

## Breast Mass, Solid and Cystic in Iraqi Patients' Management and Ultrasound Diagnosis

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**Abstract:** This research aims to assessment Breast mass, solid and cystic in Iraqi patients' management and ultrasound diagnosis where created A retrospective and descriptive study of a series of 65 cases with histopathological diagnosis of fibroadenomas, which were studied in different hospitals in Iraq between January 2019 and February 2021. The methodology of this study relied on using Ultrasound to create images of structures deep within the body were. Ultrasound can be used to determine whether the new breast tumor is a solid mass or a fluid cyst and. A database was created using Microsoft Access, and statistical analysis was performed using IBM SOFT SPSS 22 for Windows. The results found in this study were 65 patients distributed to the benign group for 30 patients and Malignant for 35; patients were distributed according to characteristics of masses based on benignancy and malignancy. Fibrocystic change in 13 patients with 43% in the Benign group, Fibroadenoma in 7 patients with 23.3%, while in the Malignant group was The most frequent invasive ductal carcinoma of 20 patients with 57.1%. Followed by invasive papillary carcinoma of 7 patients with 20% and fibrous histiocytoma of 5 patients with 14.2%. Were evaluated Sensitivity, Specificity, and Accuracy outcomes compared with other methods, and excellent results were found on all of them exceeding 80%, and we concluded Most cellular fibro adenomas are round or oval, with sharp lines on Ultrasound.

**Keywords:** Fibro Adenomas, Ultrasound, Fibrocystic, Solid, Cystic.

### INTRODUCTION

Numerous bumps (lumps, nodules, or masses) in the breast can be caused by fibrosis and cysts [Zhi, H. *et al.*, 2007; Crystal, P. *et al.*, 2003]. These are non-cancerous (benign) changes in breast tissue that many women experience at some point in their lives [Howlett, D. *et al.*, 2003]. These changes are sometimes referred to as fibrocystic and termed fibrocystic disease [Stavros, A.T, 2005].

Fibrosis and cysts are most common in women of childbearing age, but they can affect women of any age. [Versluijs, F.N.L. *et al.*, 2002] These changes can be found in different parts of the breast, as well as in both breasts at the same time. Fibrosis refers to a large amount of fibrous tissue, the same tissue that makes up ligaments and scar tissue. Areas of fibrosis have a rubbery texture, hard or hard to the touch [Shetty, M.K. *et al.*, 2002].

Cysts are round or oval fluid-filled sacs inside the breast. They often feel like a round, mobile bump or lump (lump), which may also be tender to the touch. They are most common in women between the ages 40 and 49, [Rizzato, G. *et al.*, 1993] although they can occur in women of any age. Hormonal changes every month often cause cysts to get bigger and more painful, sometimes more

noticeable just before menstruation. [Valea, F.L. *et al.*, 2007]

Cysts form when fluid begins to accumulate within the glands of the breasts. Micro cysts are too small to be recognized by touch and are only detected by examining the tissue under a microscope. If the fluid continues to build up, large cysts (large cysts) can form easily felt and can be about 1 to 2 inches in diameter [Stavros, A. *et al.*, 2004; Kaiser, J.S. *et al.*, 2002].

The spectrum of breast lesions in adolescent girls and boys is very different from that of adults, and most are benign. Volume can be normal or due to an abnormal growth. Additional to other causes are infections, trauma, or cyst formation. After puberty, most cases of breast lumps are due to benign fibroadenomas in girls. The most common malignant lesions are metastatic and are usually associated with the generalized disease. [Kwak, J.Y. *et al.*, 2006; Heinig, J. *et al.*, 2008]Ultrasound is a study method that is incorporated into the study of the breast and that complements classic mammography.[Kim, E.K. *et al.*, 2008] according to the literature review, an imaging study in Germany is performed using Ultrasound due to its absence of ionizing radiation in the most

susceptible population and its greater sensitivity in denser fibrous tissue in adolescents. Several studies have attempted to demonstrate that it is possible to characterize lesions through Ultrasound and to guide the diagnosis of their benign or malignant nature. Mammography is the primary and primary imaging modality in diagnosing breast diseases, [Heinig, J. et al., 2008; Hong, A.S. et al., 2005] the only method recognized as a BC screening method, allowing early detection, and the only method that has shown a reduction in mortality rates from BC 3. Its primary role is in the early detection of BC in non-clinical women asymptomatic. However, it also serves as a guide for the preoperative labeling of lesions or for guiding perforations by stereotaxic localization. [American College of Radiology, 2013]

