

Assessment of Imaging Findings in Inflammatory Breast Disease by Ultrasound

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Abstract

Background: Inflammatory breast disorders include a wide array of underlying causes, ranging from common benign infection, noninfectious inflammation and inflammation resulting from underlying breast malignancy. Mastitis refers to inflammation of the breast parenchyma, often presenting with pain, heat and redness that may be a debilitating illness with prolonged morbidity. It may also present with a wide array of other nonspecific symptoms, which may lead to delayed diagnosis and inappropriate treatment.

Aim of Study: To discuss imaging findings in inflammatory breast disease by ultrasound.

Patients and Methods: This was a prospective study which was carried out at Ain Shams University Hospitals; the study was conducted on 100 women with inflammatory breast diseases referred to the Radiology Department and Surgical Outpatient's Clinics.

Results: Echogenic edematous fat lobules of the studied group show that; 30 (30.0%) were negative and 70 (70%) were positive, interstitial edema; 24 (24.0%) were negative and 76 (76%) were positive, defined collections; 68 (68.0%) were negative and 32 (32%) were positive.

Lymph node enlargement; 54 (54.0%) were negative and 46 (46.0%) were positive. There was lymph node enlargement for only 45 (31 cases show reactive lymph nodes oval in shape with preserved shape and hilum and 14 cases show suspicious lymph nodes with cortical thickening and eccentric hilum). Follow-up by u/s and histopathology of the studied group show that 93 (93.0%) were resolved and 7 (7.0%) were IDC by histopathology.

Conclusion: Ultrasound plays a fundamental role in the diagnostic work up of mastitis patients. An ideal ultrasound should ensure an accurate diagnosis, guide for interventional procedures whenever necessary and should be used to monitor adequate management by short term follow-up studies along the course of therapy.

Key Words: *Inflammatory breast disease – Assessment of imaging findings – Ultrasound.*

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Introduction

MASTITIS refers to inflammation of the breast parenchyma, often presenting with pain, heat and redness that may be a debilitating illness with prolonged morbidity [1].

It may also present with a wide array of other nonspecific symptoms that may lead to delayed diagnosis and inappropriate treatment. Broadly, inflammatory disorders of the breast can be divided into three categories: Infectious mastitis, non-infectious mastitis and mastitis related to underlying malignancy [2].

Infectious mastitis encompasses breast-specific and nonspecific forms of infections whether primary or complicating already present breast pathologies. Patients in this group usually present with fulminant inflammatory manifestations and are usually treated with antibiotics, hot fomentations, and various breast drainage procedures [3].

Acute mastitis is usually a bacterial infection and is seen most commonly in the postpartum period while chronic mastitis is a disease of unknown etiology that results in the dilatation of large-sized and intermediate-sized ducts with a surrounding inflammatory infiltrate of lymphocytes and plasma cells [4].

Non-infectious forms of mastitis encompasses another group of aseptic or chemical inflammatory breast disorders that do not necessarily occur during lactation, and thus do not usually present with fulminant inflammatory signs and do not usually resolve with antibiotics. Microbial infection may trigger some forms as periductal mastitis or complicate others as diabetic mastopathy [5].

Any nonlactating female patient presenting with inflammatory breast symptoms that fail to respond to antibiotic therapy should be advised to go for both a mammography and US examination immediately followed by a punch biopsy from the skin and aspiration from the subdermal lymphatics to exclude any possibility of IBC [6].

Clinical mastitis is characterized by signs of inflammation in the mammary gland including hyperemia, pain, and increased gland size and density. These symptoms may be accompanied or not by systemic signs, such as fever or depression [3].

IBC is an invasive aggressive disease with high rate of metastasis at diagnosis [7]. On ultrasound, subareolar mastitis tends to show mixed solid-cystic lesions or collections, however inflammatory breast cancers are more likely to show solid mass lesions [8].

Radiological imaging is more advantageous than clinical examination in evaluating skin thickening as it allows accurate delineation of its extent, measurement and comparison to surrounding skin and contralateral breast [9].

Subcutaneous edema is easily evaluated using Doppler US, revealing diffuse increase in thickening and echogenicity of the subcutaneous tissue and later accumulation of fluid in the subcutaneous tissue [10].

Hyperemia (increased vascularity) of the breast tissue is another sign of inflammation, this can be evaluated using Doppler US, revealing increased arterial and venous structures [11].

Lactiferous duct abnormalities such as duct dilatation, thickened walls and presence of contents within the ducts should be investigated as some inflammatory conditions are related to lactiferous duct involvement [12].

