Fibrocystic changes of the breast
Recents in management and prognosis

Essay
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Presented by

Mahmoud Mohamed Afifi
M.B.B.Ch
Faculty of Medicine - Cairo university

Under Supervision of

Prof. Dr. Mahmoud Ahmed Elshafaei

Professor of General Surgery
Faculty of Medicine - Ain-Shams University

Dr. Ashraf Abdelrazek Hegab

Assistant professor of General Surgery
Faculty of Medicine - Ain-Shams University

Faculty of Medicine
Ain shams University
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بسم الله الرحمن الرحيم

وقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ ورَسُولُهُ والْمُؤْمِنُونَ

صدق الله العظيم

سورة التوبة آية (105)

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Mahmoud Mohamed Afifi

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List of abbreviations

BBD	:	Benign breast disease
BC	:	Breast cancer
BI-RADS	:	Breast imaging reporting and data system
BMI	:	Basal metabolic index
EGF	:	Epidermal growth factor
FCCs	:	Fibrocystic changes
FNAB	:	Fine Needle Aspiration Biopsy
GCBD	:	Gross cystic breast disease
HA	:	Histamine
MIBB	:	Minimally Invasive Breast Biopsy
MMG	:	Mammography
MRI	:	Magnetic Resonance Image
NPFCs	:	Non proliferative fibrocystic conditions
PFCs	:	Proliferative fibrocystic conditions
TDLU	:	Terminal duct lobular unit (the functional unit of the human breast)
US	:	Ultrasonography

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Introduction

Fibrocystic changes (FCCs) constitute the most frequent benign disorder of the breast. Such changes generally affect premenopausal women between 20 and 50 years of age. Although many other names have been used to describe this entity over the years, including (fibrocystic disease, cystic mastopathy, chronic cystic disease, mazoplasia, Reclus's disease), the term "fibrocystic changes" is now preferred, because this process is observed clinically in up to 50% and histologically in 90% of women ***(Sahin, 2006).***

A wide variety of histologic diagnosis, including stromal fibrosis, cysts, adenosis, apocrine metaplasia and epithelial proliferation of various degrees can be noticeable in FCC patients ***(Chen et al., 2008).***

The most common presenting symptoms are breast pain and tender nodularities in breasts. Although the exact pathogenesis of the entity is not clear, hormonal imbalance - particularly estrogen predominance over progesterone- seems to play an important role in its development ***(Guray, 2006)***

studies have shown increased risk of fibrocystic breast conditions in the aggregate to be associated with high social class, late age at menopause, estrogen replacement therapy, nulliparity, low body mass index, and family history of breast cancer. While high parity, oral contraceptive use, and physical

activity have been related to decreased risk ***(Chunyuan Wu1 et al., 2004).***

Management of fibrocystic changes includes an early and accurate diagnosis which based on the symptoms, clinical breast examination, and on physical examination. A complete and accurate medical history is also helpful in diagnosing this condition. But the breast biopsy is usually the test used to confirm the suspected diagnosing. After imaging tests (mammography and ultrasound) have been performed and have revealed unusual areas or lumps in the breast ***(Miltenburg, 2008).***

Treatment of FBC will vary based on the severity of symptoms. Some common recommendations;

- Use of properly fitting, supportive bras
- Decrease caffeine intake and methylxanthines
- Low fat diet
- Decrease/stop smoking
- Vitamin E, 200 IU daily
- Decrease salt intake prior to menses to reduce fluid retension
- Ibuprofen, 200-400mg every 4-6 hours for pain relief
- Hormonal contraception such as birth control pills
- Ice or heat packs as needed ***(Morton et al., 2007).***

It is practical to evaluate FCCs under a classification system, as nonproliferative lesions, proliferative lesions without atypia, and proliferative lesions with atypia (atypical

hyperplasia). In various studies, it has been shown that the great majority of breast biopsies (up to 70%) show nonproliferative lesions.

In each of these lesions, the subsequent risk for breast cancer is associated with the histologic appearance of the lesion, compared with the general population, women with nonproliferative lesions on breast biopsy have no elevation in breast cancer risk, whereas women with proliferative disease without atypia and women with atypical ductal or lobular hyperplasia have a greater breast cancer risk, with relative risks ranging from 1.3–1.9 and 3.9–13.0 respectively ***(Guray and Sahin, 2006)*.**

The risk is high in patients with atypical hyperplasia and less in cases of nonproliferative lesions. Risk factors for breast cancer increases with family history of breast cancer and benign breast disease in older women ***(DAHRI et al., 2010).***

Aim of The Work

The aim of this study is the assessment of fibrocystic changes of the breast, (recents in management, and the risk of developing breast cancer).

