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RESEARCH ARTICLE
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FREQUENCY OF FIBROADENOMA IN PATIENTS PRESENTING WITH PALPABLE BREAST LUMP

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Abstract

Background: Breast cancer is a global health concern, with rising incidence in developing countries due to factors like increased life expectancy and Western lifestyle adoption, necessitating effective differentiation of benign and malignant breast lumps. Fibroadenoma, a common benign lesion, often affecting women aged 20 to 35, underscores the importance of early detection and management in breast health.

Objective: The main objective of study was to determine the frequency of fibroadenoma in patients presenting with breast lumps.

Methodology: The study, employing a descriptive cross-sectional design, transpired at the Outpatient Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) in Larkana, Pakistan, over a six-month period from October 25, 2019, to April 24, 2020, following approval of the synopsis. Rigorous observations and examinations were conducted, encompassing a detailed history of signs and symptoms. During surgical procedures, specimens were collected and sent to the laboratory for assessing the primary variable, fibroadenoma. Data collected were meticulously entered into the provided proforma, electronically utilized for research purposes.

Results: In this study, 151 patients were examined to assess fibroadenoma in those presenting with breast lumps. The mean age was 24.2±5.1 years, with a 95% confidence interval of 23.37 to 25.02. The mean weight was 68.5±8.4 kg (95% CI: 67.14 to 69.85), the mean height was 1.59±0.87 meters (95% CI: 1.45 to 1.72), and the mean body mass index was 26.8±5.7 kg/m2 (95% CI: 25.88 to 27.71). Surgical site distribution revealed 43.7% (n=66) on the right side and 56.3% (n=85) on the left side. Fibroadenoma was documented in 35.1% (n=53) of patients.

Conclusion: In conclusion, fibroadenoma emerged as a prevalent benign breast disorder in women with breast lumps. This highlights the need for proactive measures, such as the implementation of breast screening programs, to enhance early detection and management.

Keywords: Fibroadenoma, Breast Lumps, Ultrasound, Cancer, Breast Disorders

INTRODUCTION

The breast, a symbol of womanhood and fertility, distinguishes humans as mammals due to the presence of mammary glands. Beyond its lactating function, the breast holds cosmetic significance and undergoes hormonal teasing and endocrinological challenges, emphasizing its multifaceted importance [1]. Breast is one of the most puzzling areas of surgical diseases resulting from undue but understandable perception with carcinoma at the expense of benign conditions. Breast cancer is the most common type of cancer in women worldwide [2]. In Pakistan the reported incidence of breast cancer is approximately 30% to 40% [3]. The age standardized incidence rate (ASR) world per 100,000 is 53.8 and crude incidence rate is 30.9 [4]. Breast carcinoma is the leading malignancies in the Asian region and the patients are at least a decade younger than counterparts in developed nations [5]. The existence of breast lump is primarily caused by apprehension and misery. Being a benign breast lesion, fibroadenoma is typically observed in young patients ranging from 20 to 35 years [6]. The foremost symptom of fibroadenoma is the appearance of palpable lump and the second presentation of disease involves severe pain. 5 to 10% of breast lumps are considered as tumors in case of young adolescents. In this regard, triple assessment holds great significance for the purpose of evaluating benign disorders of breast [7]. Fibroadenoma are usually small and can be managed conservatively; 0.5–2% of these lesions will grow rapidly [8]. Giant fibroadenoma, greater than 5 cm or 500 gm can be associated with significant deformity, raising suspicion for malignancy and requiring surgical excision [9].

Fibroadenoma is the most common benign lesion of breast that mainly takes place in young patients with age of 20-30 years [10]. A study reported the incidence of fibroadenoma (35%) of the patients attained menarche by the age of 13 to 20 years. It encompasses both elements of epithelial as well as stromal tissues as fibroepithelial lesions [11]. Being assumed as a proliferative benign disease of breast, the frequent malignant alterations during the course of fibroadenoma have been suggested in almost 0.1% of all cases which certainly comprises of epithelial components in addition to large number of in situ lesions [12]. Other studies reported the prevalence of fibroadenoma (28%) in patients with breast palpable lumps [13,14]. Overall survival and mortality due to this disease are influenced strongly by the stage of the disease at diagnosis. About 54% of the women are diagnosed in stage II, while only 16% are diagnosed in stage 1 [15].

Breast cancer is complex disease to manage which leads to poor prognosis mostly due to the factors like late presentation and social and religious constraint women reluctant to discuss that issues [16].

OBJECTIVE

The main objective of study was to determine the frequency of fibroadenoma in patients presenting with breast lumps.

METHODOLOGY

Study Design

This research employed a Descriptive Cross-Sectional Study design to investigate fibroadenoma prevalence in women presenting with breast palpable lumps.

