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**DIAGNOSIS AND TREATMENT OF
CARCINOMA OF THE BREAST
- AN UPDATE -**

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ESSAY

**Submitted in Partial Fulfilment of
the Requirement for
MASTER DEGREE
In
GENERAL SURGERY**

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M.M

30323

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1989

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

 The image shows the Basmala (Bismillah) in a stylized Arabic calligraphic script. The text is "بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ". Each letter is annotated with small numbers (1, 2, 3) and arrows indicating the correct stroke order and direction for writing. For example, the 'B' (Ba) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2. The 'L' (Lam) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2. The 'R' (Ra) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'A' (Alif) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2. The 'L' (Lam) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2. The 'M' (Meem) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'R' (Ra) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'H' (Ha) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'M' (Meem) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'R' (Ra) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'H' (Ha) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3. The 'M' (Meem) starts with stroke 1 at the top, goes down, then loops back up and right for stroke 2, and then loops back up and right for stroke 3.



ACKNOWLEDGEMENT

I would like to express my sincere gratitude to Prof. Dr. HUSSEIN KHOLIF, for his help and intense constant follow up and his valuable precious instructions during the preparation of this work.

I am also indebted to Dr. HELMY EL-GHOR, for his help and considerations. He gave the time that this assay has required. His remarks and comments add up to the theme of this assay.

I indebt a great gratitude to the staff members and colleagues in the Department of General Surgery, Ain Shams University.

I would like to thank the General Airforces Hospital, especially the Department of General Surgery.

MAGDY EL-KHOLLY

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INTRODUCTION

The diagnosis and treatment of carcinoma of the breast have witnessed marked alterations in the past few years.

The importance of screening to detect early disease and the increasing trends toward a more conservative surgical approaches are becoming widely recognized.

This essay displays the recent changes in opinion in this regard.

DIAGNOSIS OF CANCER BREAST

I. EARLY DETECTION

Because of the theory that the earlier a cancer is treated, the greater is the chance of cure, many women undergo routine screening for breast cancer. The role of screening is the detection in asymptomatic women a significant abnormalities, which then require further clarification and diagnosis. Stockdale et al. (1988), stated that screening is done by palpation and mammography.

The first evidence that screening could reduce the mortality from breast cancer was provided in Health Insurance Plane study HIP of New York. The optimistic result of HIP study were confirmed by two control studies (Verbeek, 1984) and (Gaillette, 1984), and by a randomized study conducted by (Usher, 1985) which reported a 15% reduction in mortality among screened patients as well as 11% reduction in stage II patients.

A) Breast physical examination:

Rudolph and McDermott (1987), stated that the principal methods used for early detection of breast cancer include mammography, manual breast self-examination and periodic physical examination by health care personnel.

Breast physical examination is safe, useful and cost-effective modality for early detection of breast cancer. Moreover, unlike mammography it carries no carcinogenic risk. However, some authors have suggested that periodic physical examination may lead to a false sense of security. In addition to that, Mansel (1988), stated that screening by clinical examination or breast self examination might be rejected as being inadequate when used alone.

Physical examination of the breast by a practitioner is recommended at 3 years intervals for women 20-40 years old and at annual intervals for women 40 years old. Moreover, Haagensen (1981), advised women who don't want to practice breast self examination and at high risk of developing cancer (the family history, gross cystic disease, multiple intraductal papilloma and those who have had carcinoma in situ breast) to go to regularly every four months, to be examined by a physician who is skilled in that field.

Although mammography is a more sensitive diagnostic tool than palpation, each modality can detect cases missed by the other. For instance, in the Breast Cancer Detection Demonstration Project (BCDDP), 47.1% of

cancers were detected by positive findings on both mammography and physical examination, 41.6% by mammography in the absence of positive physical findings, and 8.7% by physical examination in the absence of positive mammography findings (Rudolph and McDermott, 1987).

The women with breast cancer detected through physical examination had both 5 year and 10 year survival rates greater than those for the general population with breast cancer.

B) Mammography:

Mammography has been shown to be a more accurate diagnostic test than clinical examination or a range of alternative tests e.g. thermography. It has been used both as a diagnostic aid in symptomatic patients and as a means of screening those without symptoms. The importance of the screening role for mammography has been demonstrated in two large American studies, the (HIP) and the (BCDDP) study. The (BCDDP) study, in particular, indicates the importance of mammography as a screening modality. Mammography detected a significant proportion of cancers (41.6%) which were not detected by a clinical means. Population screening by mammo-

graphy may lead to a reduced mortality from breast cancer (Simpson, 1986). Moreover, mammography can demonstrate multifocal diseases in the same or contra-lateral breast.

