ORIGINAL ARTICLE

Breast Masses and Ultrasound Imaging Diagnosis and Detection

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ABSTRACT

Background: The human breast is made up of lobe and lobules which contain leucocytes and clusters of alveoli. Breast screening is the method in which asymptomatic imaging of women is done to reduce the progress of the mortality rate.
Aim: To make difference in cystic lesion from solid nodules ultrasound is considered as the best modality.
Methods: A research study was conducted at PINUM cancer hospital Faisalabad by a questionnaire Performa. The study was conducted for 154 patients on ultrasound for 6 months. Patients with palpable lumps and pain were included in the study.
Results: Out of 154 patients 99 were included in category 1, 47 were in category 2, 5 included in category 3 and 3 patients were in category 4**.** Most of the patients having breast lumps lie in the age of 20-40
Conclusion: By knowing the clinical parameters and skills breast masses can be differentiated at ultrasonography. It is an effective and cheap method for the diagnosis of breast lumps and their characteristics by their ultrasonic features.
Keywords: Breast feeding, breast screening, nodule, ultrasound

INTRODUCTION

Lactating breast is described as Cooper's ligament which is a framework composed of adipose and glandular tissue. The distribution and presence of breast tissues vary within different women in the whole world, but there is no variation in the distribution of breast tissue within women[1]. The lobes of the breast are mainly composed of lobules that contain leucocytes which are clusters of alveoli seen histologically. Breast Screening is the method in which asymptomatic women imaging is done[2]. This is helpful to reduce the progression of the disease at an early stage and help to reduce significantly mortality rate[3].
BIRAD classification: Breast Imaging Reporting and Data system (BIRADS) helps to evaluate and gives guidance for masses and calcification and enables us the description of the significance of malignancy of the tumor[2].

MATERIAL AND METHODS

This Cross-sectional Research study was conducted in PINUM Cancer Hospital Faisalabad. Data was collected through questionnaire Performa. A total number of one hundred and fifty-four respondents were taken in this study. Patient history was taken with their clinical examination results. Females are aged 15-80 were selected according to inclusion and exclusion criteria. We used Toshiba Xario equipment A 7 MHz frequency linear transducer along with a resolution of 0.8mm and a beam width of 1.2mm used[4]. The scanning protocol includes both longitudinal and transverse real-time scanning. The patient is asked to lie at her back with arms at her side. Place probe at different angles to analyze the lump[5].

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RESULTS

We conducted a cross-sectional study in PINUM cancer hospital Faisalabad. The data is collected by examination of patients on ultrasound. A total of 154 female patients of different age groups is collected. Out of 154 patients, 99 belonged to category 1, 47 belongs to category 2, 5 were of category 3 and 4 patients were of category 4. The results of the study are described in the form of graphs and tables. In graph 1 we compare total patients in the inclusive study according to BIRAD classification. Graph 2 describes the presence of breast masses according to age. In table 1 patients with regular and irregular menstruation cycles are evaluated with their marriage. Table 2 shows the comparison rate in patients by the masses according to margins and distortion rate. Table 3 describes the breast masses' involvement and echogenicity of masses. Table 4 shows the breast masses palpation rate and pain in the breast.

Graph 1 showing the percentage of patients according to BIRAD classification

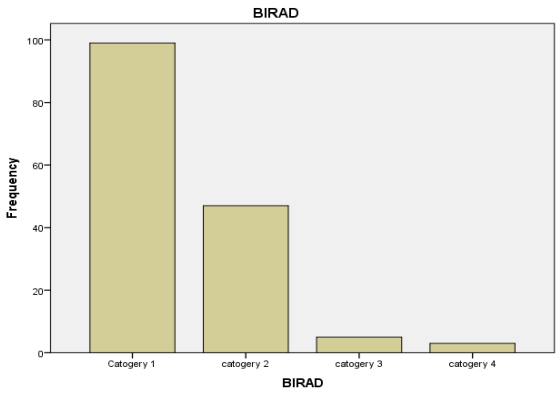

Table 1: Comparison of patients in married and regular or irregular menstruation cycle

Married	Menstruation cycle				Total
	Irregular	Regular	Menopause	22.0	
Yes	13	24	0	0	37
No	24	74	17	1	116
Total	37	98	17	1	153

Table 2: Breast mass comparison between its margins and the distortion rate.

