Section: General Surgery

Original Research Article

LUMP IN BREAST -A RETROSPECTIVE STUDY

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Received *: 14/10/2024*
Received in revised form *: 05/12/2024*
Accepted *: 19/12/2024*

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DOI: 10.70034/ijmedph.2024.4.219

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (4); 1198-1202

ABSTRACT

Background: Breast lumps are a common clinical presentation, raising concerns about potential malignancy, particularly given the rising global incidence of breast cancer. Differentiating between benign and malignant breast lesions is critical for appropriate management and improved patient outcomes. This study aimed to analyze the clinicopathological characteristics of breast lumps, focusing on the prevalence of benign and malignant lesions and their correlation with patient demographics and clinical presentation.

Material and Methods: A total of 130 patients presenting with palpable breast lumps were included. Data were collected from medical records, including demographic details, clinical features, imaging, and histopathological diagnoses. Statistical analysis was performed using SPSS version 24.0, with chi-square tests and t-tests to assess associations between variables.

Results: Out of 130 patients, 65.4% had benign lesions, with fibroadenoma being the most common (42.3%). Malignant lesions were present in 34.6% of patients, with invasive ductal carcinoma accounting for 26.9%. Age was significantly associated with malignancy ($p = 0.002$), with patients over 50 years more likely to have malignant lesions. Larger lump size was also associated with malignancy ($p = 0.01$). Malignancy was more frequent in females than males ($p = 0.03$).

Conclusion: Most breast lumps in this study were benign, but a significant proportion were malignant, particularly in older patients and those with larger lumps. Early detection and thorough diagnostic evaluation are essential for improved prognosis.

Recommendations: Regular screening, particularly in older populations and for patients presenting with larger lumps, is recommended. Increased awareness of male breast cancer is also crucial for timely diagnosis.

Key Words: Breast Lump, Benign Lesions, Malignant Lesions, Fibroadenoma, Breast Cancer, Histopathology.

INTRODUCTION

Breast lumps are among the most common complaints in breast clinics worldwide, and they can cause significant anxiety in patients due to the potential for malignancy. Although many breast lumps are benign, the differentiation between benign and malignant lesions is crucial for appropriate management and early intervention in cases of breast cancer. Breast cancer remains the most common cancer in women globally, accounting for 24.5% of all new cancer cases in women in 2020.[1] Early detection of malignant breast lesions significantly improves prognosis and reduces mortality.[2] Thus, understanding the clinicopathological characteristics of breast lumps is essential for guiding diagnosis and treatment strategies.

Palpable breast lumps can arise from a wide range of causes, including benign conditions such as fibroadenomas and fibrocystic changes, as well as malignant diseases such as invasive ductal carcinoma.[3] Fibroadenoma is the most common benign breast tumor, particularly in younger women, while invasive ductal carcinoma is the most frequent type of breast cancer. The clinical evaluation of a

breast lump typically involves a thorough history, physical examination, and diagnostic imaging, such as ultrasound or mammography. Fine-needle aspiration cytology (FNAC) or core biopsy is often performed to obtain a definitive diagnosis.[4]

Age is a well-established risk factor for breast cancer, with the incidence increasing significantly after the age of 50.[5] In addition to age, factors such as family history, hormonal exposure, and lifestyle contribute to the risk of developing breast cancer. Furthermore, while breast cancer predominantly affects women, male breast cancer, although rare, accounts for approximately 1% of all breast cancers and can present as a palpable lump, necessitating similar diagnostic approaches.[6]

The role of histopathological examination is critical in determining the nature of a breast lump and in differentiating between benign and malignant conditions. With advances in diagnostic tools, the accuracy of detecting and characterizing breast lumps has improved, yet clinical vigilance remains key to preventing delayed diagnoses of breast cancer.[7]

This study aimed to analyze the clinicopathological characteristics of breast lumps, focusing on the prevalence of benign and malignant lesions and their correlation with patient demographics and clinical presentation.

MATERIALS AND METHODS

Study Design: A retrospective clinicopathological analysis.

Study Setting: This study was conducted over a period of two years at L N Medical College and J K Hospital, Bhopal.

Participants: The study included 130 participants who presented with breast lumps during the specified period.

Inclusion Criteria: Patients of any age or gender presenting with palpable breast lumps who consented to clinical examination, imaging, and biopsy were included in the study.

Exclusion Criteria: Patients with recurrent breast lumps, those undergoing previous treatments for breast malignancy, and individuals who refused consent were excluded from the study.

Bias: To minimize bias, consecutive sampling was employed, and all patients meeting the inclusion criteria during the study period were included without subjective selection. Furthermore, all clinical assessments, imaging, and pathological analyses were standardized to ensure uniformity.

