

# Frequency Distributions of Feature Used to Characterize Breast Fibroadenoma in U/S

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**Abstract:** *This study aimed to use the Ultrasound examination in assessing and characterizing the breast Fibroadenoma, cyst and normal breast regions in order to differentiate between the selected pathology. An analytical case control study of Breast US images of 130 adult subjects with Fibroadenoma, cyst and normal images that in which used as entry data. Ultrasound scanning was performed for breast and the character was identified form the ultrasound images. Frequency distribution was then calculated using SPSS program. The study found that the. Majority of Fibroadenoma having fixed regular hypoechoic character as in (36.9%, 66.2%, and 48.5%) respectively. with homogenous echotexture in 53.8%, and the lesion appear multiple in 60.8% from study population. And a vascular lesion in 63.8%. UQ mostly affected region from left and right side. This percentage calculated when the normal cases was not excluded from the study distribution in which accounted for 30 patient. From this figure appear that the ultrasound measure the benignancy of such lesion very well and have excellent manner in differentiating it from cystic and malignant lesions.*

**Keywords:** Fibroadenoma, Breast Ultrasound, Breast Cyst, Tumor

## 1. Introduction

Fibroadenomas are defined as benign breast lesions, usually formed during menarche (15-25 years of age), that can exist as a solitary mass or multiple masses in the breasts of women. In development, as lobular structures are added to the breast's ductal system, hyperplastic lobules are often present. Although lobules are associated with normal growth, analysis of the cellular components link hyperplastic lesions to fibroadenomas. Greenberg et al. (1998) Fibroadenomas that measure >5 cm are commonly classified as giant fibroadenomas. When these enlarged masses are found in young female patients, they are often called juvenile fibroadenomas. The lesions are rare, accounting for only 0.5% of the total diagnosed fibroadenomas, and can grow to large sizes and cause prominent asymmetry of the breasts. Mayo Foundation for Medical Education and Research (2011)

Other structural changes include both stretching of the areola complex and distortion of the dermal tissue. Clinicians are confronted with treatment decisions on whether to manage these rare cases by way of continued routine examinations or to surgically remove the fibroadenomas. Cosmesis and lactation preservation are the main concerns in this population because malignancy is rare in this age group. Malignancy is of lesser concern with giant fibroadenomas due to their more cellular and less lobular histology. Greenberg et al. (1998). Other considerations for the surgeon are that some fibroadenomas will show spontaneous regression. In this challenging case, surgery was deemed appropriate after the definitive diagnosis was made due to the distortion of the breast with the massive volume of multiple lesions, Matz et.al (2012).

Current management of patients with fibroadenomas in the United States varies on a case by case basis and includes observation or surgical excision. Many patients find their fibroadenoma bothersome, and opt for surgical excision. The

objectives of this study are to evaluate the safety and feasibility of Ultrasound guided High Intensity Focused Ultrasound (USgHIFU) delivered by the Echopulse device (Theraclion, Paris) for treatment of breast fibroadenomas. General patient safety, cosmetic outcome, tumor response, patient experience, physician/operator experience, and device performance will be assessed. Brenin (2015)

## 2. Material and Method

A 130 patient with age range from 16-80 year were underwent successful breast ultrasound examination with Siemens ultrasound machines with high frequency linear 10 MHz probe is typically used to scan the breast, in which the main indication were Fibroadenoma and cyst where the other pathological problem was not a focus of this study. This study was conducted in the period from January 2014 to September 2016 in Saad specialist hospital. K.S.A.

The breast had been assessed into radial or anti/radial plane. Using a warm gel, examine the breast in a pattern in both transverse and parasagittal plane. Overlap each scanning movement to ensure the whole breast is covered. The transducer is placed with the left margin on the nipple. The right margin is then pivoted about the nipple rotating in a clockwise direction. The right edge is moved onto the nipple and the left edge becomes the mobile part of the transducer. Then the frequency distribution of the ultrasound variability was calculated and then all frequency distribution was presented. And the result showed that:

### 3. Results

**Table 1:** Demonstrate the % of frequency distribution according to maternal status

Maternal Status	Frequency	Percent
Single	13	10.0
Married	117	90.0
Total	130	100.0

**Table 2:** Showed the condition of menstrual cycle

Menstrual Cycle	Frequency	Percent
no cycle	1	.8
Regular	52	40.0
Irregular	32	24.6
Menopause	45	34.6
Total	130	100.0

**Table 3:** Showed the condition of breast feeding

Breast Finding	Frequency	Percent
-ev	5	3.8
+ev	125	96.2
Total	130	100.0

**Table 4:** Showed the fequancy distribution of the most affected site

Site	Frequency	Percent
No lesion	30	23.1
Rt.	49	37.7
Lt.	51	39.2
Total	130	100.0

**Table 5:** Showed the fequancy distribution of lesion mobility

Movement	Frequency	Percent
no lesion	35	26.9
Fixed	48	36.9
Mobile	47	36.2
Total	130	100.0