Aim of the work:

The study aimed to discuss imaging findings in inflammatory breast disease by ultrasound.

Patients and Methods

Type of study: A prospective study.

Study setting: Ain Shams University Hospitals.

Study period: 6 months (July 2020 to January 2021).

Study population: Patients with prolonged clinical signs of mastitis referred to the Radiology Department and Surgical Outpatient's Clinics.

Selection criteria:

Inclusion criteria: Patients presenting with clinical signs of mastitis including redness, hotness, and focal or diffuse swelling of the breast with or without generalized constitutional symptoms with or without palpable breast masses.

Exclusion criteria: Patients presenting with other sole mammary manifestations, for example, palpable mass lesions or nipple discharge.

Sampling method: Convenient sample.

Sample size: 100 female patients (age was ranged between 16.0-67.0 years with mean \pm S.D. 36.20 ± 14.12 years).

Study procedure: Written informed consent is obtained from all patients. All patients are subjected to complete medical history and full clinical examination. Real-time gray-scale and color Doppler sonography is performed using a Siemens Medical Solutions Elegra or Antares unit with an 8-12MHz linear-array transducer. US reports should confirm (positive finding) or exclude (negative finding) the presence of the following: Echogenic edematous fat lobules, interstitial edema, ill-defined or well defined collections, retroareolar duct system dilatation, thickened skin (>2mm) and its measurement, masses and confirm their cystic or solid nature, abscess cavities, fistulous tracts, lymph node enlargement and its character: US follow-up after a course of antibiotic therapy will be performed for indicated cases to ensure condition amelioration, according to the imaging findings recorded with US they will be classified into benign and malignant forms of mastitis. Reference standard of diagnosis is histopathology after core or surgical biopsy, as well as follow-up studies for lesions for typical signs of simple mastitis. Histopathology or complete resolution after complete medical treatment results will be correlated with the imaging findings of US.

Main outcome measures: Calculation of sensitivity, specificity, PVP, PVN and accuracy.

Ethical considerations: The study is approved from the Ethical Committee of the Department of Radiology, Faculty of Medicine, Ain Shams University.

Data management and analysis: The collected data is coded, tabulated, and statistically analyzed

using SPSS program (Statistical Package for Social Sciences).

Statistical analysis of the data:

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, and standard deviation, median and Interquartile Range (IQR).

Results

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, standard deviation, median and Interquartile Range (IQR).

Descriptive analysis of the studied cases according to age was ranged between 16.0-67.0 years with mean ± S.D. 36.20± 14.12 years (Table 1).

Table (1): Descriptive analysis of the studied cases according to age (n=100).

	Min-Max.	Mean ± SD	Median (IQR)
Age (years)	16.0-67.0	36.20± 14.12	33.50 (23.0-47.0)

Descriptive analysis of the studied cases according to lactation, echogenic edematous fat lobules, interstitial edema and defined collection (Table 2) show the following:

Table (2): Distribution of the studied cases according to different parameters (n=100).

	Negative		Positive	
	No.	%	No.	%
Lactating	73	73.0	27	27.0
Echogenic edematous fat lobules	30	30.0	70	70.0
Interstitial edema	24	24.0	76	76.0
Defined collections	68	68.0	32	32.0

Table (2) show lactating of the studied cases were negative in 73 (73.0%) and were positive in 27 (27.0%), echogenic edematous fat lobules; 30 (30.0%) were negative and 70 (70%) were positive, interstitial edema; 24 (24.0%) were negative and 76 (76%) were positive, defined collections; 68 (68.0%) were negative and 32 (32%) were positive.

Descriptive analysis of the studied cases according to retro areolar duct system dilatation,

turbid contents and thickened skin (Table 3) show the following:

Table (3): Distribution of the studied cases according to different parameters (n=100).

	No.	%
<i>Retro areolar duct system dilatation:</i>		
Negative	44	44.0
Positive	56	56.0
<i>Containing turbid contents:</i>		
Negative	80	80.0
Positive	20	20.0
<i>Thickened skin:</i>		
Negative	52	52.0
Positive	48	48.0

Table (3) show that retro areolar duct system dilatation of the studied cases was negative in 44 (44.0%) and positive in 56 (56.0%).

Then as regard the content; 80% has no turbid content, and 20% has a turbid content, also, the table shows that 52.0% had no thickened skin, while 48% had thickened skin.

Descriptive analysis of the studied cases according to presence or absence of masses (Table 4) show the following:

Table (4): Distribution of the studied cases according to masses (n=100).

