	Cyst formation, fibrosis, apocrine metaplasia.
Mastitis and Abscesses	Dense inflammatory infiltrates, necrotic debris.
Phyllodes Tumor (Benign)	Leaf-like stromal proliferation, minimal atypia.
Intraductal Papilloma	Papillary growth with fibrovascular core.
Duct Ectasia	Dilated ducts, periductal inflammation.

Discussion

Benign breast lesions form a major component of breast pathology and are more frequent than malignant counterparts. Among them, fibroadenoma is the most common, accounting for 60% of cases in this study, which is consistent with global data (7,8). These lesions are characterized histologically by a well-defined proliferation of epithelial and stromal components. Most fibroadenomas are treated conservatively, but surgical excision is considered in cases of large or symptomatic lesions (9).

Fibrocystic changes were the second most common lesion, occurring in 20% of cases. These changes include cyst formation, fibrosis, and apocrine metaplasia, which can sometimes mimic

malignancy on imaging. Proper histopathological assessment is essential to distinguish these lesions from atypical proliferative disorders that have an increased risk of cancer (10,11).

Inflammatory breast lesions, including mastitis and breast abscesses, constituted 10% of cases. These lesions are commonly associated with lactation but can also occur due to bacterial infections or underlying immunosuppressive conditions (12). Differentiating mastitis from inflammatory breast carcinoma is crucial, as both can present with similar clinical symptoms (13).

Benign phyllodes tumors were seen in 5% of cases. These lesions, although generally benign, have a potential for recurrence, and histological features such as stromal cellularity and mitotic activity must be evaluated for risk stratification (14).

Intraductal papilloma and duct ectasia were less common, each accounting for 2.5% of cases. Papillomas are important due to their potential for harboring atypia, requiring careful histopathological evaluation to exclude malignancy (15).

Overall, histopathological examination remains the cornerstone for diagnosing benign breast lesions, ensuring accurate differentiation from malignancies and guiding appropriate clinical management.

Conclusion

Benign breast lesions encompass a wide range of histopathological entities, with fibroadenoma being the most common in this study. Histopathological evaluation is essential for accurate diagnosis and management, helping to distinguish benign conditions from malignancies. A proper understanding of the histomorphological spectrum of these lesions can guide clinicians in providing optimal care and preventing unnecessary interventions.

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