MANAGEMENT OF BREAST CARCINOMA

Essay

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By

MAMDOUH SAMI KIROLLOS

SUPERVISED BY :

Prof.Dr. ABD EL-MEGUID EL-SHINNAWY

Prof. of General Surgery

FACULTY OF MEDICINE

AIN SHAMS UNIVERSITY

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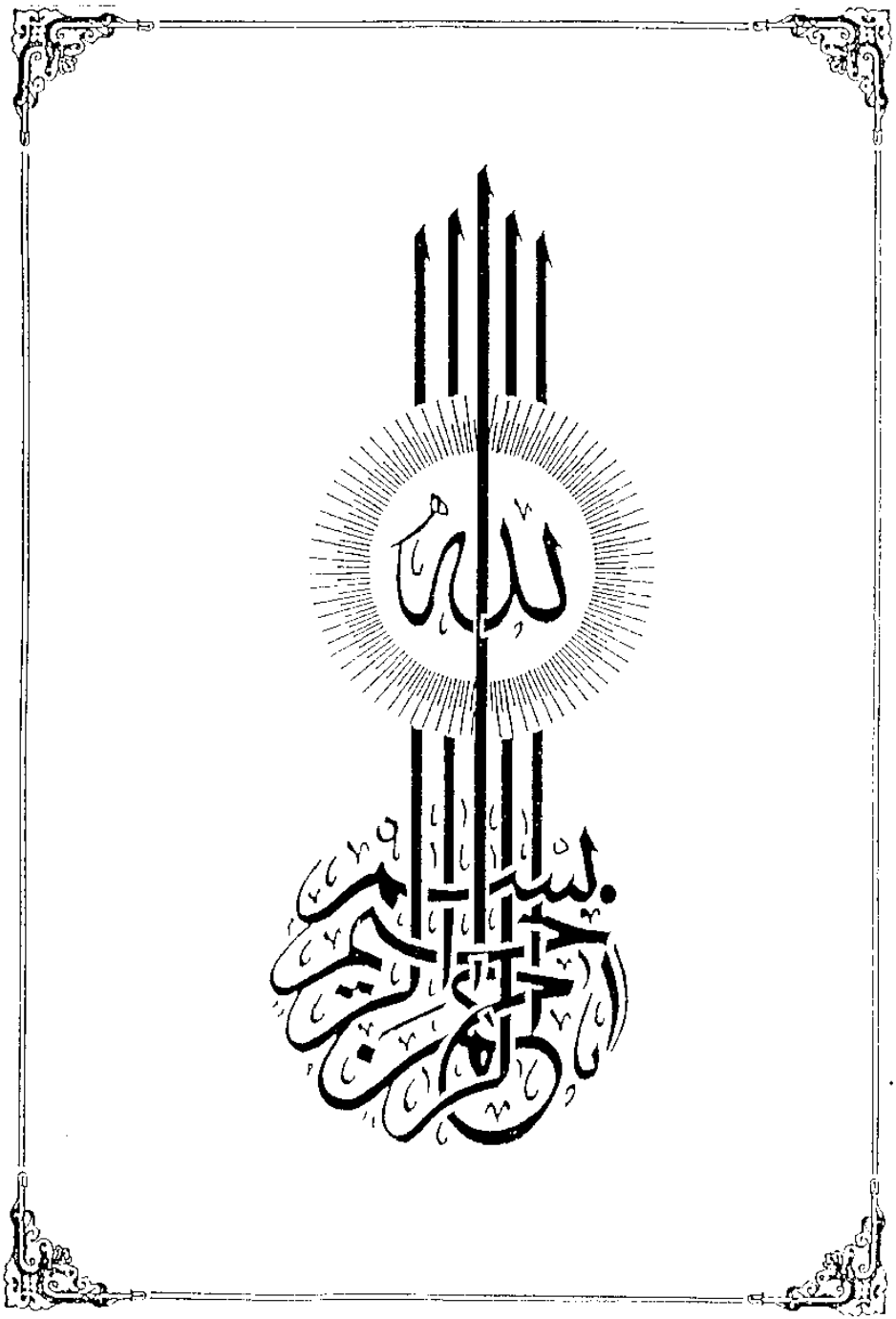

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INTRODUCTION

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Breast cancer is the commonest malignant tumour affecting females in most parts of the world including Egypt. Breast cancer accounts for 34.8% of total malignancy among Egyptian females (Ibrahim and Aref, 1983).

