RECONSTRUCTIVE BREAST SURGERY AFTER MASTECTOMY

An Essay
Submitted In Partial Fulfilment Of The Master Degree In
General Surgery

By

Marwa Gaber Abd EL-Kader
(M.B,B.Ch)

Supervisors

Prof.Dr.Abd El-Ghani Mahmmoud El- Shamy
Professor Of General Surgery
Faculty Of Medicine,Ain Shams University

Dr. Mohammed Hamdi Hammoda
Assistant Professor Of General Surgery
Faculty Of Medicine,Ain Shams University

Dr.Ahmed Sobhy El-Sobky
Lecturer Of General Surgery
Faculty Of Medicine,Ain Shams University

Faculty Of Medicine
Ain Shams University

2009

First and foremost I would like to thank (ALLAH)for every thing. This would not be achieved without the willing and support of (ALLAH).

Acknowledgment

I would like to express my deepest gratitude to Prof.Dr. **Abd El-Ghani Mahmmoud El-Shamy,** Professor Of General Surgery,Faculty Of Medicine ,Ain Shams University.for his constant help,encouragement, meticulous constructive advice and keen supervision to me .

I would like to express my deepest gratitude to **Dr. Mohammed Hamdi Hammoda** Assistant Professor Of General Surgery, Faculty Of Medicine,Ain Shams University. For his guidance,help ,effort,support and advices during the study.

I am greatly honoured to express my deep gratitude to **Dr.Ahmed Sobhy El-Sobky,** Lecturer Of General Surgery, Faculty Of Medicine,Ain Shams University .He gave me much of his time ,experience and endless support that can not be expressed in words.

Finally, I wish to Acknowledge my family , for their great support not only in this work but in all my life.They gave me every thing and took nothing.

Contents

List Of Figures

List Of Abbreviations

AD	Areolar diameter
ASIS	Anterior superior iliac spine
DBR	Delayed breast reconstruction
DCIA	Deep circumflex iliac artery
DCIS	Ductal carcinoma in situ
DIEP	Deep inferior epigastric perforator
FDA	Food and Drug Administration
IBR	Immediate breast reconstruction
IGAP	Inferior gluteal artery perforator
IMC→IA	Inframammary crease to the inferior areolar distance
LD	latissimus dorsi
MDOT	Modified double-opposing tab flap
MS	Muscle-sparing technique
NAC	Nipple-areola complex
SA→SB	Superior areola to the superior breast distance
SGAP	Superior gluteal artery perforator
SIEA	Superficial Inferior epigastric artery
SSM	Skin sparing mastectomy
TRAM	The transverse rectus abdominis muscle
TUG	Transverse Upper Gracilis

List Of Tables

جراحة إعادة بناء الثدي بعد إستئصاله

رسالة مقدمة
تؤطئة للحصول على درجة الماجستير
في الجراحة العامة

مقدمة من
الطبيبة/مروة جابر عبد القادر

تحت إشراف

الأستاذ الدكتور/عبد الغني محمود الشامي
أستاذ الجراحة العامة
كلية الطب جامعة عين شمس

الدكتور/محمد حمدي حمودة
أستاذ مساعد الجراحة العامة
كلية الطب جامعة عين شمس

الدكتور/أحمد صبحي السبكي
مدرس الجراحة العامة
كلية الطب جامعة عين شمس

كلية الطب
جامعة عين شمس

INTRODUCTION

The breast represents a secondary sexual characteristics and symbol of feminity and maternity .A radical and modified radical mastectomy is a mutilate surgical intervention which causes a number of emotional and social problems .Reconstructive surgery helps to overcome psychosocial problems of a patient and her return to everyday activities **(Kosovac et al.,2001).**

Mastectomy involves the removal of breast tissue, varying amounts of skin and invariably the nipple-areola complex. The removal of these tissues results in the loss of volume, shape ,and contour of the breast .Breast reconstruction aims to restore these attributes and uses the opposite breast as an aesthetic reference point **(Snelling et al.,2005).**

