



# ***Update in painful breast conditions***

***Essay***

**Submitted for partial fulfillment of master degree in  
general surgery**

**Presented by**

**Mohammed Farrag Abd El Hafeez Mahmoud**

**M.B, B.CH**

**Faculty of medicine**

**Ain shams University**

**Supervised by**

***Prof. / Dr. Mohammed Kandil***

***Abdel Fattah***

**Professor of general surgery**

**Ain shams University**

***Dr. Ahmed El-sayed Morad***

**Lecturer of general surgery**

**Ain shams University**

**Faculty of medicine**

**Ain shams University**

**٢٠١٠**



# الحديث في أمراض الثدى المصحوبة بالألام

رسالة

توطئة للحصول على درجة الماجستير في الجراحة العامة  
مقدمة من

الطبيب/ محمد فراج عبد الحفيظ محمود  
بكالوريوس الطب و الجراحة  
كلية الطب - جامعة عين شمس

تحت إشراف

الأستاذ الدكتور/ محمد قنديل عبد الفتاح

أستاذ الجراحة العامة  
كلية الطب - جامعة عين شمس

الدكتور/ أحمد السيد مراد

مدرس الجراحة العامة  
كلية الطب - جامعة عين شمس

كلية الطب  
جامعة عين شمس  
٢٠١٠

اللهم

إِنَّكَ عَفُوٌّ تَحِبُّ الْعَفْوَ فَاعْفُ عَنِّي



# *Acknowledgements*

*First, thanks are all directed to ALLAH for helping me to accomplish this research, and for providing me with such very encouraging and supportive supervisors.*

*I would like to express my deepest gratitude to **Prof. Dr Mohammed Kandil Abdel Fattah**, Professor of General Surgery, Faculty of Medicine, Ain Shams University, for his great support and continuous encouragement throughout the whole work under his guidance and supervision.*

*My deepest appreciation and grateful thanks are due to **Dr. Ahmed El sayed Morad**, Lecturer of General Surgery, Faculty of Medicine, Ain Shams University, for his kind advices and his great effort throughout this work.*

*Also, I cannot fully express my deep gratitude and thanks to my family, who I loved a lot and to whom I dedicate this work.*

# List of contents

<b>Subjects</b>	<b>Page</b>
<b>List of Content</b> .....	(III)
<b>List of tables</b> .....	(IV)
<b>List of figures</b> .....	(IV)
<b>List of abbreviations</b> .....	(VII)
<b>Introduction</b> .....	(IX)
<b>Aim of the work</b> .....	(XI)
<b>Review of literature</b>	
- Development of the breast.....	(1)
- Anatomy of the breast.....	(5)
- Physiology of the breast.....	(17)
- Breast pain (mastalgia).....	(24)
- Painful breast conditions.....	(41)
- Investigations for painful breast conditions.....	(66)
- Management.....	(101)

<b>Summary and conclusion</b> .....	(١٢٠)
<b>References</b> .....	(١٢٣)
<b>Arabic summary</b> .....	(١٣٦)

## List of tables

No	Title	Page
١	Timeline of breast development.	٣
٢	Differential diagnosis of IBC.	٦٥
٣	BIRADS score.	٧٤

## List of Figures

No	Title	Page
١	The milk line.	٢
٢	Development of the breast.	٣
٣	The glandular structure of the breast.	٧
٤	Blood supply of the breast	١٠
٥	Lymphatic drainage of the breast .	١٢
٦	Levels and areas of lymph node.	١٣



୮	Nerve supply of the breast.	୧୦
୯	Breast self examination.	୩୩
୧୦	How to make breast self-examination.	୩୬
୧୧	Acute mastitis.	୪୨
୧୨	Breast cellulitis.	୪୨
୧୩	Breast abscess.	୪୪
୧୪	Types of breast abscess.	୪୮
୧୫	Mondor's disease.	୪୯
୧୬	Fibrocystic disease.	୫୦
୧୭	Breast cysts.	୫୨
୧୮	Mammography of duct ectasia.	୫୪
୧୯	Histology of duct ectasia.	୫୫
୨୦	Histological app. Of Fat necrosis.	୫୮
୨୧	Mammography of fat necrosis.	୫୯
୨୨	Paget's disease of the breast.	୬୧
୨୩	Mammography of IBC.	୬୨
୨୪	Mammography of IBC.	୬୨
୨୫	IBC with skin Erythema.	୬୩
୨୬	IBC with Peau d' orange & skin thickening.	୬୩
୨୭	Techniques for mammography.	୬୬
୨୮	Normal mammography.	୬୮
୨୯	The Digital mammography.	୬୯
୩୦	Typical computer-aided detection (CAD).	୬୯
୩୧	Granulomatous mastitis.	୮୧
୩୨	Retro areolar abscess.	୮୧
୩୩	Subareolar abscess.	୮୧