As the carcinogenesis of this tumour is still a relatively dark area, the efforts to improve its outcome are directed mainly at picking cases as early as possible.

There is a great difference in the outcome of breast neoplasia between early cancer breast which is considered curable and advanced late neoplasm which is considered rather hopeless. Hence, the importance of the exact clinical and pathological classification of each patient individually in order to plan the proper treatment policy and predict the expected prognosis.

The different approaches and alternatives of treating cancer breast simply indicate that non of them is completely satisfactory. Only experience and more understanding will tell which of them should be applied to any of the patients.

Perhaps a noteworthy treatment change is the realization and the demand by both public and the medical profession that treatment be individualized. Added to this, is the responsible desire of the patient to be informed of the alternate treatments available and the likelihood of success of each of these in her individual case, and the short-term and long-term riskes involved and to participate in the decision as to how her individual problem will be managed.

This essay aims at review of the recent acceptable lines in the management of breast cancer. Clinicopathological classifications with their implementation on the treatment policy will be studied in details. An up date on the currently used techniques as regard methods of early detection will be also studied. Finally, various modalities of treatment for different categories will be considered.

ANATOMY

ANATOMY OF THE FEMALE BREAST

Embryology :

The female mammary glands or breasts are modified sweat glands , derived primarily from the epidermal layer, has also a mesodermal origin, as it arises from the "Milk line" or ridge which extend from the axilla to the anterior aspect of the groin, only one area in the pectoral region gives rise to the nipple.

The mammary glands are underdeveloped at birth. Between the 9th and 13th years of age, breast growth is accelerated and continues until sexual maturity (Egan, 1977).

Moore (1977) mentioned that the mammary gland normally has a dermal and subcutaneous origin from a single site on the milk ridge.

It is made up of :

1. Skin including the nipple and areola.
2. Fat in which the mammary gland is embeded.

Extent :

It extends from the second to the Sixth rib inclusively and from the side of the sternum to the mid-axillary line. It is divided into four quadrants for descriptive purposes.

From the upper and outer quadrant a process passes upwards in the axilla through an opening in the axillary fascia. It is called the axillary tail of spence.

Skin :

It is similar to the skin the body in that it contains a rich subcutaneous vascular plexus and lymphatics. The ducts of mammary gland pass to the skin and very often lied directly in contact with it, as emphasized by Hicken (1940), so that a flap may not be removed in a resection free of the ducts unless the flap is extremely thin (Moore, 1977).

Fascial Reflections :

The mammary gland is ectodermal in origin and situated between the superficial and deep layers of superficial fascia enclosed in a sac of connective tissue. Connective tissue extensions of the deep layer may pass across the retro-mammary space and unite with the deep pectoral fascia on the pectoralis major muscle. These fascial bands support the breast by tying it down to the underlying pectoral fascia. The deep or the pectoral layer of fascia encloses the pectoralis major and minor muscles, then reflected laterally across the axilla to the latissmus dorsi-muscle posteriorly. It also extends from the clavicle and deltoid muscle above, to

the serratus anterior and external oblique muscles on the thoracic wall distally (Haagensen, 1971).

Mammary gland :

It is made up of ducts and acini. Aggregations of these form lobules and then lobes. Lobes are arranged radially and each is drained by a main duct, there are 18 :20 main lactiferous ducts which open separately on the nipple after forming a lactiferous sinus under the areola. The surface of the areola is roughened by a number of slight elevations, due to the underlying large subaceous gland and rudimentary milk glands, known as the glands of Montogomery (Egan, 1977).