Masses	No.	%
Negative	93	93.0
Positive	7	7.0

Table (4) show masses of the studied group; 93 (93.0%) has no masses and 7 (7.0%) has masses.

Descriptive analysis of the studied cases according to abscess cavities and fistulous tracts (Table 5) show the following:

Table (5): Distribution of the studied cases according to abscess cavities and fistulous tracts (n=100).

	Negative		Positive	
	No.	%	No.	%
Abscess cavities	53	53.0	47	47.0
Fistulous tracts	100	100.0	0	0.0

Table (5) show abscess cavities and fistulous tracts of the studied group; at abscess cavities; 53(53.0%) were negative and 47 (47.0%) were positive, at fistulous tracts; 100 (100.0%) were negative.

Descriptive analysis of the studied cases according to lymph node enlargement (Table 6) show the following:

Table (6): Distribution of the studied cases according to lymph node enlargement (n=100).

	No.	%
Lymph node enlargement:		
• Negative	54	54.0
• Positive	46	46.0
Lymph node enlargement with (n=45):		
• Reactive lymph nodes (oval in shape with preserved shape and hilum)	31	68.8
• Suspicious lymph nodes (cortical thickening and eccentric hilum)	14	31.2

Table (6) show lymph node enlargement of the studied group that 54 (54.0%) were negative and 46 (46.0%) were positive. There was lymph node enlargement with for only 45 (31 cases show reactive lymph nodes (oval in shape with preserved shape and hilum) and 14 cases show suspicious lymph nodes (cortical thickening and eccentric hilum).

Descriptive analysis of the studied cases according to follow-up by u/s and histopathology (Table 7) show the following:

Table (7): Distribution of the studied cases according to follow-up by u/s and histopathology (n=100).

Follow-up by u/s and histopathology	No.	%
Resolved	93	93.0
IDC by histopathology	7	7.0

Table (7) show follow-up by u/s and histopathology of the studied group that 93 (93.0%) were resolved and 7 (7.0%) were IDC by histopathology.

Descriptive analysis of ultrasonography imaging sensitivity, specificity, PPV and NP V in inflammatory breast disease.

Table (8): Diagnostic value of imaging findings in inflammatory breast disease by ultrasound.

Static	Value	95% CI
Sensitivity	82.3%	75.29%-100%
Specificity	90.7%	29.04%-96.33%
Positive Predictive Value (PPV)	86.67%	40.78%-84.61%
Negative Predictive Value (NPV)	87.6%	66.3%-95.45%

Table (8) shows the ultrasonography imaging sensitivity was 82.3%, specificity was 90.7%, NPV was 87.7% and PPV was 87.6% with accuracy of 90% to assess for respectability.