**Table 6:** Showed the fequancy distribution of Mass contour

Mass contour	Frequency	Percent
No lesion	35	26.9
Regular	86	66.2
Irregular	9	6.9
Total	130	100.0

**Table 7:** Showed the fequancy distribution of Echogenicity

Echogenicity	Frequency	Percent
no lesion	38	29.2
Hypoechoic	63	48.5
Isoechoic	4	3.1
Anechoic	25	19.2
Total	130	100.0

**Table 8:** Showed the fequancy distribution of lesion texture

Texture	Frequency	Percent
No lesion	33	25.4
Homogenous	70	53.8
Heterogeneous	27	20.8
Total	130	100.0

**Table 9:** Showed the fequancy distribution of morphology

Morphology	Frequency	Percent
no lesion	38	29.2
Solitary	13	10.0
Multiple	79	60.8
Total	130	100.0

**Table 10:** Showed the fequancy distribution of vascularity

Vascularity	Frequency	Percent
No lesion	35	26.9
Avascular	83	63.8
Central vascular	5	3.8
Perivascular	7	5.4
Total	130	100.0

**Table 11:** Showed the fequancy distribution of LN condition

Lymph node	Frequency	Percent
Normal	114	87.7
abnormal	16	12.3
Total	130	100.0

**Table 12:** Showed the fequancy distribution of most affected breast quadrant in right side

Quadrant R.t breast	Frequency	Percent
No lesion	83	63.8
Upper outer	19	14.6
Upper inner	3	2.3
Lower outer	13	10.0
Lower inner	12	9.2
Total	130	100.0

**Table 14:** Showed the fequancy distribution of most affected breast quadrant in left side

Quadrant Lt breast	Frequency	Percent
No lesion	76	58.5
Upper outer	26	20.0
Upper inner	5	3.8
Lower outer	12	9.2
Lower inner	11	8.5
Total	130	100.0

### 4. Discussion

A total of 130 patients were included in this study (1 male and 129 female (0.8% male and 99.2% female)); 5 were normal cases (3.8%) and 125 patients had breast finding (96.2%); Female maternal status 13 female were single (10%) and 117 were married (90%) (table. 1), according to maternal status 29 of them had no pregnancy achieved (22.3%) 12 had only one baby (9.2%) 14 patient had 2 babies (10.8%) 19 patients had 3 babies (14.6%) 19 patient also had 4 babies (14.6%) 16 had 5 babies (12.3%) 6 had 13 babies (10%) 6 had 8 babies (94.6%) while only 2 of them had 9 babies; 57 of patient hadn't breast feeding (43.8%) while 73 of them had normal breast feeding (56.2%); according to menstrual period regularity one (0.8%) had hysterectomy while 50 with regular menstrual period (40%) 32 irregular (24.6%) and 45 were menopause (34.6%) (table. 2); according to lesion site 30 of them hadn't (23.2%) right breast had 49 (36.7%) while left breast had 51 patient (39.2%); morphologically 48 with fixed breast lesions (36.9%) and 47 (36.2) had mobile one; (table. 5); There were 38 had no lesions (29.9%) 86 patient

with regular contour (66.9%) and 9 with an in regular (6.9%) (table 4-8); From all patients there were 70 (53.8%) with homogenous texture while 27 (20.8%) with heterogeneous texture; (table .8); There were 38 patient had no lesions (29.9%) 13 patient with solitarly lesions (10%) and 79 with multiple lesions (60.8%) (table 10); according to vascularity 83 patient (63.8%) were avascular 5 patients with central vascular (3.8%) and 7 patient were perivascular (5.4%) (table .11); according to lesions echogenicity there were 38 patient had no lesions (29.9%) 63 patient with hypoechoic lesions (48.5%) 4 were with isoechoic lesions (3.1%) 25 were anechoic (19.2%) while there was no hyperechoic one (table 4- 9); from family history there where 68 patient (53.3%) with positive family history of breast masses and 62 patients(47.7%) with negative family history (table 4- 13); 114 (87.7%) of all patient within normal limit and appearance of lymph node while 16 had abnormal lymph node (12.3%)(table 4- 14); Right breast quadrant there were 83 with no lesion (63.8%) 19 patient with RUOQ (14.6%) 3 patients with breast RUIQ percentage (2.3%) 13 patients(10%) patients with RLOQ and 12 patients (9.2%) in RLIQ (table 13); Left breast quadrant there were 76 with no lesion (58.5%) 26 patient with LUOQ (20%) 5 patients with breast LUIQ percentage (3.8%) ,12 patients(9.2%) patients with LLOQ and 11 patients (8.5%) in LLIQ (table. 14).

## 5. Conclusion

From the frequency distribution mentioned here this study reveal that ultrasound can provide an alternative noninvasive methods for evaluation and diagnosis of breast disease as well as differentiating such disease from malignant transformation.

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