Study Setting

The study was conducted at the Outpatient Department of General Surgery, Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU), Larkana.

Duration of Study
The study spanned six months, initiated on October 25, 2019, and concluded on April 24, 2020, following approval of the synopsis.

Sample Size
The sample size of 151 was determined using the WHO sample size calculator, considering a 28% frequency of fibroadenoma in patients with breast palpable lumps, a confidence level of 95%, and a margin of error of 7%.

Sampling Technique
Non-probability, Consecutive Sampling method was employed for patient selection.

Sample Selection Criteria
Inclusion criteria comprised females aged 15–35 presenting with breast lumps, while exclusion criteria included lumps associated with the menstrual cycle, ulcerated breast lumps, recurrent breast lumps, trauma-induced lumps, and a previous history of fibroadenoma.

Data Collection
Data collection commenced after obtaining approval from the College of Physicians & Surgeons Pakistan. Patients meeting inclusion criteria and devoid of exclusion criteria were included after obtaining informed consent. The study involved keen observation, examination, and surgery specimen collection. Surgeries were performed by the researcher under experienced consultant supervision. Data was recorded on a pre-designed proforma, and confounding variables were controlled through strict adherence to inclusion and exclusion criteria.

Data Analysis
Data was entered into SPSS version 20.0 for analysis. Mean and standard deviation were calculated for age, weight, height, and BMI, while frequencies and percentages were determined for marital status, breast site, and fibroadenoma. Fibroadenoma was further stratified by age, marital status, breast site, and BMI, and post-stratification Chi-square tests were applied, with significance set at $P < 0.05$.

RESULTS
In this study, we enrolled 151 patients to investigate the prevalence of fibroadenoma in individuals with breast lumps. The findings were analyzed, revealing a mean age of 24.2 ± 5.1 years, with a confidence interval (CI) of 23.37 to 25.02 years. Additionally, the mean weight was 68.5±8.4 kg, with a CI of 67.14 to 69.85 kg. The mean height was 1.59±0.87 meters, with a CI of 1.45 to 1.72 meters. Furthermore, the mean body mass index (BMI) was 26.8±5.7 kg/m2, with a CI of 25.88 to 27.71 kg/m2 (table 1).

Table 1: Descriptive Statistics of Demographic and Anthropometric Characteristics in the Study Population (n=151)

Descriptive Statistics	Age (Years)	Weight (Kg)	Height (Meters)	BMI (Kg/M2)
Mean	24.2	68.5	1.59	26.8
Standard Deviation	5.1	8.4	0.87	5.7
Confidence Interval (95%)	23.37 - 25.02	67.14 - 69.85	1.45 - 1.72	25.88 - 27.71
Minimum	15	45	1.48	18
Maximum	35	95	1.85	32
Range	20	50	0.37	14

Regarding the surgical site distribution, a majority of patients, comprising 66 individuals (43.7%), underwent surgery on the right side, whereas 85 patients (56.3%) opted for surgery on the left side, as visually represented in figure 1. In terms of marital status, the study population exhibited 95

participants (62.9%) who were married, contrasting with 56 individuals (37.1%) who were unmarried, as depicted in figure 2. Fibroadenoma was observed in 53 patients (35.1%), while the absence of fibroadenoma was noted in 64.9% (n=98), as illustrated in figure 3.

