جامعة عين شمس
كلية الطب البشرى

الطرق المختلفة لجراحات الثدى التحفظية

رسالة مقدمة من

الطبيب/ عماد هلال توفيق

توطئة للحصول على درجة الماجستير

في الجراحة العامة

تحت إشراف

الأستاذ الدكتور/ أبو بكر الصديق مصطفى

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كلية الطب - جامعة عين شمس

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Ain Shams University
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Different Approaches In Conservative Breast surgery in Cancer

A protocol of an assay
Submitted for partial fulfillment of master degree in General Surgery

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2013

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ACKNOWLEDGEMENT

First and for most, I feel indebted to God, most graceful, who gave me the strength to complete this work.

I would like to express my deepest gratitude and appreciation to my principal supervisor, Prof.Dr. Abo Bakr El Sedek Mostafa, Professor of general surgery, Faculty of Medicine, Ain Shams University, for his generous support, encouragement, helpful suggestions and continuous supervision throughout the research, and for his precious time and effort that made this essay possible.

I am particularly grateful to Dr. Gamal Abd El Rahman Abo Zed, Professor of general surgery, Faculty of Medicine, Ain Shams University, for his valuable foresight and meticulous supervision of this work.

Words are few and do fail to express my deepest gratitude to Dr. Mahmod Saad Farahat, Lecturer of general surgery Faculty of Medicine, Ain Shams University, for his continuous encouragement, and close sup ervision throughout the course of this work.

Last but not least, I would like to express my endless gratitude to my **parents** for their support.

Emad Helal 2013

INTRODUCTION

Breast cancer is a major global problem with nearly one million cases occurring each year over the past several decades, the disease's incidence has risen worldwide; increasing in developing and developed countries **(Kurian et al., 2009).**It is the second leading cause of cancer death. However breast cancer is the leading cause of cancer death in women below 65 years **(Pegram and Casciato., 2009).**

Regardless of the type of breast problem, the goal of the evaluation is to rule out cancer and address the patient's symptoms **(Kelsey et al., 2009) .**

Diagnosis of abreast lump or symptoms suspicious of carcinoma should be made by a combination of clinical assessment, radiological imaging, and tissue sample taking by either cytological or histological analysis, the so called triple assessment **(Smith and Cokkinides, 2006) .**

Through the years the classification of early breast cancer has changed as the disease has changed in presentation .In recent years more than 50% of the breast cancers that diagnosed in most treatment facilities in the United States consists of (in situ carcinomas)**(Cady et,al., 2009) .**

Ductal carcinoma in situ is commonly detected as mammographic calcifications, whereas Lobular carcinoma in situ is most often unexpectedly diagnosed after biopsy of palpable mass or radiological abnormality. Ductal carcinoma in situ is a precursor of invasive duct carcinoma and lobular carcinoma in situ is considered to be a risk factor for the subsequent appearance of both ductal and lobular carcinomas **(Armando et al., 2007) .**

As the technology quickly improves, giving new modalities such as ductoscopy will become more widely accepted and applied for breast disorders, not only as a diagnostic tool but also as a privileged therapeutic option for certain pathologies **(Kamali et al., 2009).**

Breast cancer management has been evolving toward minimally invasive approaches. Image-guided percutaneous biopsy techniques provide accurate histological diagnosis without the need for surgical biopsy **(George and Helena, 2007).**

Breast conserving surgery has been a recognized method of treatment of early breast cancer. The treatment methods include quadrantectomy or skin sparing mastectomy combined with ipsilateral axillary nodal dissection followed by radiotherapy. Modified radical mastectomy continues to be appropriate for some patients **(Santiago et al., 2007).**

Sentinel lymph node biopsy is the procedure of choice that can predict axillary lymph node status without the need of axillary lymph node dissection **(George and Helena, 2007).** This resulted in a minimally invasive surgical staging procedure that accurately stages the axilla with minimal morbidity **(Shokuhi and Clarke, 2007).**

Surgery still has a central role to play in management of breast cancer but there has been a gradual shift towards more conservative techniques**, (Sainsbury, 2008**) including radiofrequency ablation, interstitial laser ablation, focused ultrasound ablation, and cryotherapy, are currently under development and may offer effective tumor management and provide treatment options that are psychologically and cosmetically more acceptable to the patients **(George and Helena, 2007).**

The choice of treatment is determined by a number of clinical factors including patient age, tumor size, breast size, node status, and others **(Foote et al., 2008).**

AIM OF THE WORK

The aim of this work is to discuss the advantages of conservative breast surgery regarding the outcome, prognosis & survival over mastectomy in management of early breast cancer.

Chapter (1)

ANATOMY OF THE FEMALE BREAST

The breast tissue includes both epithelial parenchymal elements and stroma. The epithelial component comprises about 10%-15% of the breast mass and the remainder is being stroma***(Bland et al., 2007).***

Gross anatomy of the breast:

In young adult females, each breast is a rounded eminence lying within the superficial fascia, chiefly anterior to the upper thorax. The base of the breast (its attached surface) extends vertically from the second or third to the sixth rib, and in the transverse plane, from the sternal edge, medially, almost to the mid-axillary line laterally. The superolateral quadrant is prolonged towards the axilla along the inferolateral edge of pectoralis major, from which it projects a little, and may extend through the deep fascia up to the apex of the axilla (the axillary tail of Spence) ***(Bannister et al.., 2005).***