Data Collection: Data were collected retrospectively from patient medical records, including demographic information, clinical presentations, imaging results, and histopathological findings. Physical examinations and imaging such as mammograms or ultrasounds were used to assess the breast lumps, followed by fine-needle aspiration cytology (FNAC) or core biopsy for histopathological diagnosis.

Procedure: All patients underwent a thorough clinical evaluation followed by appropriate imaging techniques. For cases requiring further evaluation, FNAC or core biopsies were performed. Histopathological analysis was carried out to determine the nature of the breast lump, whether benign or malignant.

Statistical Analysis: The collected data were entered and analyzed using SPSS version 24.0. Descriptive statistics such as frequencies, means, and percentages were calculated for demographic variables and clinical findings. Chi-square tests and independent sample t-tests were used to analyze associations between clinical variables and histopathological diagnoses, with a significance level set at $p < 0.05$.

RESULTS

This study included 130 patients who presented with breast lumps over the two-year period. The mean age of the patients was 42.3 years, ranging from 18 to 75 years. Among the participants, 110 (84.6%) were female, and 20 (15.4%) were male. The following sections summarize the clinical presentation, histopathological findings, and statistical analyses. [Table 1]

The most common symptom was a palpable lump, which was present in all patients (100%). Other associated symptoms included pain in 35 patients (26.9%), nipple discharge in 10 patients (7.7%), and skin changes (such as dimpling or retraction) in 5 patients (3.8%). The majority of the patients (53.8%) had lumps measuring between 2 to 5 cm, while 30.8% had lumps smaller than 2 cm. Only 15.4% of patients presented with lumps larger than 5 cm. Out of 130 cases, 85 (65.4%) were diagnosed with benign lesions, while 45 (34.6%) were diagnosed with malignant lesions. The most common benign lesion was fibroadenoma, found in 55 cases (42.3%), followed by fibrocystic disease in 20 cases (15.4%). Among the malignant cases, invasive ductal carcinoma was the most common, accounting for 35 cases (26.9%), followed by invasive lobular carcinoma in 10 cases (7.7%). (53.8%) had lumps measuring between 2 to 5 cm, while 30.8% had lumps smaller than 2 cm. Only 15.4% of patients presented with lumps larger than 5 cm.

Out of 130 cases, 85 (65.4%) were diagnosed with benign lesions, while 45 (34.6%) were diagnosed with malignant lesions. The most common benign lesion was fibroadenoma, found in 55 cases (42.3%), followed by fibrocystic disease in 20 cases (15.4%). Among the malignant cases, invasive ductal carcinoma was the most common, accounting for 35 cases (26.9%), followed by invasive lobular carcinoma in 10 cases (7.7%). [Table 2]

The association between age and histopathological findings was analyzed using a Chi-square test, revealing a significant association (p = 0.002). Patients under 50 years of age were more likely to have benign lesions, whereas those over 50 years had a higher likelihood of malignant diagnoses. [Table 3]

Additionally, the size of the lump was significantly associated with the likelihood of malignancy. Lumps larger than 5 cm were more likely to be malignant (p = 0.01). [Table 4]

Among the 20 male patients, 15 were diagnosed with gynecomastia, and only 5 were found to have malignant lesions (all invasive ductal carcinoma). In contrast, 40 of the 110 female patients had malignant diagnoses, making malignancy significantly more common in females (p = 0.03). [Table 5]

Table 1: Demographic and Clinical Characteristics of the Participants

Characteristic	Frequency (n = 130)	Percentage (%)
Gender		
Female	110	84.6
Male	20	15.4
Age (years)		
< 30	25	19.2
30-50	75	57.7
> 50	30	23.1
Side of Lump		
Left Breast	65	50.0
Right Breast	60	46.2
Bilateral	5	3.8
Lump Size		
< 2 cm	40	30.8
2-5 cm	70	53.8
> 5 cm	20	15.4

Table 2: Histopathological Distribution of Breast Lump Diagnoses

Diagnosis	Frequency (n = 130)	Percentage (%)
Benign Lesions		
Fibroadenoma	55	42.3
Fibrocystic Disease	20	15.4
Phyllodes Tumor	5	3.8
Malignant Lesions		
Invasive Ductal Carcinoma	35	26.9
Invasive Lobular Carcinoma	10	7.7

Table 3: Age and Histopathological Findings

Age Group (Years)	Benign Lesions (n = 85)	Malignant Lesions (n = 45)	p-value
< 30	22	3	0.002
30-50	50	25	
> 50	13	17	

Table 4: Lump Size and Histopathological Findings

Lump Size	Benign Lesions (n = 85)	Malignant Lesions (n = 45)	p-value
< 2 cm	35	5	0.01
2-5 cm	45	25	
> 5 cm	5	15	

Table 5: Gender and Histopathological Findings

Gender	Benign Lesions (n = 85)	Malignant Lesions (n = 45)	p-value
Female (n = 110)	70	40	0.03
Male (n = 20)	15	5	

DISCUSSION

The study included 130 patients with breast lumps, comprising 110 females (84.6%) and 20 males (15.4%), with a mean age of 42.3 years. The majority of patients (57.7%) were between 30 and 50 years old. Breast lumps were predominantly unilateral, with 50% occurring in the left breast, 46.2% in the right breast, and only 3.8% being bilateral. These demographic findings indicate that breast lumps are more common in females and in the middle-aged population.