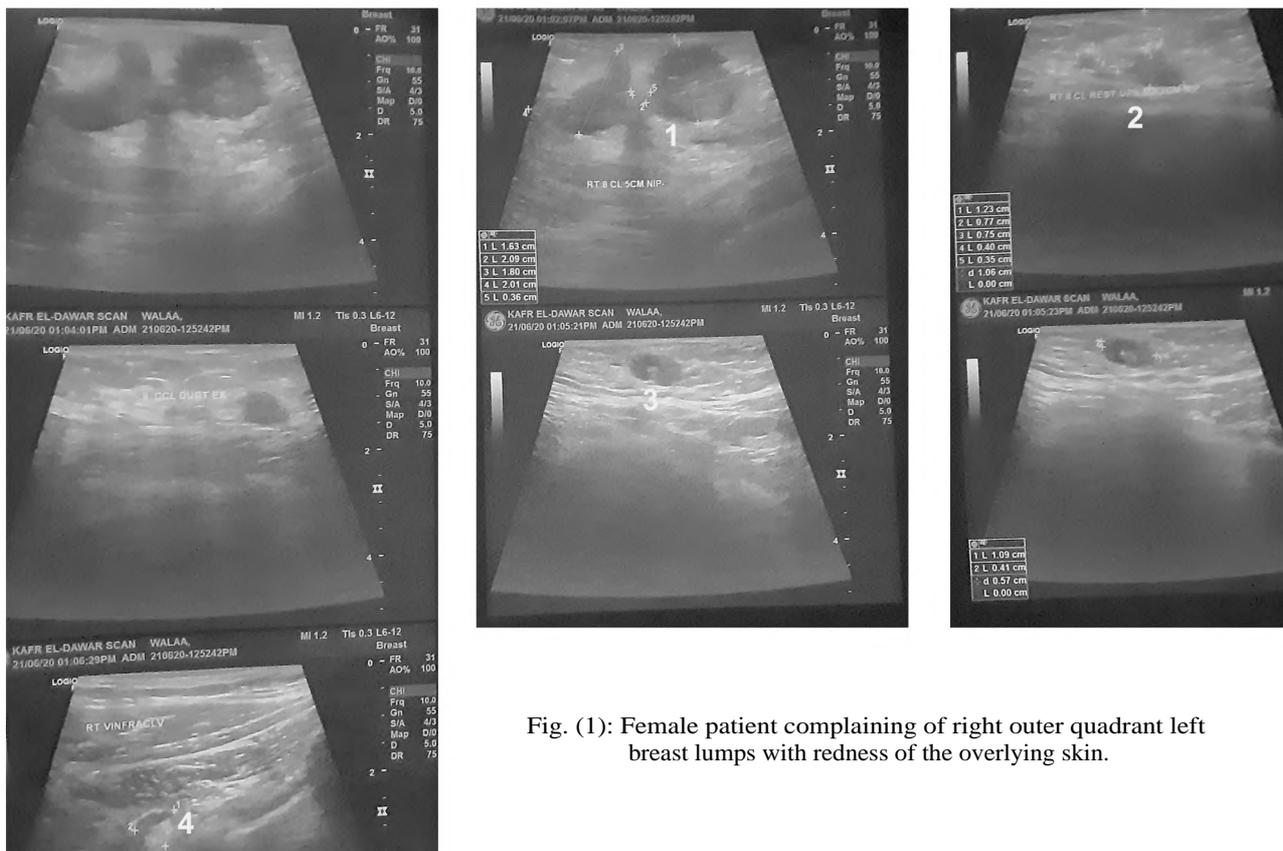


Fig. (1): Female patient complaining of right outer quadrant left breast lumps with redness of the overlying skin.

The image of ultrasound shows:

- Two adjacent hypo echoic mass lesions measuring about 20 X 16mm and 20 X 18mm connected to each other by similar tissue (1).
- Another two hypo echoic smaller masses measuring 12 X 7mm and 7 X 4mm apart from each other (2).
- Hypoechoic mass lesion measuring 13 X 8mm exhibiting vertical orientation and microlobulated borders (3).

- Tiny irregular hypoechoic mass lesion measuring 3 X 1mm.
- Two suspicious LNs show thickened cortices and eccentric hilum (4).

Features of right multi-centric suspicious mass lesions with axillary and infra-clavicular suspicious lymph nodes. Recommended for histopathological correlation which diagnose it as IDC.



Fig. (2): Lactating female complaining of left breast painful lump with redness of the overlying skin.

The image of ultrasound shows:

- Loculated turbid fluid collection measuring about 2.7cm surrounded by mild echogenic fat planes (1).
- Another turbid loculated collection is noted measuring 2.2 X 1.7cm (2).
- Prominent lactiferous ducts.

Features are impressive of galactoceles with impending abscess formation and surrounding mild inflammatory changes. The patient undergo clinical correlation and medical treatment with antibiotics. Follow-up after 4 weeks the breast show normal echopattern with no detected lesion.

Discussion

Mastitis refers to inflammation of the breast parenchyma, often presenting with pain, heat and redness that may be a debilitating illness with prolonged morbidity. Regardless of the type of breast problem, the goal of the evaluation is to rule out cancer and address the patient's symptoms. Mastitis is a frequently encountered complaint in clinical practice [1].

However, an uncommon type of breast cancer known as the Inflammatory Breast Cancer (IBC) has symptoms that are similar to mastitis and can be sometimes mistaken as infection. Complete resolution is usually the rule in most cases of

mastitis if after ten days of antibiotics symptoms of mastitis do not dissipate, inflammatory carcinoma should be ruled out and a biopsy should be performed [8].

IBC is an invasive aggressive disease with high rate of metastasis at diagnosis. It is crucial to differentiate IBC from other types of mastitis because there are major differences in its prognosis and treatment. Ultrasound (US) is one of the main diagnostic tools for discriminating benign and malignant mastitis [6].

On ultrasound, subareolar mastitis tends to show mixed solid-cystic lesions or collections, however, inflammatory breast cancers are more likely to show solid mass lesions. US-guided aspiration and core needle biopsy are the mainstay in diagnosis and management of inflammatory breast diseases [8].

Mastitis can be classified into three main types: The infectious, noninfectious, and Malignant Mastitis (MM). Infectious mastitis encompasses breast-specific and nonspecific forms of infections whether primary or complicating already present breast pathologies. This form of mastitis is more common during the child-bearing period especially during lactation. Patients in this group usually present with fulminant inflammatory manifestations and are usually treated with antibiotics, hot fomentations, and various breast drainage procedures [14].