୩୩	Fibrocystic mammography disease.	୪୨
୩୪	Mammography of duct ectasia.	୪୪
୩୫	Mammography of fat necrosis	୪୫
୩୬	Mammography of IBC.	୪୬
୩୭	Breast cancer ,benign ultrasonography.	୪୭
୩୮	US-guided drainage of abscess	୪୮
୩୯	catheter containing trocar in the abscess cavity.	୪୮
୪୦	after trocar removal and aspiration of pus.	୪୯
୪୧	US image of organized subareolar abscess	୪୯
୪୨	Ultrasound scan of fibrocystic disease	୫୦
୪୩	Ultrasound scan of duct ectasia	୫୦
୪୪	Sonography showing breast mass.	୫୧
୪୫	Breast CT scan.	୫୨
୪୬	MRI images of the breast.	୫୩
୪୭	PET and PET/CT images in IBC.	୫୪
୪୮	Needle aspiration.	୫୫
୪୯	Excisional biopsy.	୫୬
୫୦	Ultrasound-guided biopsy.	୫୭
୫୧	Stereotactic needle biopsy.	୫୮
୫୨	Ductography.	୫୯
୫୩	Ductoscopy & ductal lavage.	୬୦
୫୪	Breast abscess.	୬୦
୫୫	Drainage of Breast abscess.	୬୧
୫୬	Cyst aspiration.	୬୧



•v	Fibroadenoma with homogeneous fibrous stroma.	۱۱۵
----	---	-----

# List of abbreviations

Abbreviation	Meaning
<b>ACR</b>	American College of Radiology.
<b>ACS</b>	American Cancer Society.
<b>AMA</b>	American Medical Association.
<b>BRCA</b>	Breast cancer antigen.
<b>BSE</b>	Breast self examination.
<b>CA</b>	Cancer Antigen.
<b>CAD</b>	Computer aided detection.
<b>CEA</b>	Carcino Embryonic Antigen.
<b>CLND</b>	Completion lymph node dissection.
<b>CMF</b>	Cyclophosphamide, methotrexate, flurouracil.
<b>CNB</b>	Core needle biopsy.
<b>CT</b>	Computed tomography.
<b>DCE</b>	Dynamic contrast-enhanced
<b>DCIS</b>	Ductal carcinoma in situ.
<b>DIEP</b>	Deep inf. epigastric perforator flap.
<b>FFDM</b>	Full-field digital mammography.
<b>FNA</b>	Fine needle aspiration.
<b>GLA</b>	Gamma-linolenic acid.
<b>Her ۲</b>	Human epithelial receptors-۲.
<b>HRT</b>	Hormone replacement therapy.

<b>IBC</b>	Inflammatory breast cancer.
<b>LABC</b>	Locally advanced breast cancer.
<b>LCIS</b>	Lobular carcinoma in situ.
<b>MRI</b>	Magentic resonance imaging.
<b>MRM</b>	Magnetic resonance mammography.
<b>NAC</b>	Nipple areolar complex.
<b>PET</b>	Positron emission tomography.
<b>SLN</b>	Sentinel lymph node biopsy.
<b>SSRI</b>	Selective serotonin reuptake inhibitor.
<b>TRAM</b>	Transverse rectus abd. myocutaneous flap.
<b>U/S</b>	Ultrasonography.

# introduction:

Breast pain (mastalgia) is the most common breast related complaint among women. Nearly 70% of women experience breast pain at some time in their lives. Breast pain is cyclic in 70% of cases and non cyclic in 25%. Cyclic breast pain is clearly related to the menstrual cycle. It's described as heaviness or dull aching pain, often accompanied by breast swelling or lumpiness, usually affects both breasts particularly the upper outer portions and can radiate to the underarm. It intensifies during the two weeks before menstruation then eases up afterward. It usually affects premenopausal & perimenopausal women. Non cyclic breast pain is unrelated to the menstrual cycle. It's described as tightness, burning or soreness. It may be constant or intermittent, usually affects one breast in a localized area but may spread more diffusely across the breast. It usually affects postmenopausal women. **(1)**

The severity of breast pain varies from woman to woman & approximately 15% of women require treatment. It's known that pain means something is wrong and women often jump to the conclusion that breast pain may be cancer. **(2)**