The imaging diagnosis of breast lesions has changed in recent years, both in terms of imaging techniques and interventional procedures were. Traditional mammography has benefited from digital technology, ultrasound machines have significantly improved their quality, and magnetic resonance imaging has been introduced into diagnostic algorithms. The sensitivity of mammography to detect malignant lesions with breast density is reduced. Breast density depends on the ratio of the most abundant tissues in the breast: [Daly, C.P. et al., 2008; Dixon, J.M. et al., 1999] fibrous tissue and fat. A US study showed that higher-density mammography is associated with an increased risk of BC and that this association cannot be explained by chance.

### PATIENT AND METHOD

A retrospective and descriptive study of a series of 30 cases with histopathological diagnosis of fibroadenomas, which were studied in different hospitals in Iraq between January 2019 and February 2021.

Ultrasound studies were performed using equipment with high-frequency linear transducers (10-12 MHz), and the analog technique was used for mammography.

Breast ultrasound is a technique that uses ultrasound waves to visualize the internal parts of the breast and is mainly used to detect the presence of breast lumps or any abnormal changes during a clinical examination, in a mammogram, or in a breast MRI image.

After a breast mass has been identified, a biopsy of the mass is taken during an ultrasound to provide immediate imaging, as it is often used as a guide for the biopsy.

In this study, the most important reasons that led to the appearance of a lump in the breast were the hormonal change during the menstrual cycle or while taking some hormonal drugs. This may be accompanied by the exit of liquid substances from the nipple or a change in the size and texture of the breast. The second reason is inflammation of the mammary glands, which leads to the formation of a cyst filled with fluids that form this mass, in addition to the infection of some benign tumors. Usually, the mass is somewhat solid and does not cause breast cancer or any pain

A study was set up in different hospitals in Iraq to find out the results related to Breast mass, solid and cystic in Iraqi patients' management and Ultrasound diagnosis

A database was created using Microsoft Access, and statistical analysis was performed using IBM SOFT SPSS 22 for Windows, Where the statistical analysis was performed to find out the real values in addition to the standard and logistic regression to the results of the patients.

### ETHICAL APPROVAL

To apply the methodological techniques and procedures, permission and approval were received from the implementing agencies for the purpose of establishing this study.

Ethical and scientific bases for data collection and were considered patient demographic information based on accepted guidelines.

### RESULTS

**Table 1:** Demographic results of the patient (benign), N=30

Variable	Frequency	P%
Age		
30-39	8	26.6
40-49	10	33.3
50-60	12	40
BMI		
18-24.9	4	13.3
25-29.9	16	53.3

