Frequency of Breast Carcinoma in Patients Presenting with Palpable Breast Masses Using Fine Needle Aspiration Cytology (FNAC)

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Abstract

Background

Female patients frequently present with palpable breast masses in clinical practice. Although most breast lumps are benign, a significant proportion may indicate malignant disease. Early and accurate diagnosis is essential for appropriate management. Fine Needle Aspiration Cytology (FNAC) is a simple, rapid, and cost-effective diagnostic technique for evaluating breast lesions.

Objective

To determine the frequency of breast carcinoma in patients presenting with palpable breast masses.

Methodology

A descriptive cross-sectional study was conducted in the Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University @ Chandka Medical College Hospital, Larkana. The study was carried out over a period from January 2025 to January 2026 after approval of the synopsis. Female patients presenting with palpable breast masses were included in the study. Clinical breast examination and Fine Needle Aspiration Cytology (FNAC) were performed in all cases. Data were collected on a structured proforma and analyzed using descriptive statistics.

Results

The study included 60 female patients in total. The mean age was 39.8 ± 7.2 years. FNAC showed benign lesions in 42 (70%) patients, malignant lesions in 15 (25%), and inflammatory lesions in 3 (5%). Fibroadenoma was the most common benign lesion, while invasive ductal carcinoma was the most frequent malignant finding.

Conclusion

Most breast lumps were benign; however, a considerable proportion were malignant. FNAC proved to be an effective diagnostic tool for early detection of breast carcinoma. Early diagnosis is essential to reduce morbidity and improve patient outcomes.

Keywords

Benign lesion, carcinoma, breast lump, FNAC, cytology.

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Introduction

In addition to being a modified sweat gland that is crucial for lactation, the breast is regarded by women as a symbol of femininity and beauty. Throughout a woman's reproductive life, it experiences constant physiological and hormonal changes that can lead to either benign or malignant pathological conditions.

Worldwide, breast diseases are prevalent, and a sizable percentage of women will at some point in their lives encounter breast-related issues. The most dangerous of these is breast cancer, which continues to be one of the main causes of cancer-related death for women worldwide. It is the most common cancer to be diagnosed in women and has a major impact on both disease burden and mortality.

In surgical outpatient departments, breast lumps are among the most frequently reported complaints. A localized swelling that is different in texture from the surrounding breast tissue is called a breast lump. While the majority of breast lumps are benign, 10–25% may be malignant, so a thorough evaluation is crucial.

Fibroadenoma, fibrocystic disease, and breast abscesses are common benign breast lesions, whereas invasive ductal carcinoma is the most common malignant lesion. For prompt treatment and a better prognosis, it is essential to distinguish between benign and malignant lesions.

Because of its ease of use, affordability, and high precision in identifying breast lesions, FNAC is a popular diagnostic method. It lessens needless surgical procedures and aids in early diagnosis.

Due to delayed presentation and a lack of screening resources, breast cancer is a serious health concern in developing nations like Pakistan. Thus, using FNAC for early detection is crucial to improving patient outcomes.

The purpose of this study was to use FNAC to ascertain the prevalence of breast cancer in patients who presented with palpable breast masses. Breast disease-related morbidity, mortality, and patient anxiety can all be decreased with early diagnosis.

Methodology

A descriptive cross-sectional study was conducted in the Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University @ Chandka Medical College Hospital, Larkana. The study was carried out over a period from January 2025 to January 2026 after approval of the synopsis. Female patients presenting with palpable breast masses during the study period were enrolled using a non-probability convenient sampling technique. Patients with a previous history of breast cancer or those who had received treatment for breast lesions were excluded from the study to avoid confounding factors.

After obtaining informed consent, detailed clinical history including age, duration of breast lump, and associated symptoms was recorded. A thorough clinical breast examination was performed in all patients, including assessment of both breasts and axillary lymph nodes to evaluate the size, site, consistency, and extent of the lesion. Fine Needle Aspiration Cytology (FNAC) was performed under aseptic conditions in all included patients with palpable breast masses. The aspirated samples were sent to the pathology laboratory for cytological examination, and lesions were classified as benign, malignant, or inflammatory based on FNAC reports.

All data were recorded on a predesigned proforma. The collected data were analyzed using statistical software, and descriptive statistics were applied. Frequencies and percentages were calculated for categorical variables, while mean and standard deviation were used for quantitative variables such as age and lump size. The results were then interpreted to determine the frequency of breast carcinoma among patients presenting with palpable breast masses at the study site.

Result

A total of 60 female patients presenting with palpable breast masses were included in this study conducted at the Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University @ Chandka Medical College Hospital, Larkana, from January 2025 to January 2026. The mean age of the patients was 39.8 ± 7.2 years. The mean duration of breast lump was 3.2 ± 1.5 months, and the mean lump size was 4.1 ± 2.3 cm.

