VARIOUS METHODS OF DIAGNOSIS OF BREAST MASSES

AN ESSAY

Submitted For Partial Fulfillment Of

The Master Degree In General Surgery

BY

MOUNIR MOHAMED ABO ELELA

[M.B.,B.Ch.]

Supervised By

PROF.DR. MOHI EL DIN SEDKY

Prof. Of General Surgery

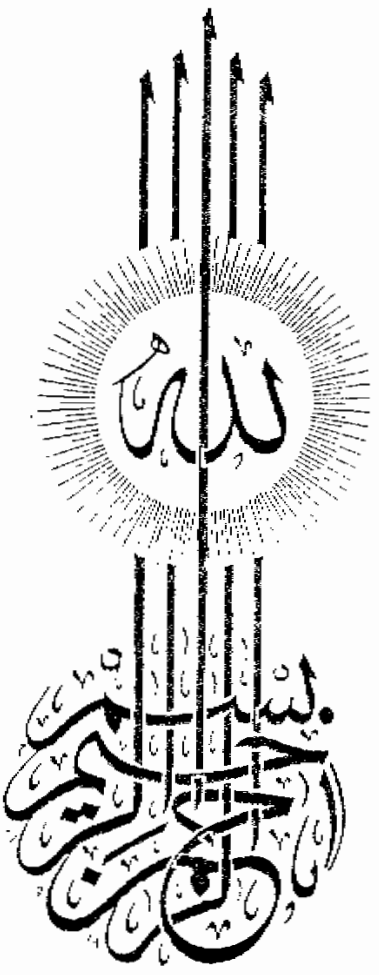
DR. MOHAMED ABDEL MONEIM

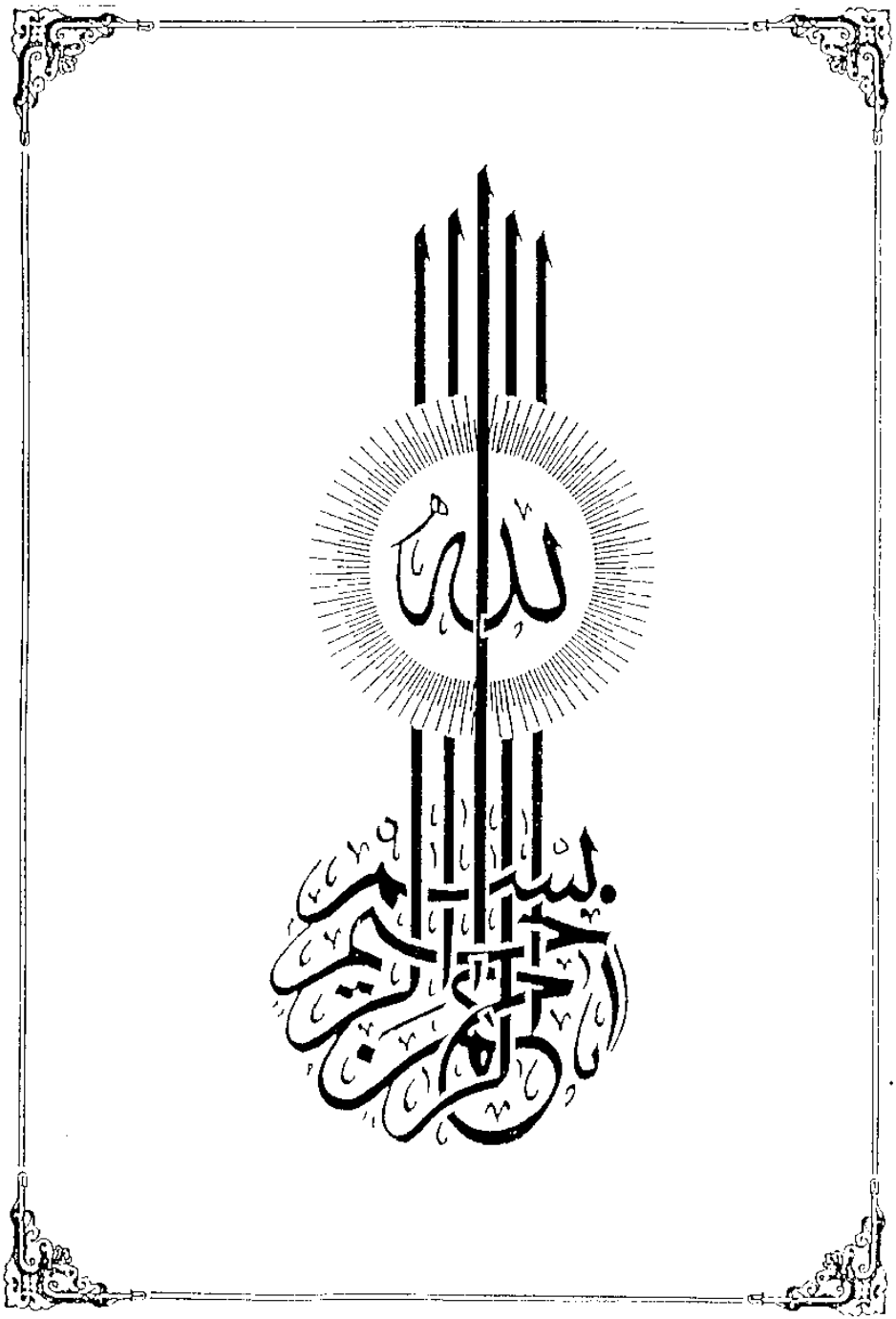
Lecturer Of General Surgery

Faculty Of Medicine

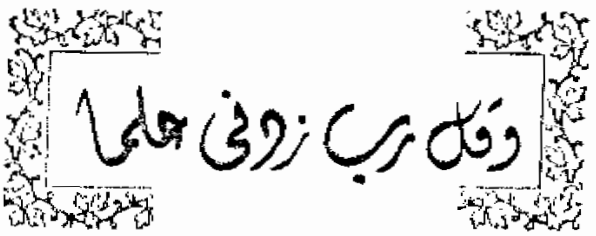
Ain Shams University

1986


الله
بسم الله الرحمن الرحيم



بسم الله الرحمن الرحيم



صدق الله العظيم

TO THE MEMORY OF

MY FATHER

C O N T E N T S

* * *

INTRODUCTION

INTRODUCTION

Breast disease are common among females at different age groups and may be represented by different symptoms as pain nipple discharge or swelling.

Breast mass is the commonest presenting symptom for breast diseases and may be discovered accidentaly by the patient or by a physician either during general examination of the patient or during regular examination of the breasts

The breast masses may be benign or malignant and it is of extreme importance to differentiate between benign and malignant lesions of the breast to allow early detection of malignancy and thus give chance for good and radical definitive treatment.

This essay deals with the different methods available for detection and diagnosis of breast masses .

The 1st and the most important method is the "Clinical Examination" either by the female as breast self examination or by a physician at regular intervals which is called periodic medical examination

Following clinical examinationcome the different radiological methodes available at the present time starting from mammography with its great and valuable effects together wit

computed tomographic mammography,Xerograph and ultra sonography.

The limited role of thermography will be mentioned briefly .

Then the different types of biopsies will be discussed together with the role of the frozen section and its importance .

Few words about the tumour markers and their increasing scope will be mentioned .

Lastly a plane for detection of early carcinoma of the breast will be arranged with the value of each of the previous methods of diagnosis in this respect.

* * *

ANATOMY OF THE BREAST

THE MAMMAE OR BREASTS

The breasts exist in both sexes. In the males they are rudimentary throughout life, in the females they are undeveloped before puberty, but undergo considerable growth and elaboration at and after puberty. They attain their greatest development during the later months of pregnancy and especially for some time after parturition and during lactation.

The breasts consist of glandular tissue [the mammary gland proper] which secretes milk, and fibrous and adipose tissue in between the lobes and lobules of the glandular tissue, together with blood vessels, lymph vessels and nerves.