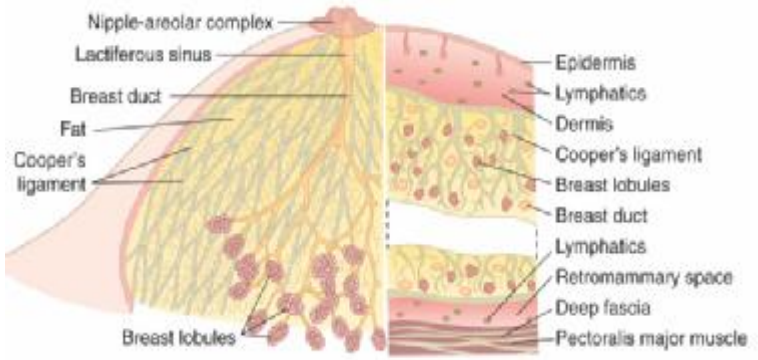

Fig.(1) Sagittal section of the breast***(Bannister et al.., 2005).***

The breast lies upon the deep pectoral fascia, which in turn overlies pectoralis major and serratus anterior, and below,external oblique muscle and its aponeorosis as that forms the breast and the deep fascia is loose connective tissue in the retro mammary(sub mammary)space, which allows the breast some degree of movement on the deep pectoral fascia ***(Bland,et al., 2007).***

Arterial blood supply:

There are three main sources of arterial blood supply:

1. Internal mammary artery.

2. Lateral thoracic artery.

3. Intercostal arteries.

Many parts of mammary gland are supplied by two and sometimes three of main sources. The medial portion of gland derives its major supply from the penetrating or intercostals branches of the internal mammary artery. The entire gland derives its major supply from intercostal arteries whereas the branches of lateral thoracic artery supply the lateral portion of the gland ***(Bannister et al., 2005).***

1-<u>Internal mammary artery:</u>

Branch of first portion of the subclavian artery. It gives off several perforating arteries to the breast which pass through the intercostal spaces.

The perforating arteries may be one of the following:

Anterior medial mammary arteries:

The anterior perforating branches of the internal mammary artery pass forward through the medial end of the intercostal spaces accompanying the anterior cutaneous branches of the intercostal nerves. They pass through spaces from 1 to 4 and divide into cutaneous mammary branches. There are usually no more than two anterior medial mammary arteries to each side ***(Richard et al., 2005).***

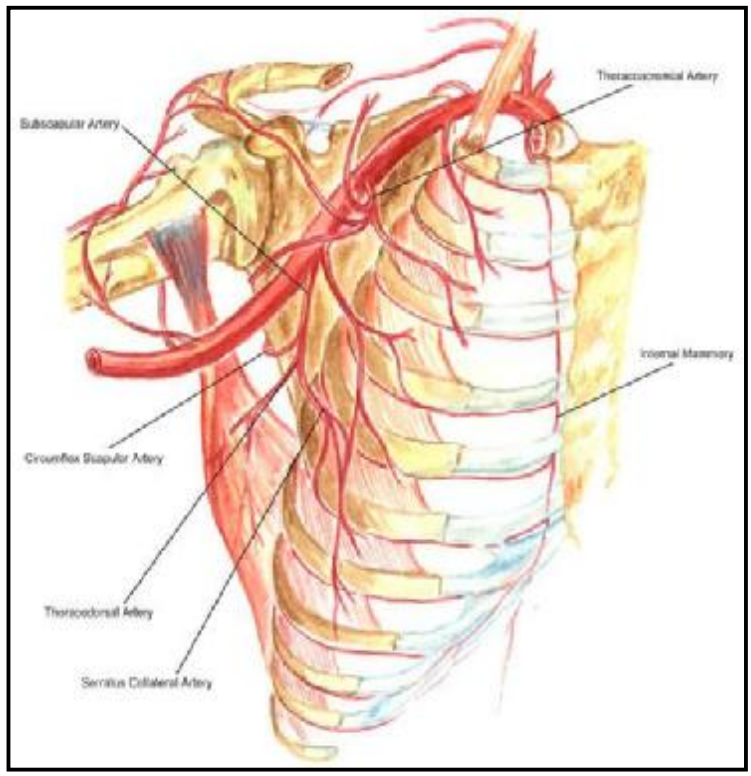

Fig. (2): Arterial blood supply of the breast***(Bannister et al.., 2005).***

Posterior medial mammary arteries*:*

They are branches of internal mammary artery.They traverse the intercostal space perforating the pectoralis major muscle and have a tortuous course on the anterior surface of the pectoralis major running in the retro_mammary space. They traverse the space perforating the breast on the posterior aspect and anastomose with other branches within the breast ***(Richard et al., 2005).***

2-Lateral thoracic artery (external mammary artery):

It has also been called the principle external artery of the breast. It may arise from the second part of axillary artery, from the thoracoacromial or subscapular arteries. This artery is absent in 30% of the time but that it may be the only source of blood supply to the nipple 13% of the time.

When it is present, the lateral mammary artery runs over the axillary tail of the breast. It supplies the breast and ends by joining the other mammary arteries in plexus which arborize throughout the parenchyma of the gland and which tends to radiate and concentrate toward the nipple ***(Richard et al., 2005).***

3- The intercostal arteries:

They are the least important of the arteries supplying blood to the breast. They take origin from aorta posteriorly and course anteriorly in the intercostal spaces terminating in an anastomotic plexus in the lower quadrant. The fourth or fifth intercostal arteries are usually dominant ***(Richard et al., 2005).***