Expansion of Breast conservative Surgery based on the effect of neoadjuvant chemotherapy for stage II and operable stage III breast cancer.

A thesis submitted for partial fulfillment of the MD degree in general surgery.

By:

Mohamed Mohamed Abdel Latif Toeima
M.B., Bch., M.Sc. of surgery

Under supervision of:

Prof. Dr. El-Sayed Abdel Haleem
Professor of general surgery-faculty of medicine
Cairo University

Prof. Dr. Alaa A. Maher
Professor of general surgery-faculty of medicine
Cairo University

Prof. Dr Yehia M. Safwat
Professor of general surgery-faculty of medicine
Cairo University

Faculty of medicine
Cairo University
2008

بسم الله الرحمن الرحيم

To my family

Abstract

40 female patients with stage II or III breast cancer with lesions ranging from 4.5 to 7 cm were given neoadjuvant chemotherapy and then reassessed. The responding cases were subjected to conservative breast surgery while nonresponders proceeded to modified radical mastectomy. All patients received adjuvant radio and chemotherapy +/- hormonal treatment

Keywords:

Conservative breast surgery - multimodality treatment - neoadjuvant.

Acknowledgement

I wish to express my deepest thanks, gratitude and appreciation to **Professor Dr. El-Sayed Abdel Haleem**, professor of general surgery, Cairo University, to **Professor Dr. Alaa A. Maher**, Professor of general surgery, Cairo University and to **Professor Dr. Yehia M. Safwat**, Professor of general surgery, Cairo University, for their close supervision and continuous advice which gave me the best guide during different stages of this work.

I would like to express my deepest gratitude to **Dr. Ahmed Shoukry** consultant surgical oncology in EL Salam Oncology Center for his valuable assistance in all steps of my work.

Mohamed M. Toeima

List of Contents

List of figures

List of Tables

List of abbreviations

- **AJCC:** American Joint Committee on Cancer Staging.
- **C T:** Computerized tomography.
- **CMF:** Chemotherapy regimen consists of, Cyclophosphamide, Methotrexate and 5-Fluorouracil.
- **DCIS:** Ductal carcinoma in situ.
- **DFS:** Disease Free Survival.
- **ER:** Estrogen receptors.
- **FAC:** Chemotherapy regimen consists of, 5-Fluorouracil, Adriamycin and Cyclophosphamide.
- **FEC:** Chemotherapy regimen consists of, 5-Fluorouracil, Epidoxorubicin and Cyclophosphamide.
- **FNAC:** Fine needle aspiration cytology.
- **FNC:** Chemotherapy regimen consists of, 5-Fluorouracil, Novantron and Cyclophosphamide.
- **Gy:** Gray.
- **IDC:** Invasive ductal carcinoma.
- **LABC:** Locally advanced breast cancer.
- **LCIS:** Lobular carcinoma in situ.
- **MRI:** Magnetic resonance imaging.
- **MRM:** Modified radical mastectomy.
- **NSABP:** National Surgical Adjuvant Bowel and Breast project.
- **PR:** progesterone receptors.
- **RT:** Radiotherapy.
- **TNM:** Tumor, Node, Metastases.
- **U/ S:** Ultrasonography.
- **WHO:** World health organization.

Introduction

Breast cancer has a major impact on women health. Approximately 183,000 women are diagnosed to have breast cancer each year and nearly 41,000 women die of the disease.

There has been a slight decline in the breast cancer mortality overall which can be attributed both to the success of early detection programs and to advances in treatment, particularly developments in systemic therapy. **(Greenlee et al., 2000).**

Adjuvant chemotherapy has been shown to prolong survival in all subsets of patients with breast cancer. In addition, among patients with locally advanced breast cancer, Neoadjuvant (preoperative) chemotherapy has improved the ability to perform breast conservative therapy. This observation, and the results of laboratory studies, has prompted investigation of Neoadjuvant chemotherapy as a treatment strategy for operable breast cancer. **(Green M, Hortobagyi GN., 2002).**

The long term survival rate among women who undergo breast conserving surgery is the same as that among women who undergo radical mastectomy. Breast conservative surgery is therefore the treatment of choice for women with relatively small breast cancers. **(Veronesi, et al., 2002).**

Loco-regional recurrences are more frequent in patients who undergo breast conservative therapy than after mastectomy and adjuvant (postoperative) chemotherapy. **(Avril, et al., 1998).**

Neoadjuvant chemotherapy is being used increasingly in the management of patients with breast cancer, especially locally advanced cases. Such treatment

is administered with the aim of reducing the size of the primary tumour to increase the possibility of breast conserving treatment (BCT). **(Inaji, et al., 2002)**

Neoadjuvant chemotherapy improves the overall survival and renders possible breast conserving treatment in locally advanced breast cancer. It was necessary for this method to be evaluated in operable breast tumours too large to be treated immediately by conserving surgery. **(Maurice, et al., 1999).**

Neoadjuvant chemotherapy permitted breast conservation treatment in two-thirds of cases in which breast conservative treatment was initially considered to be impossible. **(Avril et al., 1998).**

