

BREAST RECONSTRUCTION USING AUTOLOGOUS FLAPS VERSUS IMPLANTS AFTER ABLATIVE SURGERY FOR BREAST CANCER

Thesis

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GENERAL SURGERY

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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ABSTRACT

Breast reconstruction after ablative surgery for cancer breast is becoming a widely accepted concept if not a routine, after adequate patient assessment. The need to choose the proper method and proper timing tailored according to each patient is crucial. The increase in patient's expectations and the attempt to minimize morbidity are the most important forces empowering the development in breast reconstruction

Keywords:

- Cancer breast
- Breast reconstruction
- Immediate versus delayed reconstruction
- Autologous versus alloplastic reconstruction

INTRODUCTION

Cancer breast is one of the most common malignancies and the most common malignancy among females. Different modalities of treatment entail different resection policies concentrating on noncosurgical safety, but leaving and resulting in different ratios of mutilations. This may include total loss of the breast envelope and underlying pectoralis muscle as well as areola and nipple complex, depending on the magnitude of extensive surgery (Kroll et al., 2000, Settembrini et al., 2012).

The concept of reconstructing the breast after such ablative surgery started in a shy and humble way in light of the primary goal of defeating malignancy. Reconstruction concept evolved to bear in mind the patient if attainable (Elkowitz et al., 1993).

The evolving of the concept of breast reconstruction reached a level where different procedures of reconstruction run in parallel to different ablative procedures; from radical mastectomy, breast saving procedures and oncoplastic surgery, the use of autologous, alloplastic or combination of both methods of reconstruction were used to restore skin envelope, volume replacement and areola and nipple reconstruction, reaching a satisfying result for patient (Kronowitz et al., 2009, Rosson et al., 2010).

AIM OF THE WORK

Studying the feasibility and the conceptual safety of adopting breast reconstruction after different ablative surgical modalities for cancer breast. This study went through the safety and timing of reconstruction, to be synchronous with the ablative procedure or delayed after that, and if delayed how far should it be delayed.

The concept of approaching the contralateral native breast with reduction mammoplasty or mammopexy was studied with its debates.

In this study different advantages and difficulties of using alloplastic versus autologous methods of reconstruction were reviewed and compared in a retrospective clinical study, to be able to conclude a clear protocol on when, how and which method to be used for breast reconstruction in different patients.

ANATOMY

When considering the anatomy of the breast, it is helpful to distinguish between physiologic anatomy and structural anatomy. Physiologic anatomy relates to the arterial and venous supply, innervation and lymphatic drainage of the breast. Essentially, these are the anatomical features of the breast which must be respected and manipulated appropriately during the various types of procedures. For instance, failure to adequately preserve arterial inflow to the nipple–areola complex (NAC) during a skin sparing mastectomy can result in disastrous consequences with potential loss of this very important structure. For this reason, it is imperative that the informed surgeon fully understand the various sources of innervation and vascular supply to the breast.

Structural anatomy is inherently much more interesting. The support structure of the breast includes the parenchyma, fat, skin and, most importantly, the fascial architecture of the breast. When it comes to surgically manipulating the breast, understanding how these variables interrelate to one another can profoundly affect the quality and success of the overall result. Included in the structural anatomy of the breast is the underlying musculature. Although not part of the breast, the location and attachments of the pectoralis major and minor muscles and, to a lesser extent, the serratus anterior and the rectus abdominis can all affect the final result after breast surgery as a result of the common practice of placing implants under these muscles. Understanding where these muscles are located in relation to the overlying breast can greatly facilitate their use and avoid morbidity (Sabel, 2009).

GENERAL CONSIDERATIONS:

The adult female breast or mammary gland lies in the subcutaneous tissue (superficial fascia) of the anterior thoracic wall. The base extends from the sternal edge to near the midaxillary line and from the second to the sixth ribs in the non-

ptotic state. A small part of the upper outer quadrant extends into the axilla and lies in the subcutaneous fat, called the axillary tail.

The adult breast contains 14–18 irregular lactiferous lobes that converge to the nipple through ducts 2.0–4.5 mm in diameter; in each breast, 4–18 lactiferous ducts drain to the nipple; the glands-to-fat ratio is 2:1 in lactating women, and 1:1 in non-lactating women (**Sabel, 2009**).

The milk ducts (lactiferous ducts) are immediately surrounded with dense connective tissue that functions as a supporting framework. The glandular tissue of the breast is biochemically supported with estrogen; thus, when a woman reaches menopause and her estrogen levels decrease, the glandular tissue then atrophies, withers, and disappears, leaving a breast composed only of fat (adipose tissue), superficial fascia, the suspensory ligaments, and the skin envelope. The structural support system of the breast is made of superficial fascia; the suspensory ligaments and the skin envelope can change the fibrous framework and the force of gravity (**Ramsay et al., 2005**).

The dimensions and the weight of the breast vary much among women: 500–1,000 g each. A small-to-medium-sized breast weighs 500 g or less; large breasts weigh 750–1,000 g. The tissue composition ratios of the breast vary from woman to woman; some breasts have greater proportions of glandular tissue than of adipose or connective tissues, and vice versa; and it is the fat-to-connective-tissue ratio that determines the firmness, the density, of the breast. In the course of a woman's life, her breasts will change in size, shape, and weight, because of the bodily changes occurred in the menarche, menstruation, pregnancy, the weaning of an infant child (**Sabel, 2009**).

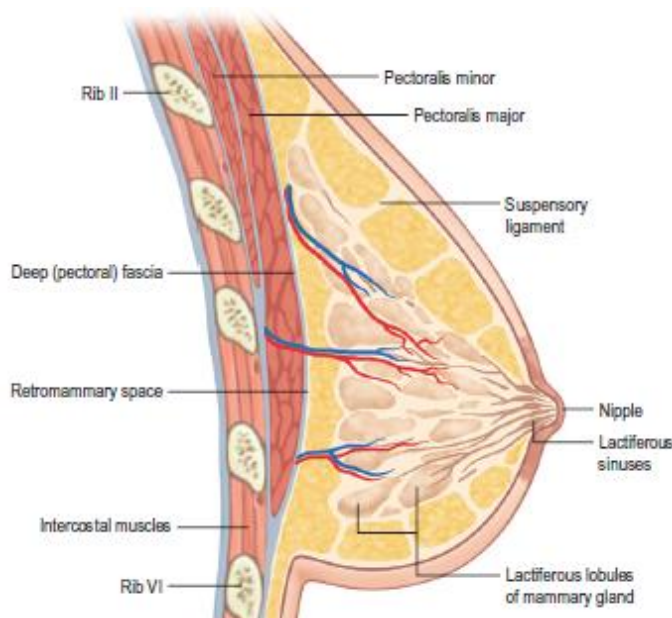


Fig.1: Anatomy of the female breast (Gregory et al., 2010)

MUSCLES RELATED TO THE BREAST:

The breast overlies the pectoralis major, serratus anterior, and a small part of the rectus sheath and external oblique muscle. The muscles of the chest wall are important in breast surgery for two reasons. First, perforators from the main feeding vessels of the chest wall travel through the muscles to supply the breast. Therefore, for instance, the pectoralis major serves as a conduit for many perforators to enter the breast from the thoracoacromial system. Secondly, in breast reconstructive surgery, implants are commonly placed under these chest wall muscles (Sinnatamby, 2006).