Breast reconstruction can help to address the disfigurement and sense of loss that often follow mastectomy .The decision whether to pursue reconstruction and the choice of reconstructive strategy are individualized and take into account the patient's body characteristics, overall health , breast cancer treatment plan and personal preferences **(Diohan et al.,2008).**

Timing of breast reconstruction after mastectomy is determined primarily by patient factors and the need for postmastectomy radiation therapy. If the risk of postmastectomy radiation is low, then immediate reconstruction produces the optimal aesthetic result. If the risk of postmastectomy radiation is high ,then delayed reconstruction is preferable to optimize both radiation delivery and aesthetic outcome **(Ananthakrishnan et al.,2008).**

Breast reconstruction generally consists of two stages: restoration of the breast mound and reconstruction of the nipple–areola complex. Reconstruction of the breast mound itself can be performed with the use of either implants or autogenous tissues **(Cordeiro ,2008).**

In cases of flap reconstruction ,skin,fat,and muscle are transferred either as a pedicled flap ,with its own vascular supply ,or as a free flap which requires microvascular reattachment of the blood vessels .The most common pedicled myocutaneous flap is the transverse rectus abdominis myocutaneous (TRAM) flap **(Cordeiro ,2008).**

Implant reconstruction maybe single or two stage procedures. Traditionally ,small breasts with minimal ptosis are suited for single-stage reconstruction. Large breasts or inadequate skin require expanders followed by implants **(Mohammadi et al.,2006).**

The creation of **a** nipple–areola complex following breast reconstruction improves the cosmetic outcome ,and many patients may request such a procedure **(Jatoi et al.,2006).**

All procedures for breast reconstruction are associated with an increase in morbidity beyond that associated with mastectomy alone.Each procedure has advantages and disadvantages that must be weighed by the patient and her physicians to reach an appropriate decision **(Cordeiro ,2008).**

AIM OF THE WORK

The aim of this work is to highlight the current surgical techniques of reconstruction after mastectomy ,stress on the commonly used techniques of reconstructive surgery ,timing of surgery and the reported results.

ANATOMICAL CONSIDERATIONS

Anatomy Of Breast

The breast is a modified cutaneous gland of "skin appendage". It is enclosed between the superficial and deep layers of the superficial fascia of the anterior abdominal wall .The supefricial layer is a very delicate but definite structure, which can be seen by the surgeon who looks for it. It is not as well defined in fatty breasts and along the inframammery fold **(Beer et al.,2002).**

The roughly circular base of the female breast extends transversely from the lateral border of the sternum to the midaxillary line and vertically from the 2nd to the 6th ribs. A small part of the breast may extend toward the axillary fossa, forming an axillary tail of Spence. Two thirds of the breast rests on the pectoral fascia ; the other third rests on the fascia covering the serratus anterior muscle. Between the breast and the pectoral fascia is a well-defined space called retromammary space (bursa) **(Moore et al, 2007).**

The retromammary bursa contains loose areolar tissue, which allows for a degree of mobility of the breast over the chest wall. Projections of the deep layer of the supericial fascia cross the retromammary space and fuse with the pectoral fascia. These form the posterior suspensory ligaments of the breast. Skiles showed that small islands of the breast parenchyma might accompany these fibrous processes, which are attached to the pectoral fascia **(Carlson , 2006).**

The breast glandular tissue is firmly attached to the dermis of the overlying skin by the suspensory ligaments (of Cooper).These ligaments, particularly well developed in the superior part of the gland support the mammary gland lobules. At the greatest prominence of the breast is the nipple, surrounded by a circular pigmented area (the areola). The breast contains 15to 20 lobules of glandular tissue, which constitute the parenchyma of the

mammary gland .Each lobule is drained by a lactiferous duct, which opens independently on the nipple **(Moore et al, 2007).**

.