Development of the Breast

The human breast develops from a thickened ectodermal ridge (milk line) situated longitudinally along the anterior body wall from the groin to the axilla at about 6 weeks' gestation (Fig.1). Regression of the ridge occurs except for the pectoral region (2nd– 6th rib), which forms the mammary gland. Supernumerary glands may develop anywhere along the ectodermal ridges, and in 2% to 6% of women, these glands either mature into mammary glands or remain as accessory nipples.During the 7^{th} and 8^{th} weeks of gestation, the mammary parenchyma invades the stroma, which appears as a raised portion called the mammary disc. Between the10th and 12^{th} weeks, epithelial buds form; parenchymal branching occurs during the 13th through 20th weeks. Between the 12^{th} and 16^{th} weeks of gestation, the smooth musculature of the areola and nipple are formed, and at approximately 20 weeks' gestation, between 15 and 25 solid cords form in the subcutaneous tissue. Branching continues, and canalization of the cords occurs, forming the primary milk ducts by 32 weeks' gestation. At 32 weeks' gestation the ducts open onto the area, which develops into the nipple. The adipose tissue of the mammary gland develops from connective tissue that has lost its capacity to form fibres, and it is considered necessary to further growth of the parenchyma ***(Hovey et al., 2002)*** **.**

Gross Anatomy of The Breast :

The breasts are rounded eminences that contain the mammary glands as well as an abundance of adipose tissue (the main determinant of size) and dense connective tissue. The glands are located in the subcutaneous layer of the anterior and a portion of the lateral thoracic wall. Each breast contains 15–20

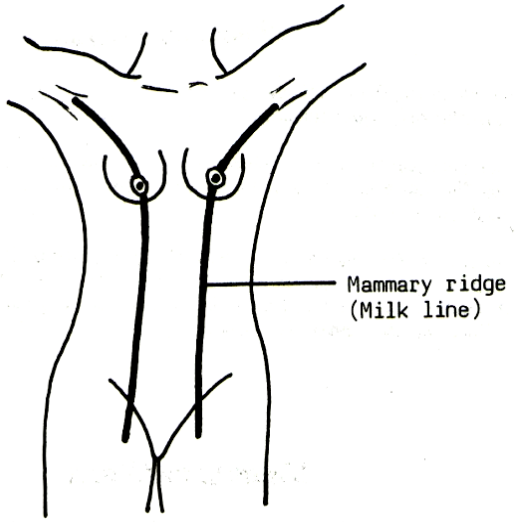

Fig. (1): Course of mammary ridges.

lobes that each consist of many lobules. At the apex of the breast is a pigmented area, (the areola), surrounding a central elevation, (the nipple), the course of the nerves and vessels to the nipple runs along a suspensory apparatus consisting of a horizontal fibrous septum that originates at the pectoral fascia along the fifth rib, and two vertical septa, one along the sternum and the other at the lateral border of the pectoralis minor muscle ***(Wuringer et al., 1998).***

The breast is anterior to the deep pectoral fascia and is normally separated from it by the retromammary (submammary) space. The presence of this space allows for breast mobility relative to the underlying musculature: portions of the pectoralis major, serratus anterior and external oblique muscles. The breast extends laterally from the lateral edge of the sternum to the mid-axillary line and from the second rib superiorly to the sixth rib inferiorly. An axillary tail (of Spence) extends toward the axilla, or armpit (Fig. 2) For clinical convenience, the breast is divided into quadrants by a vertical line and a horizontal line intersecting at the nipple. The highest concentration of glandular tissue is found in its upper outer quadrant. A separate central portion includes the nipple and areola **(*Moore, 2006).***

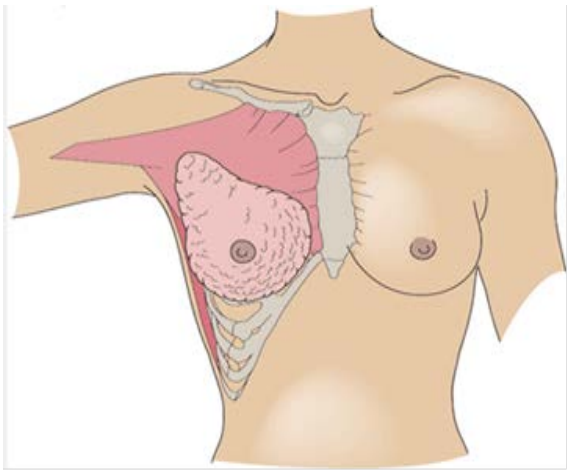

Fig. (2): The adult female breast. The upper and medial portions of the breast rest on the pectoralis major muscle, and the inferolateral portion rests on the serratus anterior ***(Mulholland et al., 2006)***