MODERN TREATMENT OF CANCER OF THE BREAST

ESSAY

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BY

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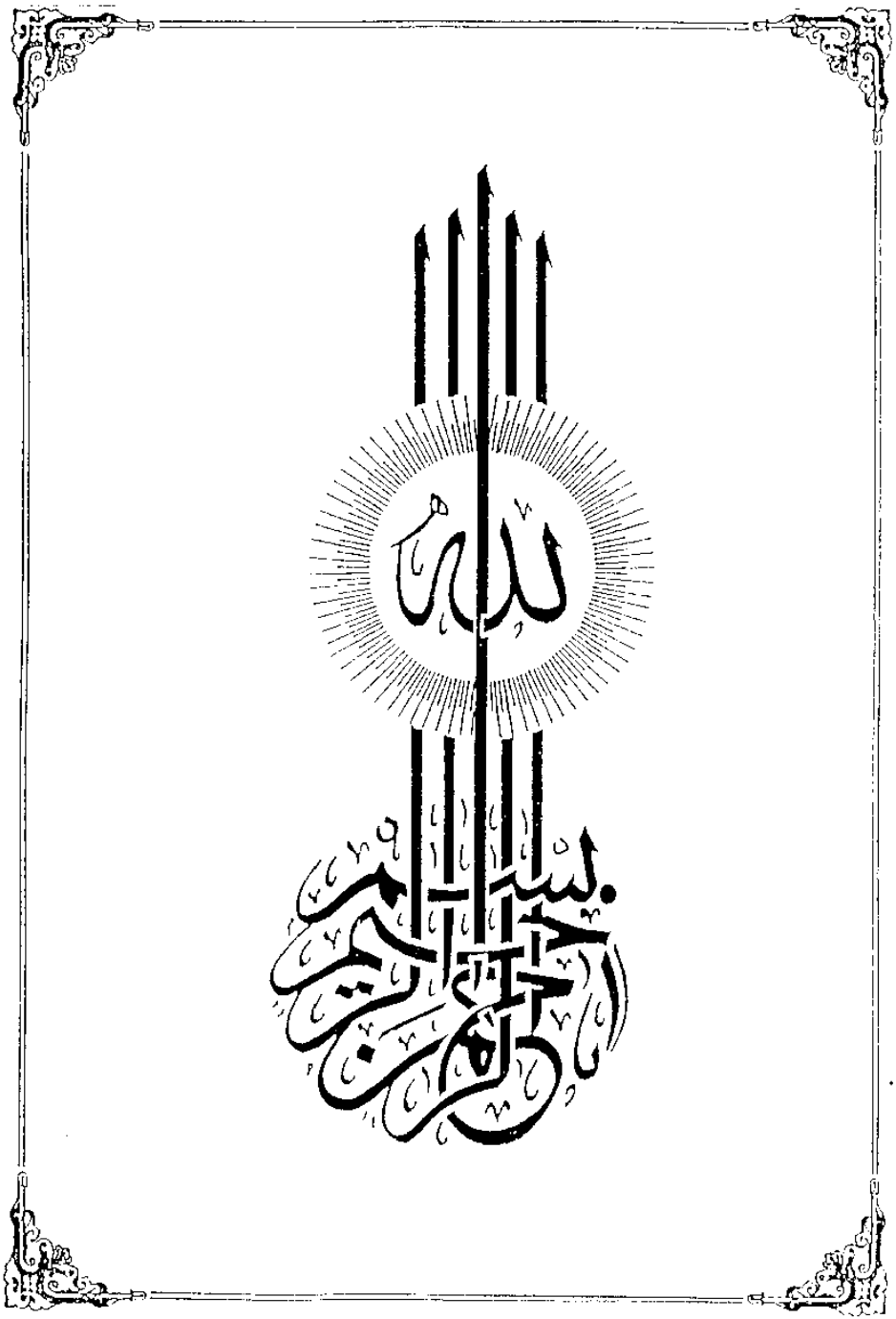

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I

I N T R O D U C T I O N

Breast cancer is a disease which in recent years has received more publicity than any other type of cancer and has been the subject of more debate and controversy as well. Whether in the area of screening, diagnosis, treatment, or rehabilitation, breast cancer has been in the forefront of developments which have had the greatest exposure in the lay press (**Carter, 1982**).