Ligaments of Cooper

The lobes are anchored to the overlying skin by thick connective tissue bands which are highly developed in the upper portion of mammary gland and therefore serve as suspensory ligaments of cooper (Cooper, 1845). They are responsible for dimpling of the skin in cases of Cancer breast.

Reserve Layer :

Ham (1974) demonstrated that as the ducts branch and become smaller and even in the gland buds a low flattened

layer of cells (Reserve and myoepithelial cells) can be identified beneath the more prominent lining epithelium. This (reserve layer) can proliferate in various pathologic conditions such as cystic Hyperplasia and ductal carcinoma (Haagensen, 1971).

Mobility :

The deep concave portion of the breast is separated from the underlying pectoral fascia by loose connective tissue, giving rise to a potential retromammary space, which permits considerable mobility of breast.

Nerve supply :

The secreting tissue is supplied by sympethetic nerves which reach it via the 2nd to the 6th intercostal nerves.

The overlying skin is supplied by the anterior and lateral branches of the 4th , 5th and 6th intercostal nerves (Plessis, 1975).

Arterial Supply :

1- One or two of the upper four perforating braches of the internal mammary artery.

2- Mammary braches of the lateral thoracic artery.

3- The lateral thoracic branch of the axillary artery supplies both pectoralis muscles and serratus anterior muscle and terminated in the intercostal muscle.

4- The pectoral branch of the thoraco-acromial artery supplies both pectoralis muscles.

The blood supply of the breast is derived primarily from its supermedial and superlateral quadrants, from perforating branches of the internal mammary artery as well as mammary branches of the lateral thoracic artery (Egan , 1977).

Moore , 1977, maintained that the second intercostal perforating branch was of particular importance because it supplies the gland directly.

Venous Drainage

Consists of superficial subcutaneous venous plexus immediatly deep to the circumareolar tributaries. These veins pass across the midline, well demonstrated by Massopoust and Gardener (1950).

The deeper veins usually drains through three major pathways, the second, third and fourth intercostal spaces to the internal mammary veins to the innominate vein. The deeper venous drainage is directed into the costal veins which terminate in the azygos and vertebral vein (Haagensen, 1971).

Lymphatic drainage :

A) Glands : The breast itself drains mainly to the axillary glands which are enclosed in the axillary fascial tent. There are five sets :

1. Anterior set : They are the main lymph glands of the breast situated along the lateral thoracic vein under the anterior axillary fold. The axillary tail of spence is in actual contact with these glands.

2. Posterior set : they lie along the posterior axillary fold in relation to the subscapular vessels.

3. Lateral set : they lie along the upper part of the humerus in relation to the axillary vein.

4. Central set : situated in the fat of the upper part of the axilla. The intercostobrachial nerve passes outwards with at these glands.

5. Apical set : these are also called the infraclavicular glands being bounded below by the 1st intercostal space, behind by the axillary vein and infront by the costocoracoid membrane.

B) Lymphatic vessels : The breast is drained by two sets of lymphatics :

1. Lymphatics of the overlying skin : These drain the integuments over the breast but not the skin of the areola and nipple. They pass in a radial direction and end in the surrounding gland groups.
Those from the outer side go to the axillary glands. Those from the upper part go to the supraclavicular glands. Certain of these vessels may end in the cephalic gland which lies in the deltopectoral triangle. Those from the inner part of the gland go to the internal mammary glands. The lymphatics of the skin over the breast communicate across the middle line. In mammary cancer secondary invasion of the skin appears in the form of discrete nodules.

2. Lymphatics of the parenchyma of the breast : The subareolar lymph plexus of sappey is a collection of large lymph-vessels situated under the areola. The hitherto accepted view that most of the lymph draining the breast tissue passes to the subareolar plexus of sappey, is no longer tenable.