New Modalities In Detection And Management Of Early Breast Cancer

Essay

ubmitted for partial fulfillment of Master Degree In General Surger

By

Abdelrahman Mohammad Khalifa (M.B.B.CH.)

Supervised by

Prof.Dr. Abd El-Rahman Mohammad Elmaraghy

Professor of General and Endocrine Surgery

Faculty of medicine

Ein Shams University

Prof.Dr. Mahmoud Saad Farahat

professor of General and Endocrine Surgery

Faculty of medicine

Ein Shams university

Dr. Ramy Mikhael Nageeb

Assistant professor of General Surgery

Faculty of medicine

Ein Shams University

Faculty of medicine

Ein shams university

2018

Contents

list of abbreviation

ALN	Axillary lymph node

ACOSOG	American College of Surgeons Oncology Group
ACR	American College of Radiology
ACS	American Cancer Society
ADH	atypical ductal hyperplasia
AH	Atypical hyperplasia
ALH	atypical lobular hyperplasia
ASLN	axillary sentinel lymph node
BCS	Breast conservative surgery
BIRADS	The Breast Imaging Report and Data System
BSE	Breast self-examination
CBE	Clinical breast examination
CEDM	Contrast Enhanced Digital Mammography
DCIS	ductal carcinoma *in situ*
DFS	disease free survival
EIC	extensive intraductal components
FEA	flat epithelial atypia
FNAC	Fine needle aspiration and cytology
FSD	Frozen section diagnosis
ICBN	inter costo brachial nerve
IDC	invasive ductal carcinoma
ILC	invasive lobular carcinoma
LCIS	lobular carcinoma in situ
LTV	lateral thoracic vein
MD	Mammographic density
MMG	Mammography
MRI	Magnetic resonance imaging
MRM	Modified Radical Mastectomy
NCCN	National Comprehensive Cancer Network
NSABP	The National Surgical Adjuvant Breast and Bowel Project
OS	overall survival
PROCAS	Predicting Risk of Breast Cancer at Screening

	for early detection
ROLL	Radio active occult lesion localization
RR	relative risk
RSR	relative survival rate
SLN	sentinel lymph node
TCNB	true cut needle biopsy
UDH	usual ductal hyperplasia
US	Ultrasonography
VABB	Stereotactic vacuum – assisted breast biopsy
VNPI	Van Nuys prognostic index
WGL	Wire guided localization

List of figures

List of tables

INTRODUCTION

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012 (second most common cancer overall). This represents about 12% of all new cancer cases and 25% of all cancers in women ***(Ferlay et al., 2014).***

Screening program, can detect breast cancer at an early stage in women at risk for breast cancer for better outcome, especially MRI in young females with strongly positive family history for breast cancer ***(Kriege et al., 2004)***.

It is evident that the incidence of breast cancer increases dramatically with age, ranging from less than 10 cases per 100,000 women between the ages of 20 and 30 to more than 300 cases per 100,000 women over the age of 60 ***(Colditz et al., 1993)***.

Women who wait six weeks or more after diagnosis to have surgery or begin chemotherapy have significantly decreased survival time compared with those who have a shorter time between diagnosis and treatment ***(Smith et al., 2013)***.

Breast cancers usually are epithelial tumors of ductal or lobular origin, Histologic grade is the best predictor of disease prognosis in carcinoma in situ, but it is dependent on the grading system used ***(Peter, 2016)***.

Breast cancer evaluation should be an ordered inquiry that begins with symptoms and a general clinical history. This is followed by a sequence that has become formalized as triple assessment, including Clinical examination, Imaging (usually mammography, ultrasonography, or both) and needle biopsy. This approach naturally lends itself to a gradually increasing degree of invasiveness, so that a diagnosis can be obtained with the minimum degree of invasiveness and, consequently, the minimum amount of discomfort to the patient. Because the more invasive investigations also tend to be the most expensive, this approach is usually the most economical ***(Pavani, 2016).***

Breast cancer is commonly treated by various combinations of surgery, radiation therapy, chemotherapy, and hormone therapy. Prognosis and selection of therapy may be influenced by the menopausal status of the patient, stage of the disease, grade of the primary tumor, hormonal

receptors, (HER2/neu) expression, and histological type ***(Simpson et al., 2000).***

Early breast cancer represents about 75% of breast cancer patients with presentation of mass less than 5 cm in diameter and no evidence of fixed or matted nodes. Work up needed for these patients limited to complete history , physical examination, chest radiograph, and serum liver chemistries while the CT metastatic work up and bone scan is not generally indicated in patients with normal liver enzymes and no local bony complaints ***(David et al., 2012).***

Contrast-enhanced spectral mammography (CESM) is a novel technique intensively developed in the last few years. CESM permitted better detection of malignant lesions than both mammography and ultrasonography ***(Luczyńska et al., 2016).***

The number of non-palpable breast lesions is growing. Wire-localized breast biopsy is the gold standard for evaluating these lesions especially if these lesions are not visible on ultrasound. Cost-saving techniques and less invasive alternatives such as core-needle biopsy and fine-

needle aspiration (FNA) have emerged in ultrasound visible lesions, that also avoid unnecessary surgical intervention

(Pijnappel et al., 2002).

Mammotome is a vacuum-assisted biopsy of non-palpable lesions of the breast, it is preferable if suspicion of malignancy is high. It helps correct preparation of the surgical strategy, regarding the type of surgery can be taken (generally conservative), as well as making easier the intraoperative localization of lesion by positioning the metallic clips during biopsy followed by wire localization ***(Ceccarelli et al., 2005)***.

Treatment of early breast cancer is a combination of four lines Surgery, chemotherapy, hormonal therapy and radiotherapy. Standard treatment options for early, localized, or operable breast cancer is surgery which may include:

- Breast-conserving surgery (lumpectomy) and sentinel node biopsy with or without axillary lymph node dissection for positive sentinel lymph nodes (SLNs).

Modified radical mastectomy (removal of the entire breast with axillary dissection of levels I and II) with or without breast reconstruction and sentinel node biopsy ***(Weiss et al., 1992).***

Sentinel lymph node (SLN) biopsy is a minimally invasive procedure designed to stage the axilla in breast cancer patients who have clinically negative nodes. Sentinel nodes are the first node or first group of nodes that drain from the breast to the axilla. SLN biopsy has become the preferred SLN technique for axillary staging, because it offers accuracy equivalent to that of axillary lymph node dissection with less morbidity ***(Wright, 2014).***

Women with a positive sentinel lymph node but no clinical evidence of axillary lymph node metastasis could be safely treated with tumor removal and no further surgical lymph nodes dissection ***(Giuliano et al., 2011)***.

All histologic types of invasive breast cancer may be treated with breast-conserving surgery plus radiation therapy. However, the presence of multicentric or inflammatory breast cancer, regardless of histologic subtype,

is a contraindication to breast-conserving therapy. The presence of multifocal disease in the breast and a history of collagen vascular disease are relative contraindications to breast-conserving therapy ***(Weiss et al., 1992).***

Aim of Essay

The aim of this essay is to clarify the definition of early breast cancer and identify the recent modalities in the diagnosis and treatment of early breast cancer.