Depending on one's viewpoint and appraisal of studies and statistics, breast cancer is ciewed with optimism, pessimism, enthusiasm, or disappointment. Each opinion is substantiated by ample data that support differing views. The mass of published articles only adds to the confusion, and compoinds choices physicians have to make in evaluating and treating breast cancer. The uncertainty that professionals express is echoed by the public who are more vocal and opinionated about "correct" treatment, whether or not it is scientifically substantiated. Nutritional, immunologic, and other alternative methods of treatment are theoretically appealing despite a limited data base to substantiate their efficacy. Analyzing and determining the significance of data is

another complex variable physicians face in scrutinizing information. Prospective randomized trials have supplanted retrospective matched control studies, historical controls, and institutional reviews of clinical experiences as the most valid means of accumulating data. There is value to all of these study methods and none should be totally disregarded. Retrospective controls, however, are of historic interest only and their use obfuscates any changing pattern of tumour behaviour **(Coopermann and Hermann, 1984).**

III

AIM OF THE WORK

The aim of this work is to study the different modern methods of treatment of cancer breast including modern surgical treatment, adjuvant chemotherapy, radiotherapy, hormonaltherapy, and immunotherapy of cancer breast.

PATHOLOGY OF CANCER OF THE BREAST

The records of Egyptian medicine, inscribed on thin sheets of papyrus, go back several thousand years B.C. and contain a few observations on mammary swellings or lumps. The deciphered records do not indicate whether cancer was differentiated from benign or inflammatory lesions. Also there was very little information about treatment, but there was one recorded instance of excision of a breast mass (**FARROW, 1971**).

The risk of breast cancer for the American female is presently about **1** out of **15** or about **6%**. About **70,000** new cases are diagnosed each year (**Kuzma, 1977**). A ten years report **(1970 - 1981)**, from the National Cancer Institute, (NCI) Cairo, showed that breast cancer is the most frequent malignancy among females attending the Institute, accounting for **34.7%** of female cancer cases and **14%** of all cases of cancer registered **(Omar et al., 1984)**. Breast cancer rates are quite low in Africa and high in Caucasian American populations **(Zippin and petrakis, 1971).**

Mortality from cancer of the female breast has declined by a small amount since 1940, despite evidence pointing to a sizeable increase in the incidence of this disease. The death rate from breast cancer in the Unite States has been decreasing very slowly from **25.9** per **100,000** in 1939 - 1941 to **24.7** in 1964 - 1966 (Cutler et al., 1971). The mortality rate in Egypt is about

3.0 per 100,000 (**Ibrahim, 1984**).

Robbin and Cotran (1979) has reported some observations bearing on the incidence of this disease. They have reported that breast cancer is more common in Jews than in gentiles, by about two fold and women with increasing age, the incidence curve rising steeply to age 50, then becoming flat for 5 years, then increasing again but a much slower pace. It is common in women who have had their first child at a late age (over 30), nulliparous than in multiparous women, women with late (after age 50) menopause, women with age of menarche before 13. It is also common in women with a previous history of breast, ovarian or endometrial cancer (but breast canceris less common in women with a history of cervical cancer) and women with fibrocystic disease, particularly epithelial hyperplasia. **McDivitt (1985)** has also reported that cancer breast is common in obese women and women with a history of breast cancer in their family, especially if the cancer had occurred in young members of the family.

Pregnancy early in reproductive life, frequent pregancies, and early menopause, whether natural or artificial, decrease the lifetime risk of breast cancer **(Kuzma, 1977).** Whether lactation has a prophylactic

effect on the development of breast cancer is controversial (**Robbins and Cotran, 1979**). Speculations about the nature of the proctive factor of pregnancy have included suggestions that it may be either progesterone or ostriol, both of which are markedly elevated during gestation **(Jensen, 1974).**

No evidence has been found so far that oral contraceptives are associated with an increased risk of breast neoplasia, indeed the preliminary data suggest that the preparations tend to protect against the development of benign (**Vessey et al., 1971**). But, it is well known that small doses of exogenous estrogens have a stimulating effect upon a preexisting breast cancer. The prudence suggests that women with a high-risk predisposition for breast cancer and patients with known precursors of breast cancer should avoid the stimulation of long-term estrogen treatment (**Lewison, 1971**).

MORPHLOGY. Curiously, carcinoma is more common in the left breast than in the right, in a ratio of **110 : 100.** The cancers are bilateral or sequential in the same breast in **4%** or more of cases (**Robbin and Cotran, 1979**).

Among breast carcinomas small enough that their general areas of origin can be identified, approximately **50%** arise in the upper outer quadrant, **10%** in each of the remaining quadrants, and about **20%** in the central or subareolar region.

Over 90% of breast cancers arise in the ductal epithelium and 10% in the mammary lobules (Robbin and Cotran,1979).

Many classifications of breast carcinomas have been proposed, but none has yet gained widespread acceptance (Rosai, 1981). Fisher has reported the following classification (1915).