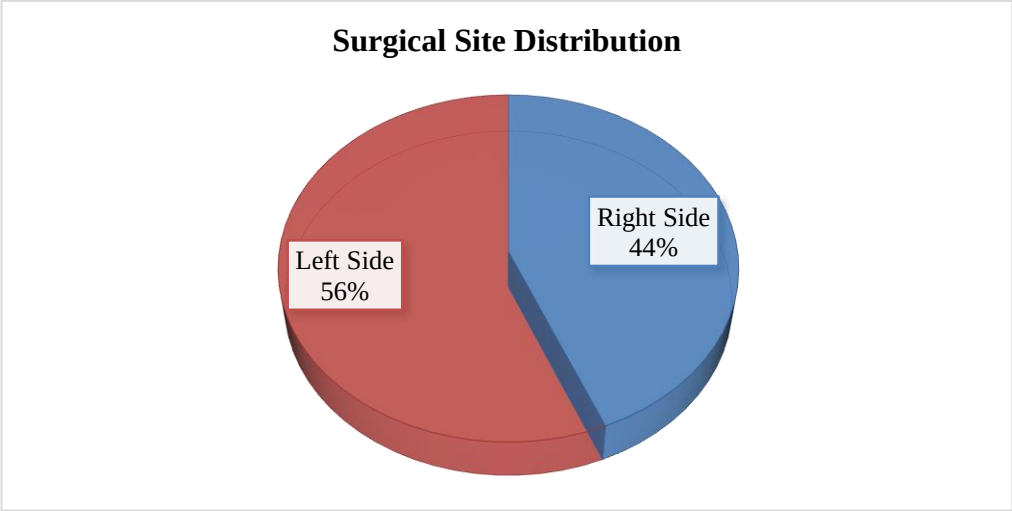

Figure 1: Surgical Site Distribution in the Study Population

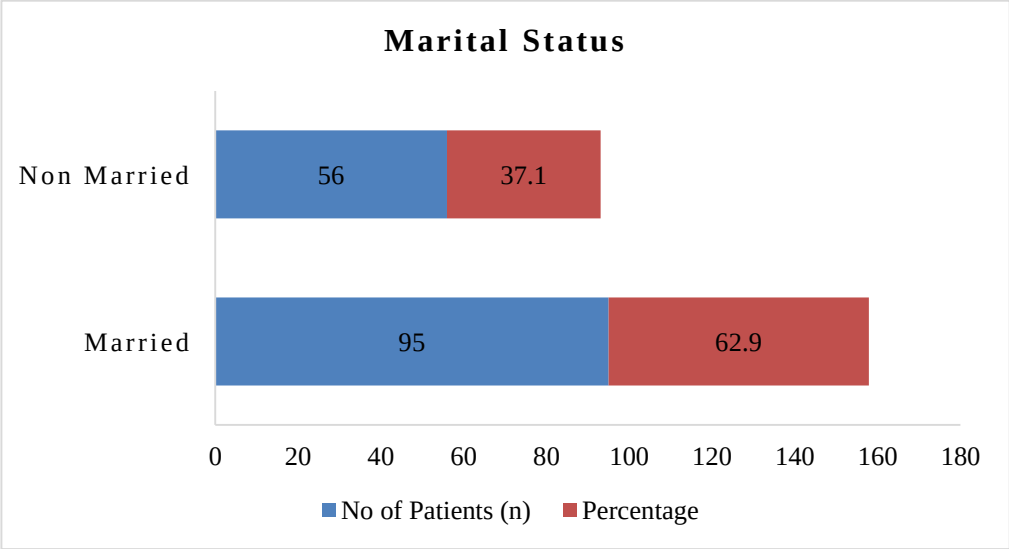

Figure 2: Marital Status Distribution in the Study Population (n=151)

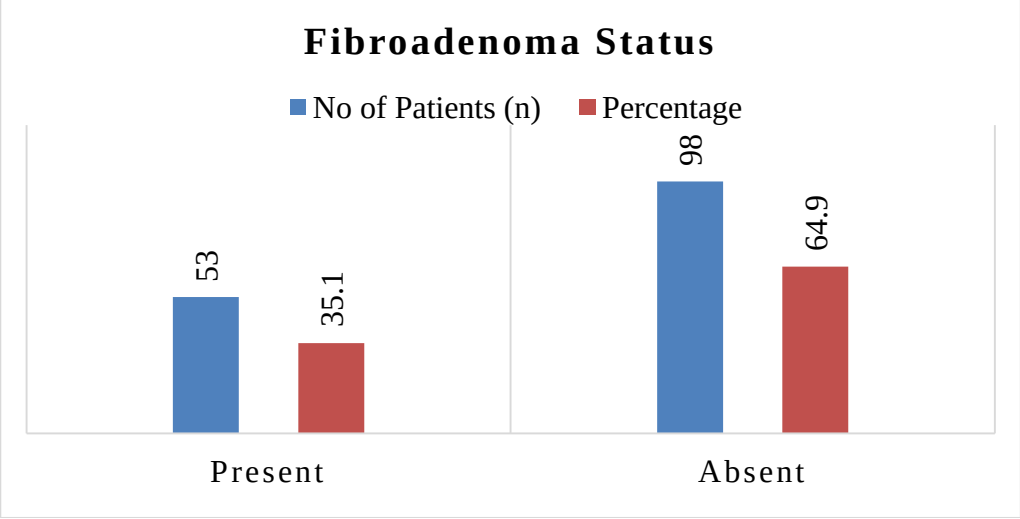

Figure 3: Fibroadenoma Presence in the Study Population (n=151)

Additionally, our study investigates the correlation between fibroadenoma and various demographic and clinical factors in a cohort of 151 individuals. The analysis includes age groups, body mass index (BMI), site of breast, and marital status. Notable findings reveal that marital status shows a significant association with fibroadenoma (P=0.007), with 27.2% (n=41) of married individuals presenting the condition compared to 7.9% (n=12) of unmarried individuals. Other variables, including age group, BMI, and site of breast, did not exhibit statistically significant associations (table 2).