Distortion	Margins			Total
	Regular	Irregular	No mass	
No	43	9	98	150
Yes	0	3	0	3
2.00	0	0	1	1
Total	43	12	99	154

Table 3: Involvement of the breast and the echogenicity of breast masses present

Breast involve	Echogenecity			Total
	Hypoechoic	Anechoic	no mass	
None	0	0	99	99
Left	24	0	0	24
Right	22	2	0	24
Both	5	2	0	7
Total	51	4	99	154

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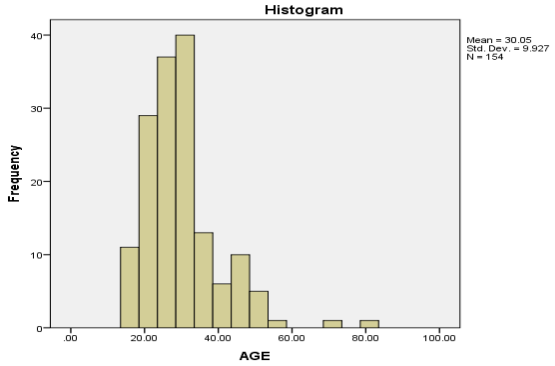
Table 4: History of patients for pain and palpation.

Palpation	Pain		Total
	No	Yes	
No	9	36	45
Yes	41	67	108
10.00	1	0	1
Total	51	103	154

Graph 2: Distribution of breast masses according to the age of patients.



DISCUSSION

In this study patients with breast masses or lumps were selected from the city of Faisalabad. I have selected the cancer research hospital for our study so that we can do frequently scan and able to collect data on breast masses. We collect data on the patient of all ages. The total number of patients was 154. The family history of the patient and mesturatural cycle also affects the breast masses formation. In this study, the total number of women included was 154. Out of 154 patients, 99 were normal. 47 were of category 2, 5 were of category 3 and 3 patients were included in category 4[6]. All these women were having breast mass or have some sign of breast mass or lump. Most patients in this study were having no breast lump. Women who are married are of great risk of breast mass tumors[7].

In a study, they took 750 patients and observed the masses on an ultrasound. All the patients have breast masses out of which 125 were malignant and 625 were benign. They include BIRAD classification to differentiate between breast masses. In our study, we also used the BIRAD lexicon to differentiate between breast masses which was common in this study[8]. A study on evaluation of solid breast masses on ultrasound and they concluded that difference in benign and malignant masses and their characteristics they studied the parameters which we discussed in our study. They evaluate that characteristic of masses not only depend on one parameter rather it is evaluated by many different parameters in addition to family history and clinical history. There is much more similarity in malignant and fibroadenoma in many characteristics so complete investigations and evaluations are necessary[4]. Another study about the lexicon of breast masses i.e., BIRAD lexicon in which they use BIRAD classification as a standard and we also classify the breast masses by BIRAD classification As with ultrasound specific and nonradioactive results can be obtained but it depends on intraoperative and interpretative skills and equipment using. The BIRAD classifies the breast mass into four different categories by evaluation of different parameters. This is helpful for the study of masses according to their clinical and ultrasonic features[9].

Solid mass nodules and evaluated that differentiation of cyst from solid nodules is best described by ultrasound because the cyst is best evaluated at ultrasound by its clinical properties. But many characteristics are intermediate between malignant and benign masses like echogenicity diameter and structure. For this type of confusion, the biopsy is recommended for complete and strong analysis[10].

CONCLUSION

Ultrasound is a cheap and harmless effect on the patient and by use of professional skills breast mass can be diagnosed. The masses can be differentiated by different parameters and knowing the clinical features of different types of masses. Benign masses has also many other types. Differentiating masses according to structure, echogenicity and margins are the critical parameters to rule out the mass type.

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