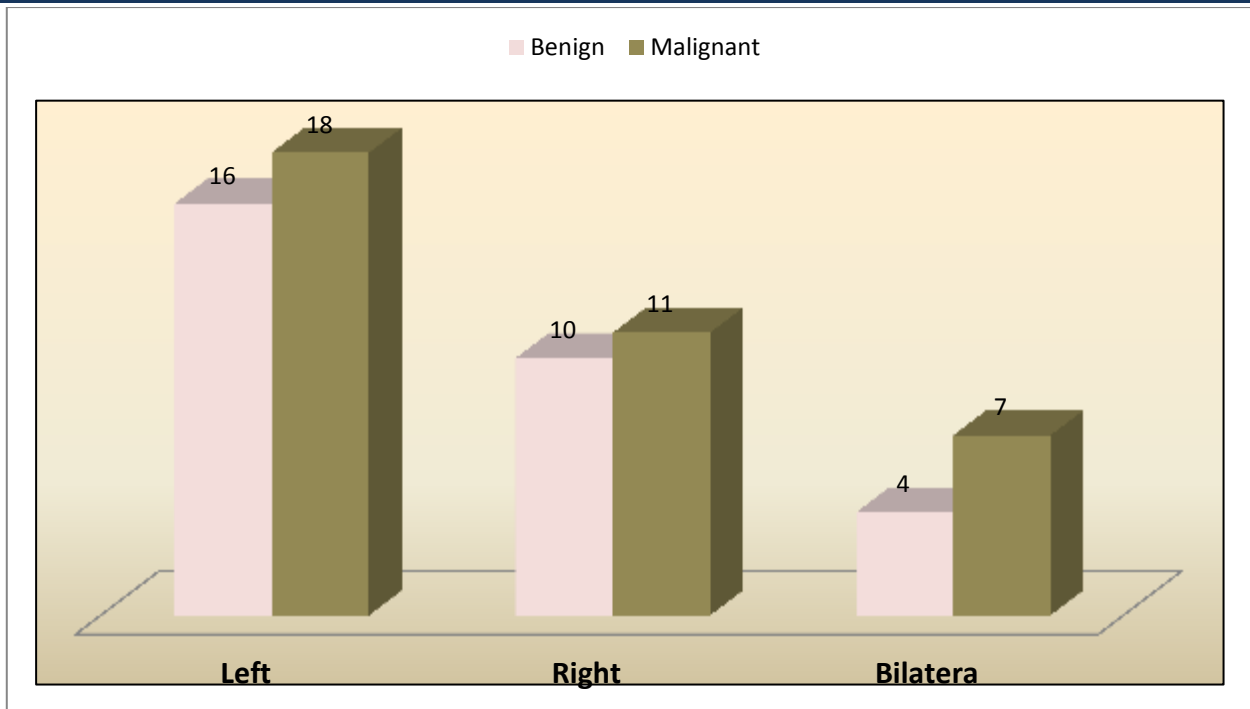
30–34.9	4	13.3
> 34.9	6	20
Education		
None/Primary	3	10
Secondary	10	33.3
College	12	40
Postgraduate	5	16.6
Family history		
YES	5	16.6
NO	25	83.3

**Table 2:** Demographic results of the patient (Malignant), N=35

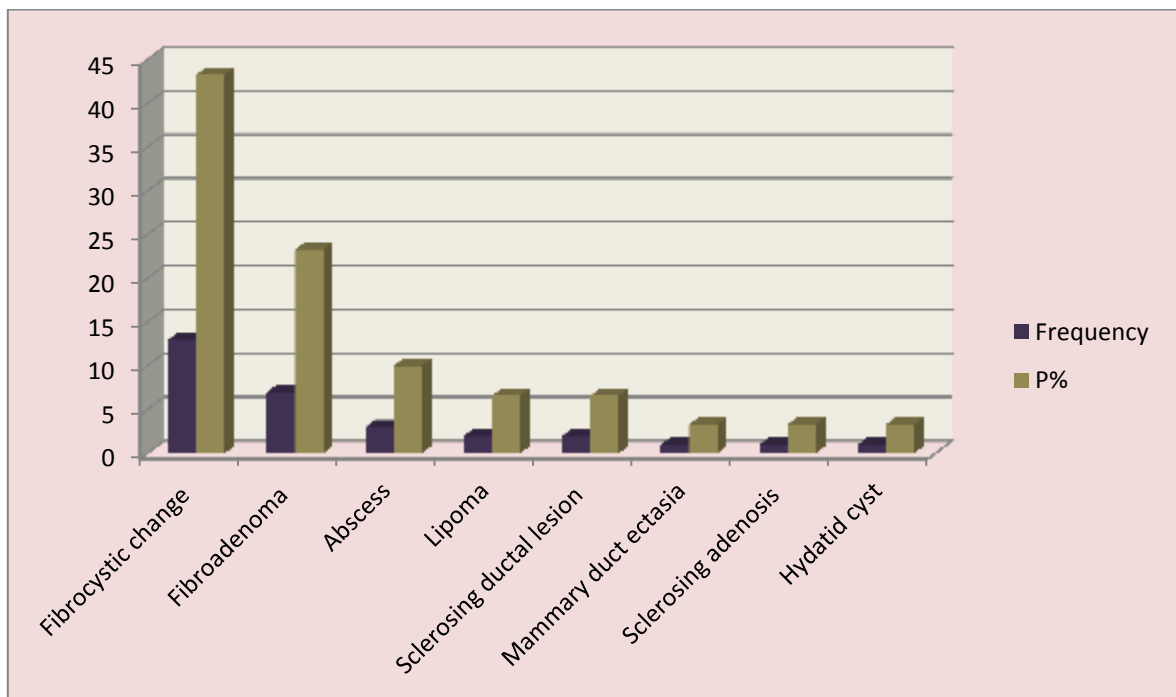
Variable	Frequency	P%
Age		
30-39	11	31.4
40-49	12	34.2
50-60	12	34.2
BMI		
18–24.9	5	14.2
25–29.9	10	28.5
30–34.9	12	34.2
> 34.9	8	22.8
Education		
None/Primary	6	17.14
Secondary	11	31.4
College	10	28.5
Postgraduate	8	22.8
Family history		
YES	6	17.14
NO	29	82.8