Noninfectious forms of mastitis encompasses another group of aseptic or chemical inflammatory breast disorders that do not necessarily occur during lactation, and thus do not usually present with fulminant inflammatory signs and do not usually resolve with antibiotics. Microbial infection may trigger some forms as periductal mastitis or complicate others as diabetic mastopathy [15].

The third group of mastitis, which is the most serious form of mastitis, is malignant mastitis usually accompanying the Inflammatory Breast Carcinoma (IBC) or the very rare form of malignant breast abscess [15].

The aim of the current study was to discuss imaging findings in inflammatory breast disease by ultrasound.

This was a prospective study which was carried out at Ain Shams University Hospitals; the study was conducted on 100 women with inflammatory breast diseases referred to the Radiology Department and Surgical Outpatient's Clinics.

Ultrasound examination was performed to all cases and the findings were interpreted as regarding:

- 1- Echogenic edematous fat lobules.
- 2- Interstitial edema. Ill-defined collections.
- 3- Retro areolar duct system dilatation.
- 4- Thickened skin (>2mm) and its measurement.
- 5- Masses and it confirm their cystic or solid nature.
- 6- Abscess cavities.
- 7- Fistulous tracts.
- 8- Lymph node enlargement and its status.

Lesions were classified according to the findings as benign and suspicious mastitis.

The findings were correlated eventually with the course of the disease either response to antibiotics till complete resolution and in this case diagnosed as benign mastitis or no response to the antibiotics with suspicious findings and in this case diagnosed as suspicious case and recommended for biopsy and histopathological examination.

Lymph nodes were also assessed according to size, shape, preserved hilum, cortical thickness and outlines regularity and classified into normal, reactive (oval in shape with preserved hilum and normal cortical thickness) and suspicious L.Ns (diffuse cortical thickness, eccentric hilum and distorted shape).

Analysis of our findings revealed that age of the participant women was ranged between 16.0-67.0 years with mean \pm S.D. 36.20 ± 14.12 years.

In the present study, we found that 73 (73.0%) women were non lactating and 27 (27.0%) women were lactating, then as regard echogenic edematous fat lobules; 30 (30.0%) were negative and 70 (70%) were positive, interstitial edema; 24 (24.0%) were negative and 76 (76%) were positive, defined collections; 68 (68.0%) were negative and 32 (32%) were positive.

In comparison with our findings, the study of Fouad et al., [16] reported that the presence of acute inflammatory signs on ultrasound (edematous, echogenic fat lobules and interstitial edema) could significantly differentiate infectious and malignant forms of mastitis ($p < 0.05$). Dilated ducts are significantly higher in non-infectious than infectious and malignant mastitis ($p < 0.05$) are significant differentiating signs between infectious and malignant mastitis. Mass lesions favor noninfectious and malignant forms of mastitis ($p: 0.038$ and $p: 0.023$) over infectious forms. Thickened skin was

significantly higher in malignant than infectious and non-infectious mastitis ($p<0.01$ and $p<0.05$), dilated ducts are significantly higher in non-infectious than infectious and malignant mastitis ($p<0.05$).

In the current study, retro areolar duct system dilatation of the studied cases was negative in 44 (44.0%) and positive in 56 (56.0%), then as regard the content; 80% has no turbid content, and 20% has a turbid content, also 52.0% had no thickened skin, while 48% had thickened skin.

Tiu et al., [17] reported that about four-fifths of patients with ductal dilatation were noted to have multiple dilated ducts, most commonly bilateral. The diameters of the ducts investigated ranged from 2.0mm to 15mm, but most were between 2.0mm and 4.0mm. The majority of them were anechoic or associated with very weak internal echoes (90.8%). In about 8.5%, there were formed echogenic structure(s) or nodule(s) in the lumen, and there were tiny strongly echogenic spots in the lumen representing calcified material, crystals or microcalcifications in 1%. When the echogenic nodule in a dilated duct was located in the sub-areolar region, the focal lesion was most likely due to intra-ductal papilloma (52.9%), and occasionally due to intra-ductal carcinoma (5.9%).

Interestingly, in our study; abscess cavities and fistulous tracts of the studied group showed that at as regard abscess cavities; 53(53.0%) were negative and 47 (47.0%) were positive, and as regard fistulous tracts; 100 (100.0%) were negative.

In contrary to our findings, the study of Fouad et al., [16] revealed that nine fistulous tracts with draining skin sinuses were being traced on ultrasound examination. Seven were seen draining neglected abscess cavities. Multiple discharging fistulous tracts were traced in a tuberculous patient and another one was seen draining a malignant abscess.