Aim of the work

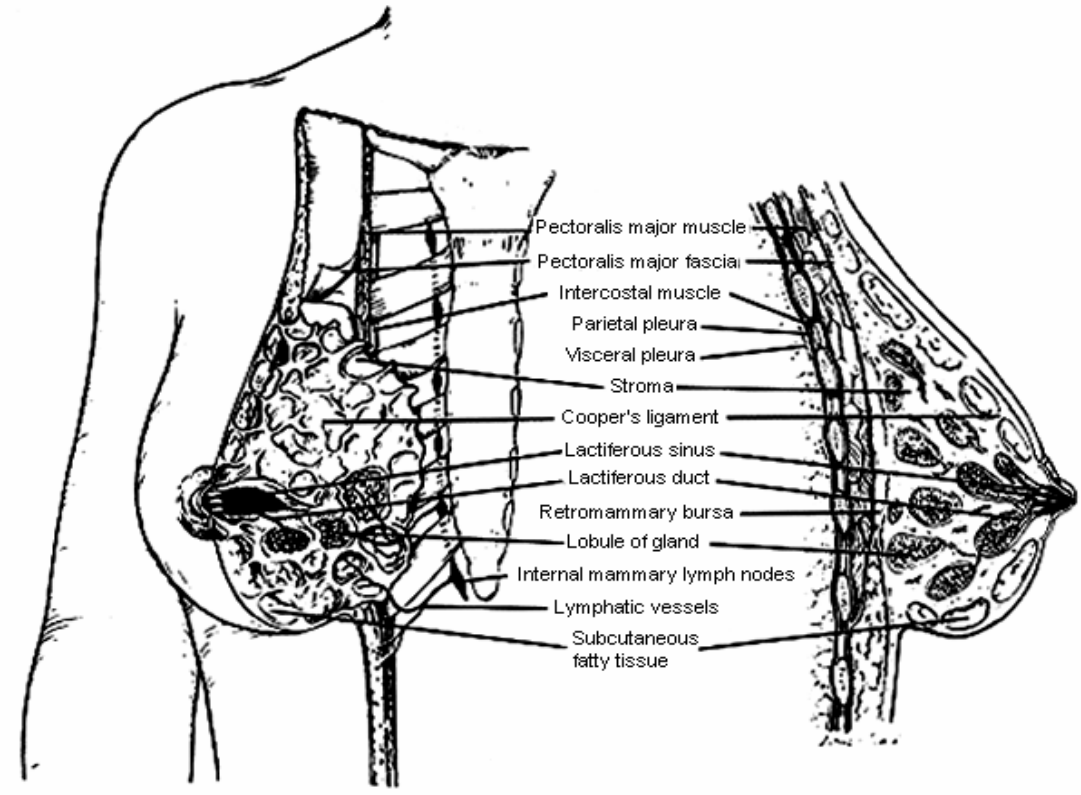
It is to find out the percentage of cases that will respond to neoadjuvant chemotherapy followed by conservative mastectomy in comparison to non responding cases necessitating mastectomy.

Close follow up of cases will be done to determine the rate of recurrence in each limb of the study.

Anatomy of the breast

Gross Anatomy of the Breast

The breast is made up of the mammary gland, the fatty superficial layer in which the gland is embedded and the overlying skin with the nipple and surrounding zone of pigmented skin i.e. the areola. The breast lies in the superficial fascia, separated from pectoralis major muscle by the pectoral fascia, which is the deep fascia. Horizontally, the breast extends from the side of the sternum to the mid axillary line; vertically it lies over the second to the sixth rib, covering about two thirds of the serratus anterior muscle. At its lower medial quadrant, the gland rests on the external oblique aponeurosis, this separates it from the rectus abdominis muscle. **(Romanes; 1976)**



A tangential view of the breast on the chest wall, a sagital view of the breast and associated chest wall. **(Bland et al. 1991)**

The axillary tail is a prolongation from the outer part of the gland which passes up to the level of the third rib in the axilla, where it is in direct contact with the main lymph nodes of the breast (anterior axillary nodes). This process of breast tissue gets into the axilla through an opening in the axillary fascia, known as the Foramen of Langer, it follows that axillary tail is beneath the deep fascia, and not, like the rest of the breast tissue, superficial to this layer. **(Decker et al. 1986).**

The apex of the gland, the nipple, lies a little below the mid-point of the gland and approximately over the fourth intercostal space unless the gland is pendulous. The nipple is free of fat but contains circular and longitudinal smooth muscle fibers, which can erect or flatten it respectively. The skin of the nipple and areola contains modified sweat and sebaceous glands, particularly at the outer margin of the areola. In the later stages of pregnancy, the proliferation of breast ducts and the growth of many secretary alveoli from their branching ends replace the greater part of the fat in the gland **(Romanes;1976).**

The lobule is the basic structural unit of the mammary gland. The number and size of the lobules vary enormously. They are most numerous in young women. From 10 to over 100 lobules empty via ductules into a lactiferous duct of which there are from 15 to 20. Each lactiferous duct is lined by a spiral arrangement of contractile myoepithelial cells and is provided with a terminal ampulla (Lactiferous sinus), a reservoir for milk or abnormal discharges. **(Saunders et al. 2000)**

The young breast is protuberant, the older breast is pendulous. The former is supported by fibrous tissue strands (Ligaments of cooper) connecting the deep fascia with the overlying skin (dermis). When atrophic they allow the organ to drop, when contracted from the fibrosis around a carcinoma they cause pitting of the skin. **(Sinnatamby; 1998)**