بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأفلام قد أعدت دون أية تغيرات

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في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

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بعض الوثائق الاصلية تالفة

بالرسالة صفحات لم ترد بالاصل

بسم الله الرحمن الرحيم

MAMMOGRAPHIC ASYMMETRIC DENSITIES: ULTRASOUND AND HISTOPATHOLOGICAL CORRELATION.

Thesis

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To my wife, my son and my parents.

Abbreviations:

- MLO: Medio Lateral Oblique.
- CC: Cranio Caudal.
- ACR: American College of Radiology.
- BI-RADS: Breast Imaging Reporting and Data System.
- US: Ultra Sound.
- ID: Implant Displaced.
- MRI: Magnetic Resonance Imaging.
- CT: Computed Tomography.
- FNAB: Fine Needle Aspiration Biopsy.
- KvP: Kilo voltage Peak.
- mAs: milli Ampere Second
- NOS: Not Otherwise Specific.

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I

INTRODUCTION

INTRODUCTION

Breast cancer is the most leading cause of cancer death after lung cancer; it accounts for 32% of cases of female cancer [1].

Mammographic densities which refer to the amount of fat, connective, and epithelial tissue in the female breast have been shown to be related to breast cancer risk. They are not abnormalities but variations of healthy breast tissue. Fat appears dark on film-screen mammograms. The radiographically light areas represent epithelial and connective tissue and are relevant to breast cancer risk. The association between mammographic breast density and breast cancer risk may be the result of genetic and/or environmental factors that determine breast density [2].

Mammographic density is classified into [3]:

1- Almost entirely fatty (figure 1).

2- Scattered fibroglandular tissue (figure 2).

3- Heterogeneously dense (figure 3).

4- Extremely dense (figure 4).

Taking into consideration age, body mass index, hormone replacement therapy use, menopause status, and personal history of breast cancer. Several studies have demonstrated that women with higher breast density on mammography are at increased risk of developing breast cancer [4,5].

The breasts usually develop in a fairly symmetric fashion with general symmetric distribution of tissue. While exact mirror images are not to be expected, the overall tissue patterns within each breast should be similarly distributed.

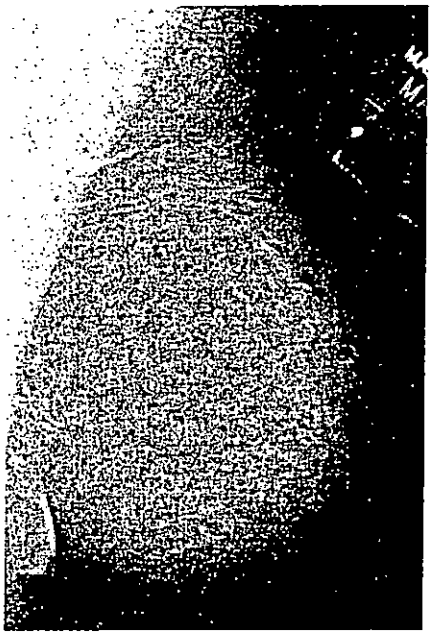

Figure 1. almost entirely fatty [3].

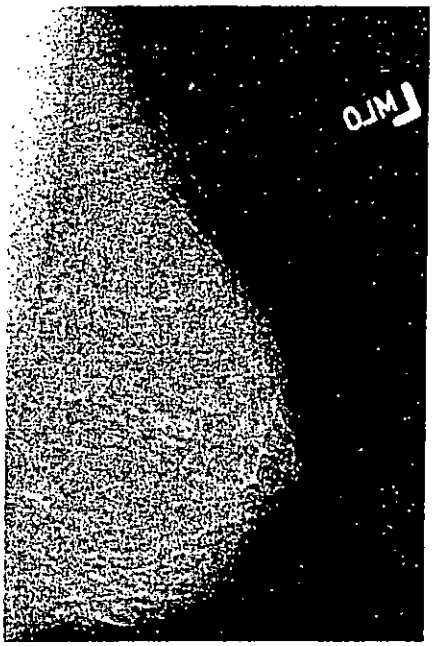

Figure 2. scattered fibroglandular tissue [3].

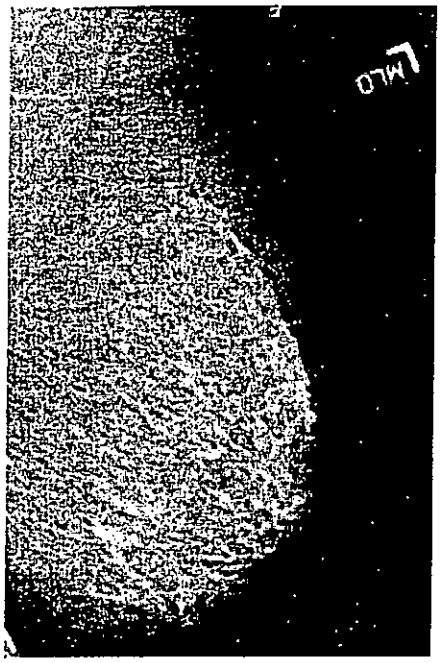

Figure 3. heterogeneously dense [3].

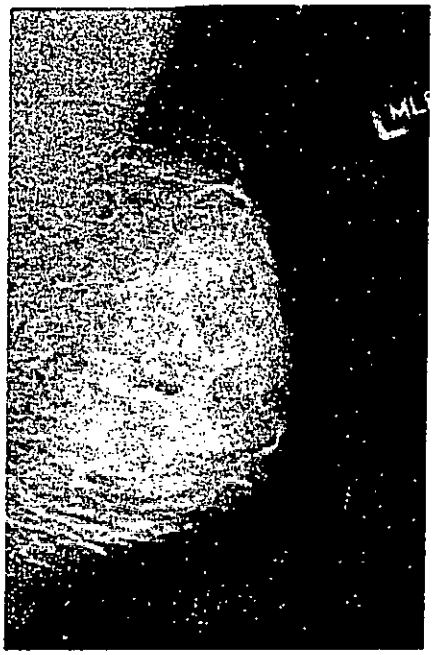

Figure 4. extremely dense [3].

In pre-adolescent or adolescent females, asymmetric development of one breast before the other may be normal. Once development is complete, there is usually only minor differences in the two breasts. An asymmetric area may be indicative of a developing mass, variation of normal breast tissue, postoperative change from a previous biopsy, hormone replacement therapy or merely poor positioning and compression during imaging. The appearance of asymmetries due to positioning and compression during imaging is often the result of superimposition of normal breast structures. True breast asymmetry, on the other hand, is three-dimensional and should be present on both Medio-Lateral Oblique (MLO) and Cranio-Caudal (CC) views. Once an asymmetry is determined to be three-dimensionally real, the interpreter must determine whether the asymmetry is a benign variation of asymmetric breast tissue or a focal asymmetric density that may represent a significant mass. If the former determination could not be made, further evaluation is necessary to clarify if the focal asymmetric density may possibly be a malignant process [6].

The American College of Radiology (ACR), Breast Imaging Reporting and Data System (BI-RADS) defines four different types of asymmetric breast findings [7]:

1-Asymmetric Breast Tissue

2-Densities Seen in One Projection

3-Architectural Distortion

4-Focal Asymmetric Densities