At most times breast pain signals a non cancerous (benign) breast condition and rarely signifies breast cancer. Conditions associated with breast pain include: mastitis, bacterial infection, breast abscess, pregnancy, radiating pain from chest wall or muscles or heart or joints, menstruation and pre-menstrual syndrome, hormonal imbalances, medication including (oral contraceptive pills, hormone replacement therapy & anti depressants), soft tissue damage from trauma, fat necrosis, trauma or previous breast surgery, engorged breasts from initial milk let-down following childbirth, protracted breast feeding, benign breast cysts, breast tumours, eczema of nipple & paget's disease of the nipple. **(3)**

For diagnosis of breast case a process called: triple assessment is used. There are 3 steps in triple assessment. The 1st step is examination: a doctor or nurse asks about medical history and examines breast. The 2nd step is imaging: pictures of the inside of breast are created using ultrasound or mammography. The 3rd step is biopsy: a sample of breast tissue or cells is removed and sent to a laboratory for testing to determine whether the cells are cancerous or not. **(4)**

Management of breast pain includes: life style and home remedies such as : using hot or cold compression, wearing a bra with extra support or a firm support bra fitted by a professional, wearing a sports bra during exercise and while sleeping (when breasts are more sensitive), decreasing fat and caffeine in diet. Relaxation therapy can help control the high levels of anxiety associated with severe breast pain.

Dietary supplements, Vitamin (E) and primrose oil may lessen breast pain symptoms and some doctors recommend vit E and primrose oil capsules. **(5)**

Management also includes elimination of the underlying cause or aggravating factor through medical and surgical treatment. Medical treatment is achieved by : analgesics (ibuprofen or acetaminophen ) , antibiotics (for infections), some medication such as Danazol or Tamoxifen & reduction or stopping the dose of menopausal hormone therapy. **(6)**

Surgical treatment is indicated in painful breast conditions when a mass is found. Surgery is performed in cases of breast abscess drainage , large fibroadenoma , some cases of duct ectasia , painful breast tumors (most painful tumors do not usually indicate breast cancer) & inflammatory breast cancer (causes stabbing pains in the breast). **(7)**





# **Aim of the work:**

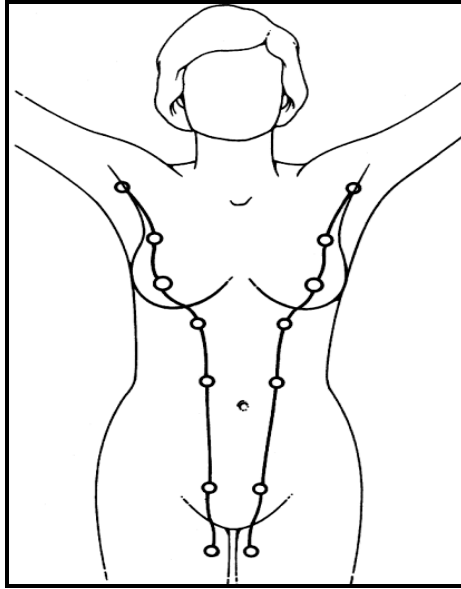
*The aim of this study is to review the recent updates in painful breast conditions as regard causes , new tools in diagnosis and management.*

## Development of the Breasts:

*The breast develops as an invagination of the chest wall ectoderm, which forms a series of branching ducts. The ectoderm and the underlying mesenchyme of dermis are responsible for the genesis of the male and female breast. The ectoderm is responsible for the formation of the ducts and alveoli, and the mesenchyme is responsible for the connective tissue and its vessels. (8)*

*The depressed ectodermal thickening forms the nipple. At the 5th month, the areola is recognized as a circular pigmented area of skin around the future nipple. (table 1). Shortly before birth, this site of invagination everts to form the nipple. (9)*

*In the ventral area of the body, the milk line (ridge) develops. (Figure 1). Usually, it extends from the axilla to the inguinal area. The pectoral part of the milk ridge produces the right and left mammary primordia. The proximal and distal part of the extrapectoral ridge disappears. (10)*



**Figure (2):** The milk line. Mammary glands usually develop in humans from the pectoral portion of the line. Supernumerary mammary structures may develop from other positions along the line. **(10)**

*The ectodermal thickening of the mammary primordium grows into the dermis. This produces 16–24 solid cords of ectodermal cells growing within the underlying mesoderm (dermis) **(Figure 2)**. Later, these buds will become canalized and form the lactiferous ducts and alveoli. The epidermal surface of the future nipple is at first a shallow depression but near term it becomes everted and ready to accept the lactiferous ducts.**(11)***