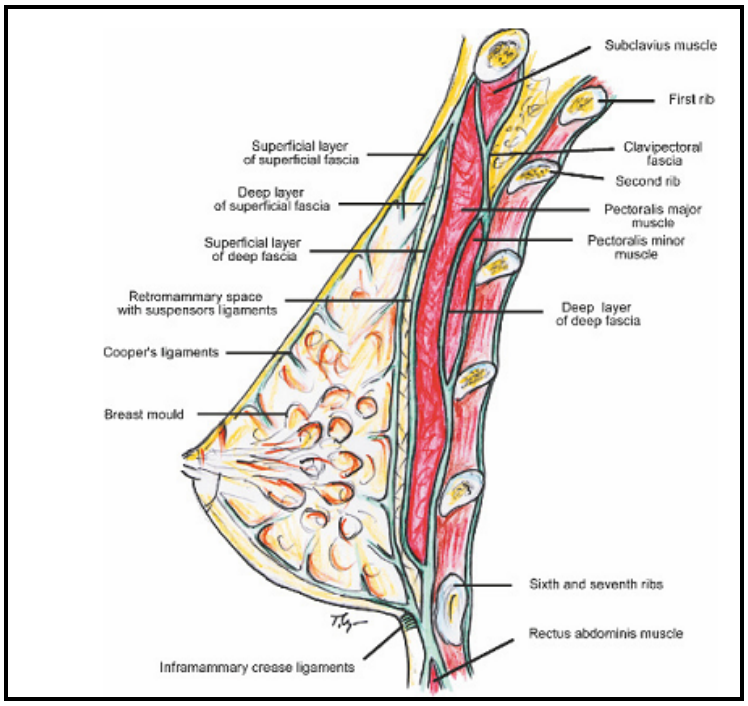
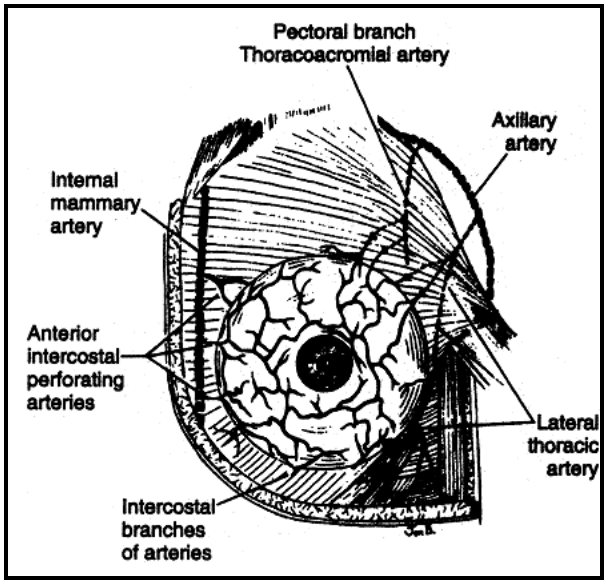


Figure (1): Schematic representation of breast and pectoral fascia (Mugea ,2009).

The Blood supply of the breast is gained mainly from the axillary artery via its lateral thoracic and acromiothoracic branches and the internal thoracic (internal mammary) artery via its perforating branches; these pierce the first to the fourth intercostal spaces, then traverse pectoralis major to reach the breast along its medial edge. The first and second perforators are the largest of these branches and From the intercostal arteries via their lateral perforating branches **(Ellis , 2006).**



Fig(2): Arterial distribution of blood to the breast, axilla, and chest wall (Romrell et al.,2006).

The lymphatic drainage of the breast is important because of its role in the metastasis of cancer cells. Lymph passes from the nipple, areola and lobules of the gland to the subareolar lymphatic plexus and from it:

- Most lymph (> 75%), especially from the lateral quadrants of the breasts, drains to the axillary lymph nodes (pectoral, humeral, subscapular, central, and apical), However, some lymph may drain to interpectoral, deltopectoral, supraclavicular, or inferior deep cervical nodes **(Bland ,2007).**
- Most of the remaining lymph, particularly from the medial breast quadrants, drains to the parasternal lymph nodes or to the opposite breast. Lymph from the inferior breast quadrants may pass deeply to abdominal lymph nodes (inferior phrenic nodes) **(Romrell et al.,2006).**

Lymph from the axillary nodes drains to infraclavicular and supraclavicular nodes and from them to the subclavian lymphatic trunk. ymph from the parasternal nodes enters the bronchomediastinal trunks, which ultimately drain into the thoracic or right lymphatic duct**(Romrell et al.,2006).**