EXTENT :

In the young adult females,each breast forms arounded eminance lying within the superficial fascia chiefly anterior to the thorax, but spreading variably on to its lateral aspects. The base extends vertically from the second to sixth rib and at the level of the fourth castal cartilage, it extend in mid-clavicular line transversely from the sides of the sternum to the mid-axillary line.

AXILLARY TAIL

The super lateral part of the breast in prolonged upwards and laterally forming the"axillary tail" which extends along the lower border of pectoralis major and may pass through the deep fascia to lie in close relationship to the pectoral group of axillary lymph nodes.

THE DEEP SURFACE & ITS RELATIONS :

The deep aspect of the breast is slightly concave and is related to the pectoralis major, serratus anterior, external oblique and its aponeurosis as it form the anterior wall of the rectus sheath.

The breast is,however,seprated from the muscles mentioned before by deep fascia and between the breast and the deep fascia there is a zone of loose areolar tissue- [The retro mammary or Submammary space] which allows the breast some degree of movement on the deep fascia covering the pectoralis major.

Occasionally small projections of the mammary glandular tissue may penetrate through the deep fascia into the superficial part of this muscle .

SHAPE :

Its shape varies markedly in different individuals and races and in the same individual in different ages. It may be hemispherical, Conical but most of its bulk is adipose tissue except during lactation and hence its shape and consistency are primarily dependant upon this factors .

NIPPLE :

The mammary papilla or nipple is a cylindrical or conical projection from just below the center of the anterior surface of the breast . It commonly lies at the level of the fourth intercostal space in nulliparous females. It is pink or light brown in colour and it traversed by 15 - 20 lactiferous ducts which open by minute orifices on its wrinkled tip.

It contains numerous non-striated muscle fibers, mostly arranged circularly and their contraction when the papilla is mechanically stimulated by suckling causes erection of the nipple. While other fibers are arranged longitudinally and their contraction may retract it.

Occasionally the papilla may not evert during its prenatal development and thus remains permenantly retracted and thus causes difficulty in suckling .

AREOLA :

It is coloured area of skin which encircles the base of the nipple, it is rose pink is nulliparous females.

During second month of pregnancy, it becomes larger and darker in colour and as pregnancy advances, it becomes dark brown, the depth of colour varies with the female's complexion. and this colour diminishes in intensity after the end of lactation but never returns to its original hue. It contains numerous sebaceous areolar glands which become much enlarged during pregnancy and lactation to form tubercles beneath the skin [glands of Montgomery], the oily secretions of these glands provides a protective lubricant for the skin of the areola and nipple during lactation. Some of the glands appear to be intermediate in structure between the sebaceous and sweat varieties. There is no fat immediately bebeath the skin of the nipple and areola .

STRUCTURE OF THE BREAST :

The mammary gland consists of glandular tissue, fibrous tissue connecting its lobes and adipose tissue on the intervals between the lobes . The subcutaneous tissue encloses the gland [but does not form a distinct capsule] and sends

numerous septa into it to support its lobules. From the part of the fascia which covers the gland fibrous processes pass forwards to the skin and nipple, these are better developed over the upper part of the breast and consititutes the suspensory ligament of Cooper's. The normal gland tissue is of a pale reddish colour, firm in texture and forms a lobulated mass which is flattend anteroposteriorly and thicker in the center than at the circumference. It consists of 15 -20 lobes and these are composed of lobules connected together by areolar tissue, blood vessels and ducts. The smallest lobules, when fully developed, consist of a cluster of crowded alveoli which open into the smallest braches of the lactiferous ducts, these brances unite to form larger ducts which end in the these branches unite to form larger ducts which end in the terminal or lactiferous ducts, each of which drain a lobe of the gland. The lactiferous ducts hence also vary from 15-20 in number, they converge towards the areola beneath which they form dilatations of "lactiferous sinuses" which serves as reservoirs of milk. At the base of the nipple they contract and parsue a straight course to its summit ending as separate orifices considerably narrower than the ducts themselves. The ducts are composed of areolar tissue containing longitudinal and transverse elastic fibres, they are lined by columnar