**Table 3:** Distribution of patients according to Location of tumor

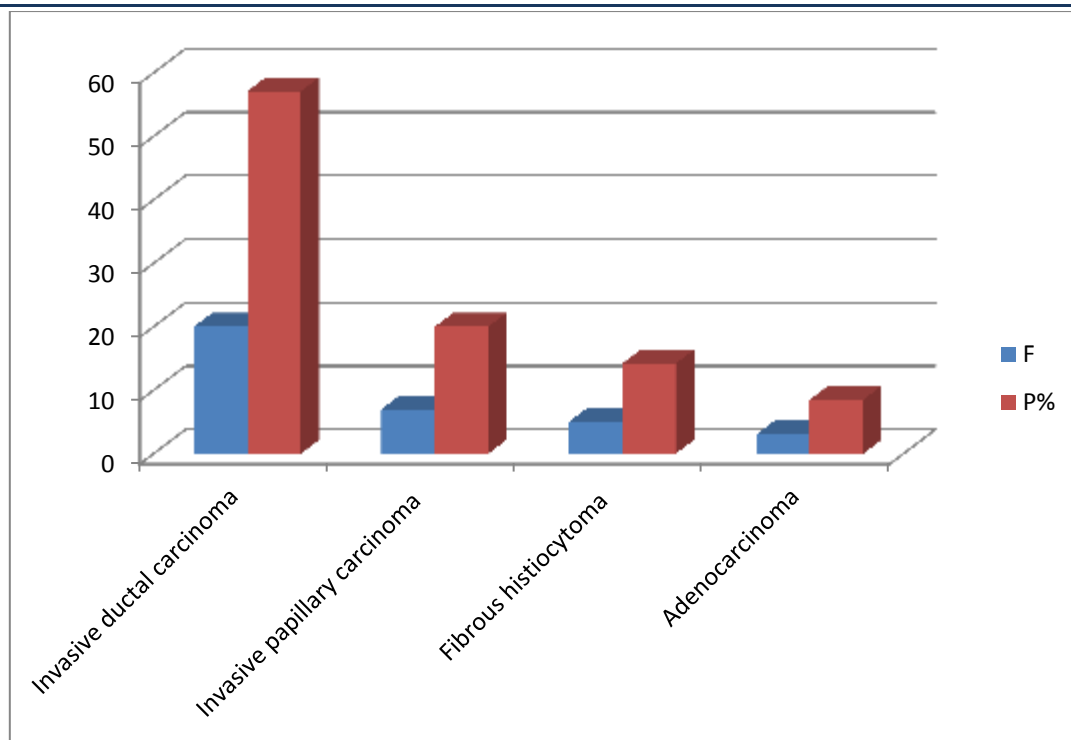
	G1	G2	P-Value
Upper outer quadrant	14	16	0.88
Upper inner quadrant	6	7	0.99
Lower outer quadrant	4	5	0.99
Lower inner quadrant	2	3	0.99
Central	2	2	0.00
Multi-focal and diffuse	1	1	0.00



**Fig 1:** Distribution of patients according to the involved side



**Fig 2:** Outcomes of patients according to pathologic characteristics of masses



**Fig 3:** Outcomes of patients according to pathologic characteristics of masses Malignant

**Table 4:** Assessment Sensitivity, Specificity, and Accuracy outcomes compared with other method

Variable	ultrasound diagnosis	Other method
Sensitivity	78%	73%
Specificity	88%	77%
Accuracy	82%	83%
PPV	89%	81%
NPV	91%	75%