There are two well established techniques used in mammography screening: screen film mammography using a unit with low kilovoltage x-ray source and screen film system and xeromammography. Cuttino et al. (1986), found no statistical difference between mammography and xeromammography in respect of sensitivity, specificity and predictive values. However, there were fewer false positives with xeromammography but there was no difference in false negatives.

Mammography is found to be more specific with greater predictive value but less sensitive than physical examination. There are 9.7% of cases were detected by physical examination and not detected by mammography, reasons for that:

1. Poor radiologic technique.
2. Real absence of radiographic criteria of cancer.
3. Failure to recognise subtle radiologic signs.

Mammographic features of "early" breast cancer:

1. Conventional signs:

. **Clustured calcifications:**

The great majority of clustured calcifications proved to be within benign lesions, but in order to detect those 20% that are cancerous, some mammographers have described diagnostic criteria to differentiate benign from malignant clustured calcifications on the basis of shape. Within liner, curvilinear and branching shapes suggesting malignancy and round or oval shapes indicating benign lesions. The greatest success in differentiating benign from malignant calcification has come with the use of magnification mammography (Sickles, 1984).

. **Poorly defined mass:**

Unfortunately, there are big number of benign masses whose margins also, appear to be poorly defined. Again, magnification mammography defined smooth margins for benign masses or by imaging inapparent knobby borders or spiculations that indicate malignancy.

2. Indirect signs:

. **Single dilated duct:**

The mammographic appearance of dilated duct may be the indication of an underlying carcinoma (Sadowsky and Kopans, 1983).

. **Architectural distortion:**

Invasive carcinoma distorts the interfaces between fat and normal breast parenchyma. However, the presence of focal fibrosis, scarring and other benign retractive phenomenon also produce distortion of normal fat parenchymal interfaces, in a pattern that easily can be confused with the appearance of malignancy. In this situation, biopsy to the suspected lesion is performed.

. **Asymmetry:**

It is helpful in such situation to view mammogram of both breasts side by side and projection by projection to facilitate recognition of small cancers by asymmetry.

. **Developing density:**

To identify developing density, one must have previous mammogram available for comparison.

Radiation risk from mammography:

In the early days of mammography there were fears about possible carcinogenic effects of radiation received by the breast. These fears have been reduced to a greater extent by advances in x-ray and film technology. With the use of modern equipment the

radiation dose per examination is likely to be 2.5-5 m Gy rads. This represents at least ten fold reduction in radiation dose compared with the early days of mammography. Moreover, even multiple examinations are very unlikely to be harmful. Also, the risk of radiation is reduced from women exposed above age of 35 years (Feig, 1984), below this age malignant lesions are likely to be obscured by the dense dysplastic breast tissue found in younger women (Simpson, 1986).

Mammography in patients selection and follow up in conservative treatment of breast cancer:

With increasing emphasis on detection of small breast cancers and the increasing options for conservative treatment, the radiologist is becoming more involved in selection and follow up of these patients through mammography. The radiologist is involved by one of the three mammographic situations:

Pre-treatment mammography:

The prebiopsy, pretreatment mammogram should be part of the initial breast evaluation by the clinician at the time of patients' initial presentation. The radiologist must describe size and characteristic

of masses as well as multiplicity of lesions as these radiological characteristics can strongly influence the decision between mastectomy or more conservative treatment i.e. conservative treatment is indicated if mammography shows a tumour of 4 cm or less.

Post biopsy pretreatment mammography is done to determine the presence of residual tumour. Post-surgical changes may complicate mammography and so, mammography may be delayed until the wound has healed sufficiently.

Post-treatment mammography:

The purpose of post-treatment mammography is to determine the degree and rapidity of tumour response during and at the end of treatment. It is obtained after 6 months after completion of treatment which gives time to anatomic changes that occur as result of radiotherapy to be stabilized. Thereafter, annual bilateral mammogram are obtained to determine possible recurrence of the tumour and to evaluate the opposite breast. As well, post treatment mammogram should of course, be obtained at any time the treated breast becomes symptomatic (Paulus, 1984).

The role of galactoraphy in the detection of breast cancer:

Ciatto et al. (1988), suggested that galactoraphy is recommended as the investigation of choice in women with secretory breast. The test should be performed routinely if the nipple discharge is bloody whereas in the presence of serous nipple discharge, it should be limited to selected cases on the basis of physical examination, mammography or cytology since its routine use doesn't seem to be effective .

Galactoraphy is done by cannulation of the offending lactiferous duct and the duct system is then injected with water soluble contrast (Simpson, 1986).

Thermography:

Thermography is a totally safe, passive system for measuring temprature of the skin. It depends on that the breast cancer generates greater heat than normal breast tissue and this heat must reach the skin through conduction or convection. Accordingly, rapidly growing breast cancers seems to be hypermetabolic and generate more heat. However, there are significant number of breast cancers that don't. Furthermore, the breast is an excellent insulator