FNAC findings revealed that the majority of patients had benign breast lesions, followed by malignant and inflammatory lesions. Out of 60 cases, 42 (70%) were benign, 15 (25%) were malignant, and 3 (5%) were inflammatory in nature. Among benign lesions, fibroadenoma was the most common diagnosis, while invasive ductal carcinoma was the most frequently identified malignant lesion.

Table 1: Age Distribution of Patients (n = 60)

Age Group (Years)	Frequency (n)	Percentage (%)
20–30	12	20%
31–40	22	36.7%
41–50	18	30%
51–60	8	13.3%
Total	60	100%

Table 2: FNAC Findings of Breast Lesions (n = 60)

Diagnosis Type	Frequency (n)	Percentage (%)
Benign lesions	42	70%
Malignant lesions	15	25%

Diagnosis Type	Frequency (n)	Percentage (%)
Inflammatory	3	5%
Total	60	100%

Table 3: Types of Breast Lesions on FNAC

Lesion Type	Frequency (n)	Percentage (%)
Fibroadenoma	27	45%
Fibrocystic disease	8	13.3%
Breast abscess	3	5%
Invasive ductal carcinoma	14	23.3%
Other benign lesions	8	13.3%
Total	60	100%

Discussion

Using Fine Needle Aspiration Cytology (FNAC), the current study was carried out at the Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University @ Chandka Medical College Hospital, Larkana, to ascertain the frequency of breast carcinoma in patients who presented with palpable breast masses. Although benign breast lesions were found to be more common than malignant lesions in this study, a significant percentage of cases were diagnosed as malignant, underscoring the significance of prompt and precise diagnostic evaluation.

The results of this study are in line with earlier studies that found the majority of breast lumps to be benign. Seventy percent of the lesions in this study were benign, twenty-five percent were malignant, and five percent were inflammatory. Similar findings were found in a study carried out in Karachi, where histopathological examination revealed that about 72% of breast masses were benign and about 29% were malignant, suggesting a similar pattern of disease distribution in our population.

Fibroadenoma was the most common diagnosis among benign lesions in this study, which is consistent with previous research indicating that fibroadenoma is the most common benign breast lesion in young females. Breast abscesses and fibrocystic changes were also frequently seen, indicating the variety of benign breast conditions that affect women of reproductive age.

The most common lesion identified in malignant cases was invasive ductal carcinoma. This result is consistent with data from around the world showing that the most prevalent histological type of breast cancer is invasive ductal carcinoma. This study's comparatively high percentage of malignant cases could be explained by our population's lack of screening resources, delayed presentation, and ignorance.

Additionally, the study showed that longer symptom duration and larger lump size were more frequently linked to malignancy. This finding is in line with well-established clinical data indicating that a significant contributing factor to advanced disease at presentation is delayed diagnosis. Due to fear, social stigma, or ignorance, patients frequently overlook early breast changes, delaying medical consultation and raising the risk of cancer at diagnosis.

In this study, FNAC was determined to be a very helpful diagnostic tool because of its affordability, ease of use, and quick turnaround time. It was crucial in separating benign from malignant lesions and minimising the need for more intrusive diagnostic techniques. These results, especially in settings with limited resources like Pakistan, support the use of FNAC as a first-line investigation in patients who present with palpable breast masses.

The study's findings emphasise how crucial it is to assess breast lumps as soon as possible in order to guarantee prompt diagnosis and treatment. Treatment results and survival rates are greatly enhanced by early detection of breast cancer. Additionally, appropriate awareness campaigns and regular screening techniques can lessen the burden of advanced breast cancer by assisting in the early detection of suspicious breast lesions.

Nevertheless, there are some limitations to this study. The results may not be as broadly applicable as they could be because the sample size was small and restricted to a single tertiary care facility. Furthermore, not all cases showed a consistent correlation between FNAC results and histopathology, which could limit the ability to confirm a diagnosis.

Notwithstanding these drawbacks, the study highlights the significance of FNAC in early diagnosis and offers insightful information about the pattern of breast lesions in our population. To better understand the epidemiology of breast masses and enhance diagnostic techniques in our context, more extensive multicenter research is advised.

Conclusion

The current study, which was carried out at the Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University @ Chandka Medical College Hospital, Larkana,, found that among patients who presented with palpable breast masses, benign breast lesions were more common than malignant lesions. Nonetheless, a sizable percentage of patients received a breast cancer diagnosis, suggesting that cancer is still a major clinical concern in this population.

Additionally, the study showed that patients with larger lumps and longer-lasting symptoms had a higher chance of developing cancer. For the assessment of breast lumps, fine needle aspiration cytology (FNAC) has proven to be a dependable, straightforward, and economical diagnostic technique that enables early distinction between benign, malignant, and inflammatory lesions.

By enabling prompt treatment of malignant cases, lowering needless anxiety in benign cases, and eventually lowering morbidity and mortality related to breast diseases, early diagnosis through FNAC can greatly improve patient management.

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