I. Carcinoma arising in mammary ducts :

A. Noninfiltrating (intraductal) carcinoma
   1. Comedo carcinoma
   2. Intraductal papillary carcinoma

B. Infiltrating duct carcinoma.
   1. Simple or usual type (includes the commonly used term scirrhous carcinoma)
   2. Special types
      a. Medullary carcinoma with lymphoid infiltration
      b. Colloid carcinoma (mucinous carcinoma)
      c. Paget's disease (ductal carcinoma with extension to skin).
      e. Adenoid cystic carcinoma
      f. Infiltrating comedscarcinoma
      g. Infiltrating papillary carcinoma

II. Carcinoma arising in mammary lobules:

A. Noninfiltrating, in situ lobular carcinoma

B. Infiltrating, lobular carcinoma

Non infiltrating intraductal carcinoma :

As long as the growth is confined to the ductal basement membrane, it is considered a non-infiltrating intraductal carcinoma. This begins as anaplastic proliferation of ductal epithelium which eventually fills and plugs the dycts (**Robbins & Cotran, 1979**).

Intraductal carcinoma of the more proximal, larger ducts may expand these ducts and produce a sizeable mass before it invades the adjacent stroma, intraductal carcinoma of the smaller, more peripheral portions of the duct system is more likely to be nonpalpable and multicentric (**McDivitt, 1985**).

Histologically, the ducts are dilated and filled with neoplastic epithelial cells which completely plug the lumen. As the growth advances, the intraductal neoplasia eventually extends beyond the basement memmbrane and the tumour becomes an infiltrating ductal carcinoma (**Robbins & Cotran, 1979**).

Rarely the non infiltrating intraductal carcinoma may have a papillary pattern and is called "intraductal papillary carcinoma" (**Robbins and Cotran, 1979**).

Infiltrating duct carcinoma :

It is the most common type of breast cancer. In about 75% of these cases, there is no distinguishing histological feature other than an increased dense fibrous tissue stroma giving the tumour a hard consistency in gross examination (**Robbins and Cotran, 1979**).

Scirrhous carcinoma :

It makes up about 75% of all breast cancers. Grossly, it is a poorly defined mass, the hardness of which depends upon the amount of connective tissue present. The tumour cuts with a resistant gritty sensation (unripe pear), is usually yellowish gray, and has fibrous trabeculae radiating through the bright yellow fat of the breast parenchyma. Microscopically, the tumour cells vary in size and shape and may or may not form glandular spaces. The individual cells of a cellular tumour have prominent nucleoli and many mitotic figures. It may be difficult to identify tumour cells if the connective tissue is greatly increased. They may occur in groups of only five or six cells containing very little cytoplasm and surrounded by hyalinized connective tissue (**Rosai, 1981**).

Medullary carcinoma :

Approximately 5% of the malignant tumours belong to the group called medullary carcinoma. The gross lesion appears as a soft, partially cystic or hemorrhagic, bulky, somewhat opaque white tumour. It frequently resembles lymphoid tissue or has encephaloid characteristics. It is generally spheric and in two thirds of the patients is larger than 5cm in diameter. Such a tumour generally grows slowly but may rapidly enlarge because of hemorrhage or necrosis. Prognosis is better than in scirrhous carcinoma. The microscopic picture is that of a highly cellular tumour composed of large, oval or polygonal cells with vesicular nuclei. At times, only the periphery of the tumor is viable, the remainder having been converted to a cyst by autolysis and hemorrhage. Usually, a generous lymphocyte infiltration accompanies the epithelial cells and forms an important histologic characteristic. Circumscribed (but infiltrating) cancer is a name given to medullary carcinomas that are grossly sharply demarcated and histologically rich in plasma cells (**Kuzma, 1977**).

Colloid or Mucinous carcinoma:

This unusual variant tends to occur in older women and grows slowly over the course of many years, producing bulky, gelatinous masses. The tumor is extremely soft and has the consistency and appearance of pale gray-blue gelatin. The tumour may occur in pure form or in association with other types. Histologically, this tumour takes on one of two patterns of growth which may coexist in a single lesion. There may be large lakes of lightly staining, amorphous mucin that dissect and extend into continous tissue spaces. Floating within this mucin are small islands and isolated neoplastic cells sometimes forming glands. Vacuolation of at least some of the cells is characteristic. In other colloid tumors, the histologic appearance may be essentially that of an adenscarcinoma, with well defined glands, the lumina of which contain mucinous secretions. Some mucin may also be found in the interglandular spaces and in the surrounding fibrous stroma. The survival rate is greater in patients with pure colloid carcinoma than in the usual infiltrating duct carcinoma, and lymphnode metastases are infrequent (Robbins and Cotran, 1979).