بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Assessment of imaging findings in inflammatory breast disease by ultrasound

A thesis

For fulfillment of Master Degree in Radiology

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بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

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List of abbreviations

BSE	breast self-examination
CAD	computer-aided detection
GM	Granulomatous mastitis
IBC	inflammatory breast cancer
IGM	Idiopathic granulomatous mastitis
MRI	magnetic resonance imaging
MRSA	Methicillin-resistant Staphylococcus aureus
NSAIDs	Non-steroidal anti-inflammatory drugs
SGM	specific granulomatous mastitis
TDLUs	terminal ductal lobular units
THI	Tissue harmonic imaging
TMP-SMX	trimethoprim-sulfamethoxazole
US	Ultrasound
USG	Ultrasonography
MM	Malignant mastitis
IM	Infectious mastitis

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INTRODUCTION

Mastitis refers to inflammation of the breast parenchyma, often presenting with pain, hotness and redness that may be a debilitating illness with prolonged morbidity **(Lepori, 2015).**

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 **(Kasales et al., 2014).**

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 **(Tohamey and Omar, 2018).**

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 **(Illman et al., 2018).**

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 **(Leong et al., 2018).**

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 **(Aziz et al., 2018).**

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 **(Tohamey and Omar, 2018).**

IBC is an invasive aggressive disease with high rate of metastasis at diagnosis **(Irakleidis and Tan, 2019)**. 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 **(Gunawardena et al., 2017).**

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 **(Abeywardhana et al, 2016).**

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 **(Febery and Bennett, 2019)**.

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 **(Crane et al, 2017)**.

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 **(Faguy, 2018).**

AIM OF THE WORK

The study aimed at discussing the imaging findings in inflammatory breast disease by ultrasound.

Research Question:

Is ultrasound considered a reliable tool in diagnosis of inflammatory breast diseases?

Research hypothesis:

Ultrasound is a reliable tool in diagnosis of inflammatory breast diseases.