In terms of clinical presentation, all patients had palpable lumps, and a significant portion (26.9%) experienced associated pain. Less frequent symptoms included nipple discharge and skin changes. Lump size varied, with the majority (53.8%) being between 2-5 cm, followed by smaller lumps (< 2 cm) in 30.8% of cases. Larger lumps (> 5 cm) were relatively uncommon, seen in 15.4% of patients. The larger lump size was significantly

associated with malignancy (p = 0.01), suggesting that lumps exceeding 5 cm warrant further investigation due to their higher likelihood of being malignant.

Histopathologically, 65.4% of the lumps were benign, with fibroadenoma being the most common benign lesion (42.3%). Malignant lesions accounted for 34.6% of cases, with invasive ductal carcinoma being the most prevalent type of cancer (26.9%). The presence of a substantial number ofbenign lesions emphasizes the importance of histopathological diagnosis to prevent unnecessary treatment for benign conditions. However, the considerable proportion of malignant cases highlights the need for early detection and treatment, particularly in patients with suspicious features.

Age was significantly associated with histopathological outcomes (p = 0.002). Younger patients (< 50 years) were more likely to have benign lesions, while older patients (> 50 years) had a higher incidence of malignant diagnoses. This correlation suggests that age is an important risk factor for breast cancer, reinforcing the need for vigilant screening in older patients presenting with breast lumps.

Gender analysis revealed a statistically significant higher incidence of malignancy in females (p = 0.03), with 40 female patients (36.4%) diagnosed with malignant lesions compared to only 5 male patients (25%). While breast cancer is more common in females, this result underscores the need for awareness of male breast cancer, especially when presenting with lumps, as gynecomastia may mask the presence of malignancy in some cases.

Overall, the results of this study emphasize the importance of clinical and pathological evaluation of breast lumps. While benign conditions are common, the significant number of malignant cases, especially in older patients and those with larger lumps, highlights the importance of early detection and targeted intervention.

A cytological evaluation of breast lumps was conducted in pre-menopausal females. In this study, FNAC was employed to assess 200 cases of palpable breast lumps. The results revealed that the most common benign lesion was fibroadenoma, accounting for a significant portion of benign cases. Among the malignant lesions, medullary carcinoma was the predominant type identified in two cases, emphasizing the usefulness of FNAC in rapid diagnosis and early management of breast lumps.[8]

A prospective study to assessed the value of the triple assessment (clinical examination, imaging, and FNAC) in breast lump diagnosis. Out of 150 patients, 81.3% presented with painless lumps, and 8% had nipple discharge. The study found that ultrasound, especially when combined with FNAC, provided high diagnostic accuracy, reducing the need for surgical exploration in benign cases and minimizing treatment delays in malignant cases.[9]

A study explored the correlation between clinical, radiological, and pathological findings in breast lump diagnosis. In their study, clinical examination had a sensitivity of 80% and specificity of 100% in detecting malignant lumps. Mammosonography and FNAC also showed high sensitivity and accuracy, reinforcing the efficacy of combining these methods for more reliable breast cancer diagnosis.[10]

Research analyzed the frequency of breast lesions among Iraqi women using FNAC. Out of 140 cases, 72.1% were neoplastic, with 73.3% of these being benign and 26.7% malignant. Fibroadenoma was the most common benign lesion, while malignant lesions comprised invasive ductal carcinoma in 12.9% of cases. The study highlighted FNAC's efficiency as a cost-effective, first-line diagnostic tool.[11]

A study compared FNAC and core needle biopsy (CNB) in diagnosing palpable breast lumps. In their study of 42 patients, CNB showed higher diagnostic accuracy (87.8%) compared to FNAC (75%). However, combining both FNAC and CNB yielded the highest sensitivity and specificity, making it a robust approach for preoperative breast cancer diagnosis.[12]

CONCLUSION

In this study, the majority of breast lumps were benign, with fibroadenoma being the most common diagnosis. Malignant lesions were significantly associated with older age, larger lump size, and female gender. Statistical analysis revealed significant associations between age, lump size, gender, and the likelihood of malignancy, with p-values indicating strong correlations.

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