In the study on our hands; there were 93 (93.0%) were negative masses and 7 (7.0%) were positive Masses. The positive cases was divided as 3 (42.9%) as irregular solid retro-areolar lesion masses, 3 (28.6%) as multiple solid showing irregular outlines masses and 3 (28.6%) as solid lesion irregular margins and internal breakdowns masses.

In the study done by Oztekin et al., [18], US showed heterogeneous hypoechoic lesions with tubular extensions in 16 (55.2%), well-demarcated heterogeneous hypoechoic lesions in eight (27.6%), parenchymal heterogeneous appearance in three

(10.3%), and a heterogeneous hypoechoic lesion with irregular margins in one (3.4%), with another (3.4%) patient having normal US findings, meanwhile, the author reported that sixteen (55.2%) patients had ill-defined lesions with tubular extensions, eight (27.6%) had well-demarcated lesions with posterior acoustic enhancement, three (10.3%) had parenchymal edema-heterogeneity, one (3.4%) had a mass lesion with irregular borders, and one (3.4%) had normal results. All lesions exhibited heterogeneous hypoechoic. Three (10.3%) had fistula tracts.

Another study of Yildiz et al., [19] reported that US showed multiple irregular hypoechoic masses and collection areas with tubular connections in 25 of 30. The collection area with low-level internal echoes but without tubular connections, suggesting an abscess were seen in 2 of 30 (6.6%); a hypoechoic mass with an indistinct border in 2 of 30 (6.6%); multiple milimetric hypoechoic nodular masses in 1 of 30 (3.3%). On MG, normal findings were noted in 5 (45.4%); focal asymmetric density in 4 (36.4%), parenchymal distortion in 1 (9%) and diffuse asymmetric opacity with trabecular thickening in 1 (9%) of 30 patients.

In the current study, lymph node enlargement of the studied group showed that 54 (54.0%) were negative and 46 (46.0%) were positive. There was lymph node enlargement for only 45 (31 cases show reactive lymph nodes oval in shape with preserved shape and hilum and 14 cases show suspicious lymph nodes with cortical thickening and eccentric hilum).

Bilgen et al., [20], in their study, diagnosed metastatic enlarged lymph nodes when they showed eccentric or absent hila and when the long to short axis ratio was less than 1.5.

Kamal et al., [14] found that lymph nodes with these criteria were higher in IBC, a sign that favored its diagnosis.

Aziz et al., [6] reported that in benign inflammatory cases; the presence of indeterminate axillary lymph nodes was 6/10, 60%, the presence of non-specific axillary lymph nodes was 29/30, 96.7%, and the presence of pathological axillary lymph nodes was 1/8, 12.5%, while in malignant cases; the presence of indeterminate axillary lymph nodes was 4/10, 40%, the presence of nonspecific axillary lymph nodes was 1/30, 3.3%, and the presence of pathological axillary lymph nodes was 7/8, 87.5%. The presence of pathological axillary lymph nodes with prominent cortices and muffled hila was strongly indicative of a malignant pathology. Inde-

terminate axillary lymph nodes were a common association with severe benign mastitis. Resolution was the rule on follow-up US studies performed in 6/10 (60%) cases.

In the present study, follow-up by u/s and histopathology of the studied group showed that 93 (93.0%) were resolved and 7 (7.0%) were IDC by histopathology.

Aziz et al., [6] demonstrated that within the examined group, 40/48 (83.3%) cases underwent short-term first look follow-up US study after a course of antibiotic therapy, a total of seven out of 40 (17.5%) patients showed complete resolution of the symptoms, and the diagnosis of simple IM was confirmed, in addition, 33 out of 40 (82.5%) patients showed no response to treatment.

Radiographic studies of Cheng et al., [21] showed that 64% patients had abnormal findings suggesting a neoplastic process. Tissue biopsy and histologic examination are required to establish a definitive diagnosis. Six categories of mastitis can be seen with distinct histopathological features.

According to Fouad et al., [16] and ultrasound findings, 83 (42.2%) cases were re-assured and were given a short course of antibiotic therapy and hot fomentations. These included 46 (23.3%) cases of simple mastitis, 32 (16.3%) cases of periductal mastitis and 5 (2.6%) cases of plasma cell mastitis. They were asked to come for a short term follow-up study to ensure complete resolution. Complicated mastitis cases (77 cases, 39.1%) were drained, given a course of antibiotic therapy and were asked to come for a short term follow-up ultrasound study to ensure complete resolution.