Table 2: Associations of Fibroadenoma with Demographic and Clinical Factors: A Stratified Analysis of 151 Cases

Variable	Fibroadenoma (Yes)	Fibroadenoma (No)	P-Value
Age Group [Years]			
15 – 25	33 (21.9%)	58 (38.4%)	0.712
> 25	20 (13.2%)	40 (26.5%)	
Body Mass Index (BMI) [kg/m2]			
18 – 24	14 (9.3%)	32 (21.2%)	0.427
> 24	39 (25.8%)	66 (43.7%)	
Site of Breast			
Right	24 (15.9%)	42 (27.8%)	0.774
Left	29 (19.2%)	56 (37.1%)	
Marital Status			
Married	41 (27.2%)	54 (35.8%)	0.007
Unmarried	12 (7.9%)	44 (29.1%)	
Note: P-Values less than 0.05 generally indicate a significant association			

DISCUSSION

Cancer continues to be the most common health problem that plagues our civilization, and the current data ensures the increasing importance of the subject. It is impossible to know whether a breast lump is cancerous without performing imaging examinations and/or a biopsy and/or FNA. However, if the lump in breast is firm, hard and fixed it is more likely to be cancerous.

Although benign breast lumps are most common than malignant ones, females who present to the private medical centre with complaints of breast lump suffer anxiety due to the fear of it turning out to be a malignant lesion. Thus, it is important to investigate these patients according to standard protocols to relieve their stress [17]. Most breast lumps aren't breast cancer, there is always a chance that a lump may be breast cancer, even in younger women. Fibroadenomas are benign tumors made up of both glandular breast tissue and stromal (connective) tissue [18]. They are well demarcated tumors from the surrounding tissue [19] composed of combined proliferation of epithelial and connective tissue elements with a good histologic evidence of lobular origin [20].

As other benign lesions are seen in breast, fibroadenoma is usually seen as a round or oval mass with smooth margins and an either hypoechoic or isoechoic appearance. Although fibroadenoma is not a capsulated lesion, a thin layer of echogenicity surrounds it which is mainly due to the compressed normal breast tissue; any thickened echogenicity questions the diagnosis of fibroadenoma and could be suggestive of a potential malignant pathology [21,22].

The mean age of patients in our study was 24.2±5.1 years with the age range of 15 to 35 years which is in contrast with reports of Isaac and colleagues elsewhere in Pakistan [23,24]. It may be due to the fact that we studied patients aged 35 years or less. The mean age in our study remains consistent with other reports like Cheung et al [25]. Literature has reported that fibroadenoma being the most common benign breast disorder with peak incidence in 2nd and 3rd decade of life [26-29]. The left breast was involved in the majority of patients i.e. 56.3%. This finding was also noted by Isaac and colleagues [23]. Talpur et al [30] has also reported left side involvement more than the right side i.e. 53.33%.

The frequency of fibroadenoma in our study was found to be 35.1%. In Karachi, Talpur and colleagues [30] also reported that fibroadenoma was the most common benign breast lump among their patients i.e. 30.66%. Rashid et al [31] showed that 42.1% patients had fibroadenoma breast in their study which was conducted at PIMS in 2005. Internationally, Jamal [32] has reported that fibroadenoma was the most common breast lesion (47%) in the population in Jeddah, Saudia Arabia. On the other hand, in Nepal, fibroadenoma was the least common lesion, present in 21.6% of the female patients [33]. However, this is higher than reported frequency from USA (8.5%). No significant difference has been noted in recent literature regarding the age group of fibroadenoma which was twice (16.8%) as reported by Rashid et al [31], however it was almost similar to the results shown by Ali et al [34] (36%) and Choudhary et al [35]. In this study, the mean weight was 68.5±8.4 kg. In current study, the mean height was 1.59±0.87 meters. In recent study, the mean body mass index was 26.8±5.7 kg/m2. In our study, 95 (62.9%) were married while 56 (37.1%) were unmarried. In present study, stratification of age group, body mass index and site of breast nonsignificant difference was noted i.e. ($P>0.05$) while in marital status highly significant difference was noted i.e. ($P\leq0.05$) to Fibroadenoma in order to found significant difference.

Although many cases of fibroadenoma are benign, factors such as older age, previous positive familial history for breast cancer, multiple lesions, micro calcifications, and heterogenicity should raise the suspicion of whether or not a lesion is a benign fibroadenoma or it needs further assessment for other diagnosis. The main reported differential diagnosis for such cases includes complicated cyst, cystosarcoma, fibromyxoid, phyllodes tumors, and breast malignancies [36-40].

CONCLUSION

In conclusion, our study underscores the prevalence of fibroadenoma as a relatively common benign breast disorder in women presenting with breast lumps. This highlights the imperative for the establishment and promotion of breast screening programs. Moreover, our findings underscore the necessity for future research endeavors aimed at identifying and understanding factors that may contribute to an elevated risk of fibroadenoma. These insights are crucial for advancing our knowledge and improving strategies for early detection and intervention.

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