PPV: positive predictive value; NPV: indicates negative predictive value

**Table 5:** Evaluation of the results way logistic regression of Breast mass, solid and cystic

Variable	OR (CI95%)	P-Value
Age	1.4 (0.9-1.8)	0.07
BMI	1.6 (0.74-2.2)	0.045
Type which used in the diagnosis	3.3 (1.4-7.7)	0.001
Fibrocystic change	1.2 (0.88-1.3)	0.88
Fibroadenoma	1.4 (1.1-1.9)	0.46
Abscess	0.88 (0.234-1.2)	0.67
Invasive ductal carcinoma	2.6 (1.5-4.4)	0.001
Invasive papillary carcinoma	2.8 (1.3344-6.6784)	<0.001

## DISCUSSION

Cystic lesions of the breast include a wide range of breast diseases, from the simplest cyst to the rarest intracystic papillary carcinoma. In this review, the basic radiological findings are presented to distinguish simple cysts from complex cysts and complex masses. Characteristic images of cystic lesions are described according to Ultrasound of cystic breast lesions. The images correlate with histological patterns and illustrate the diagnosis and therapeutic management of cystic breast

lesions. Thick cyst, disease of the breast Thick cyst disease of the breast has been recognized as the most common benign lesion of the female breast. Up to a third of women between the ages of 30 and 50 have cysts on their breasts. The true recurrence is likely to be much higher than a clinically recognized entity, and its prevalence has been estimated to be between 50% and 90%. Moreover, it usually appears during the third decade of life, reaches its highest rate during the fourth decade,

and decreases significantly after menopause [Tea, M.K.M. et al., 2009].

Thick cystic disease of the breast becomes clinically evident during the third and fourth decades of life, when the hormonal function is at its peak, suggesting that steroid and peptide hormones may be involved in cyst genesis and development. Why are breast cysts uncommon in postmenopausal women [Louie, L. et al., 2003]? Cyst development should be evaluated in postmenopausal women if the patient is not undergoing hormone replacement therapy. Thick breast cyst disease includes all benign pathological conditions of the breast to form cysts.

Cystic lesions Breast cysts can be single or multiple, simple or complex, and are secondary to Lobular dilatation as a result of duct obstruction or alteration of the balance between secretion and reabsorption. They are usually located in the retrograde region, measuring between 1-5 cm in diameter. In the ultrasound study, they are round or oval, with well-defined lines, anechoic, or with posterior reinforcements [Chang, Y.W. et al., 2007; Tea, M.K.M. et al., 2011]. Mastitis and abscesses can occur in adolescents of both sexes, and the underlying cause may be a blockage or expansion of the mammary duct or infection of the nipple from a piercing.

The most common germ is Staphylococcus aureus. Ultrasound shows a complex mass with a thick wall and Doppler flow in the periphery. Ultrasound can be used to aspirate an abscess.

Fibroadenoma is a benign fibrous epithelial tumor, which is more common in girls under 20 years of age and peaks between 15 and 25 years of age. Most of them show slow and painless growth causing breast asymmetry. On physical examination, it is a mobile, well-defined mass, generally located in the upper outer quadrants, which is sensitive to estrogen and can grow more rapidly during pregnancy but does not vary in size during the menstrual cycle.

In Ultrasound, the study is characterized primarily by presenting solid, circumscribed, oval masses with lobed features and a heterogeneous internal echo structure.

The clinical, ultrasonography, and radiological findings of the large cell fibro adenomas are similar to those of some classic fibro adenomas, but their differentiation by rapid growth and hyperplasia of the stromal cells can be postulated.

## CONCLUSION

The study of breast diseases varies according to age, and most solid lumps are either related to breast growth or neoplastic processes, and Biopsies should not be performed on the developing breasts as they can damage them.

Most cellular fibroadenomas are round or oval, with sharp lines on Ultrasound, and we found, by this method, they are nonspecific: they can be hyperplastic and generally show a slow and progressive enhancement pattern with internal septa.

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