Finally in the present study, we found that the ultrasonography imaging sensitivity was 82.3%, specificity was 90.7%, NPV was 87.7% and PPV was 87.6% with accuracy of 90% to assess for respectability.

In agreement with our findings, the study of Aziz et al., [6] reported that out of the 48 cases included in the study, US results showed the following: Two false negative (4.2%), two false positive (4.2%), 34 true negative (70.8%), and 10 true positive (20.8%) cases. The calculated sensitivity and specificity of US are 83.33 and 94.44%, respectively. The positive predictive value for US was 83.33% and the negative predictive value was 94.44%.

To sum up, ultrasound examination is gold standard breast imaging technique in inflammatory

breast disorders because it is a non-invasive, rapid bedside method, carry no recognized risks or side effects and are not known to cause or aggravate any medical condition and safe in pregnancy.

It should be considered the mainstay in making an accurate diagnosis, in monitoring treatment and in guiding interventional procedures.

Yet one must put in consideration the overlap between benign and malignant lesions and so reaching full diagnosis sometimes may not be achieved until histopathological verification.

Conclusion:

Ultrasound plays a fundamental role in the diagnostic work up of mastitis patients. An ideal ultrasound should ensure an accurate diagnosis, guide for interventional procedures whenever necessary and should be used to monitor adequate management by short term follow-up studies along the course of therapy.

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تقييم نتائج التصوير في أمراض الثدي الإلتهابية بالموجات فوق الصوتية

يشير إلتهاب الثدي إلى إلتهاب نسيج الثدي، وغالباً ما يظهر مع الألم والحرارة والإحمرار الذي قد يكون مرضاً موهناً بمرضاة طويل الأمد. قد تظهر أيضاً مع مجموعة واسعة من الأعراض الأخرى غير المحددة، والتي قد تؤدي إلى تأخر التشخيص والعلاج غير المناسب. بشكل عام، يمكن تقسيم الإضطرابات الإلتهابية في الثدي إلى ثلاث فئات: إلتهابات الثدي المعدية، إلتهابات الثدي غير المعدية وإلتهاب الثدي المرتبط بالأورام الخبيثة الكامنة.

عادة ما يكون إلتهاب الثدي الحاد عدوى بكتيرية وينتشر بشكل أكثر شيوعاً في فترة ما بعد الولادة، في حين أن إلتهاب الثدي المزمن هو مرض من المسببات غير المعروفة التي تؤدي إلى توسع القنوات الكبيرة والمتوسطة الحجم مع إرتشاح الإلتهابات المحيطة بالخلايا الليمفاوية وخلايا البلازما.

تشمل الأشكال غير المعدية من إلتهاب الثدي مجموعة أخرى من إضطرابات الثدي الإلتهابية المعقمة أو الكيميائية التي لا تحدث بالضرورة أثناء الرضاعة، وبالتالي لا تظهر عادة مع علامات إلتهابات مدمرة ولا يتم حلها عادةً بالمضادات الحيوية. قد تؤدي العدوى الميكروبية إلى بعض الأشكال مثل إلتهاب الثدي حول الجافية أو تعقيد الأشكال الأخرى مثل إعتلال الخشاء السكري.

يجب نصح أى مريضة غير مرضعة تظهر عليها أعراض إلتهاابية بالثدي والتي تفشل في الإستجابة للعلاج بالمضادات الحيوية بالذهاب لكل من التصوير الشعاعي للثدي والفحص بالموجات فوق الصوتية متبوعاً فوراً بخزعة من الجلد والتطلع من اللمفاوية تحت الجلد لإستبعاد أى إلتهاب لحدوث إلتهاب الثدي المرتبط بالأورام الخبيثة.

يعد إلتهاب الثدي المرتبط بالأورام الخبيثة مرض عدواني غزوي مع معدل مرتفع من الثنائيات عند التشخيص. الموجات فوق الصوتية، يمثل إلتهاب الثدي تحت القطنى إلى إظهار آفات أو مجموعات مختلطة من الكيسات الصلبة. ومع ذلك، من المرجح أن تظهر سرطانات الثدي الإلتهابية آفات كتلة صلبة.

يعد فرط الدم (زيادة الأوعية الدموية) في أنسجة الثدي علامة أخرى على الإلتهاب. يمكن تقييم ذلك باستخدام الموجات فوق الصوتية، للكشف عن زيادة الهياكل الشريانية والوريدية.

يجب فحص شذوذ القناة اللبئية مثل توسع القناة والجدران السميكة ووجود المحتويات داخل القنوات حيث ترتبط بعض الحالات الإلتهابية بتورط القناة اللبئية. تشمل إضطرابات الثدي الإلتهابية مجموعة واسعة من الأسباب الكامنة، والتي تتراوح من العدوى الحميدة الشائعة والإلتهابات غير المعدية والإلتهابات الناتجة عن ورم خبيث في الثدي. نظراً لأنه من الصعب أحياناً التمييز بين إلتهاب الضرع وسرطان الثدي بناءً على السمات السريرية، فقد يكون الوعي بميزات التصوير التفصيلي مفيداً في إدارة إضطرابات الثدي الإلتهابية بشكل أفضل.

يشير إلتهاب الضرع إلى إلتهاب حلمة الثدي، وغالباً ما يصاحبه ألم وحرارة وإحمرار قد يكون مرضاً منهكاً مع مراضة طويلة الأمد. قد يظهر أيضاً مع مجموعة واسعة من الأعراض الأخرى غير المحددة، والتي قد تؤدي إلى التشخيص المتأخر والعلاج غير المناسب.

بشكل عام، يمكن تقسيم الإضطرابات الإلتهابية للثدي إلى ثلاث فئات: إلتهاب الضرع المعدى، وإلتهاب الضرع غير المعدى وإلتهاب الضرع المرتبط بالورم الخبيث الأساسي. تتداخل السمات السريرية والإشعاعية لإلتهاب الثدي الحميد عادةً مع أورام الثدي الخبيثة، مما يزيد من معضلة التشخيص. عادة ما يكون عدم الإستجابة للعلاج بالمضادات الحيوية مؤشراً على أخذ خزعة لإستبعاد الورم الخبيث الأساسي.

الثدي هو عضو سطحي وغالباً ما يشمل الإلتهاب الجلد المغطى. يجب ملاحظة ملامح إلتهاب النسيج الخلوي مثل سماكة الجلد والوذمة تحت الجلد. يعتبر التصوير الإشعاعي أكثر فائدة من الفحص السريري في تقييم سماكة الجلد لأنه يسمح بتحديد دقيق لمدى إنتشاره وقياسه ومقارنته بالجلد المحيط والثدي المقابل.

يمكن تصنيف إلتهاب الضرع إلى ثلاثة أنواع رئيسية: إلتهاب الضرع المعدى، وغير المعدى، وإلتهاب الضرع الخبيث. يشمل إلتهاب الضرع المعدى أشكالاً غير محددة من العدوى خاصة بالثدي سواء كانت أولية أو معقدة من أمراض الثدي الموجودة بالفعل. هذا النوع من إلتهاب الضرع أكثر شيوعاً خلال فترة الإنجاب خاصة أثناء الرضاعة. عادة ما يصاب المرضى في هذه المجموعة بمظاهر إلتهابية خاطفة وعادة ما يتم علاجهم بالمضادات الحيوية، والتضخيم الساخن، وإجراءات مختلفة لتصريف الثدي.

تشمل الأشكال غير المعدية من إلتهاب الضرع مجموعة أخرى من إضطرابات الثدي الإلتهابية المعقدة أو الكيميائية التي لا تحدث بالضرورة أثناء الرضاعة، وبالتالي لا تظهر عادةً بعلامات إلتهابية خاطفة ولا يتم حلها عادةً بالمضادات الحيوية. قد تؤدي العدوى الميكروبية إلى ظهور بعض الأشكال مثل إلتهاب الضرع المحيط بالقناة أو مضاعفات أخرى مثل إعتلال الثدي السكري.

يلعب التصوير بالموجات فوق الصوتية دوراً محدداً في النهج التشخيصي وإدارة أمراض الثدي الإلتهابية. من الضروري التمييز بين المسببات الحميدة والخبيثة حيث توجد إختلافات كبيرة في التشخيص وخيارات العلاج والموجات فوق الصوتية مفيدة جداً في هذا التمييز، تعمل الأشعة التلفزيونية أيضاً كدليل للإجراءات التداخلية عند الضرورة ويجب إستخدامها للمراقبة الإدارية الكافية من خلال دراسات متابعة قصيرة المدى على طول مسار العلاج.

الهدف من الدراسة الحالية هو مناقشة نتائج التصوير في مرض إلتهاب الثدي عن طريق الموجات فوق الصوتية.

كانت هذه دراسة إستطلاعية أجريت في مستشفيات جامعة عين شمس. أجريت الدراسة على ١٠٠ امرأة مصابة بأمراض الثدي الإلتهابية المحولة إلى قسم الأشعة وعيادات الجراحة الخارجية.