



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

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Oncoplastic vs Conservative Breast Surgery in Patients with Aggressive Breast Cancer

Thesis

*Submitted for partial fulfillment of the M.D.
degree in General Surgery*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لسبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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List of Abbreviations

Abb.	Full term
ADH.....	Atypical ductal hyperplasia
ALH	Atypical lobular hyperplasia
ALND	Axillary lymph node dissection
ALP.....	Alkaline phosphatase
BC	Breast cancer
BCS.....	Breast-conservation surgery
BLIA	Basal-like immune-activated
BLIS.....	Basal-like immunosuppressed
CEM.....	Contrast-enhanced mammography
CT	Computed tomography
DBT	Digital breast tomosynthesis
DCIS	Ductal carcinoma in situ
ER	Estrogen receptor
FDG	¹⁸ F-2-deoxy-D-glucose
FNA	Fine needle aspiration
GEP	Global gene expression profiling
HER2.....	Human epidermal growth factor receptor 2
HRT	Hormone replacement therapy
IHC	Immunohistochemical
IMF	Inframammary fold
LAR.....	Luminal androgen receptor
LCIS.....	Lobular carcinoma in situ
MDM.....	Multidisciplinary meeting
MDTs.....	Multidisciplinary teams
MES.....	Mesenchymal
MKI67	Ki-67
MR	Magnetic resonance
MRI.....	Magnetic resonance imaging
NAC	Nipple and areola complex

List of Abbreviations Cont...

Abb.	Full term
NC.....	Neoadjuvant chemotherapy
NMF	Non-negative matrix factorization
NOS	Not otherwise specified
NSM.....	Nipple-sparing mastectomy
OPS.....	Oncoplastic breast surgery
PET.....	Positron emission tomography
PPV	Positive predictive value
PR	Progesterone receptor
SLN.....	Sentinel lymph node
SSM	Skin-sparing mastectomy
TNBC.....	Triple-negative breast cancer
TSSM.....	Total skin-sparing mastectomy
WHO.....	World health organization

INTRODUCTION

Breast cancer is the most commonly diagnosed cancer among women, with approximately 182,000 women diagnosed with breast cancer annually in the United States, accounting for approximately 26% of all incident cancers among women (**Ban and Godellas, 2014**).

This cancer has a lifetime risk for one in every eight women. Surgical treatment of breast cancer has evolved from very radical debilitating surgeries to minimally invasive techniques and from disfiguring procedures to reconstructive excellence (**Losken et al., 2014**).

Patients with aggressive breast cancers include grade 3 invasive breast cancer histopathology or triple negative breast cancers or ki-67 >20%. Triple-negative breast cancer (TNBC) refers to any breast cancer that does not express the genes for estrogen receptor (ER), progesterone receptor (PR) or Her2/neu. This makes it more difficult to treat since most hormone therapies target one of the three receptors, so triple-negative cancers often require combination therapy (**Arpino et al. 2015**)

Triple-negative breast cancer accounts for approximately 15%-25% of all breast cancer cases. The overall proportion of TNBC is very similar in all age groups. Among younger women, African American and Hispanic women have a higher

risk of TNBC, with African Americans facing worse prognosis than other ethnic groups (*Cetin and Topcul, 2014*).

There are different "scoring systems" available for determining the grade of a breast cancer. One of these systems is the Nottingham Histologic Score system (the Elston-Ellis modification of Scarff-Bloom-Richardson grading system). In this scoring system, there are three factors that the pathologists take into consideration: the amount of gland formation ("differentiation" or how well the tumor cells try to recreate normal glands), the nuclear features ("pleomorphism" or how "ugly" the tumor cells look) and the mitotic activity (how much the tumor cells are dividing) (*Islam et al., 2015*).

The grade of a breast cancer is representative of the "aggressive potential" of the tumor; in a broad generalization, "low grade" cancers tend to be less aggressive than "high grade" cancers. Determining the grade is thus very important, and the clinicians use this information to help guide the treatment options for patients (*Veta et al., 2014*).

Ki-67 is a nuclear non-histone protein that is present at low levels in quiescent cells but is increased in proliferating cells, especially in the G2, M, and latter half of the S phase. Thus, Ki-67 reactivity, defined as percent tumor cells staining positive as measured by immunohistochemical (IHC) staining, is a specific nuclear marker for cell proliferation. Overexpression is frequently seen in a variety of malignant

tissues and is associated with worse survival of patients (*Inwald et al., 2013*).

Ki-67 is used to assess tumor cell proliferation (analogous to flow cytometric S-phase fraction) and assess prognosis in patients with bladder, brain, breast, kidney, lung, ovary, prostate, or thyroid malignancy. Also, it assists in grading neuroendocrine tumors (*Pathmanathan and Balleine, 2013*).

Higher Ki-67 reactivity in tumor tissue is associated with adverse outcomes. For breast cancer, prognosis is considered to be favorable with Ki-67 <10%, borderline if 10% to 20%, and unfavorable if >20% (*Brown et al., 2014*).

Surgical management of malignant diseases represents an exemplary model of multidisciplinary management. The combined modality approach to the treatment of breast cancer patients that includes primary surgical treatment, radiation therapy, and chemotherapy needs careful integration of these modalities with the new methods of reconstructive breast cancer surgery (*Agarwal et al., 2014*).

The history of breast surgery has evolved over the past several decades, since Halsted's radical mastectomy was first presented at 1882 as the best radical solution for those with breast cancer. Since the Early Breast Cancer Trialists' Collaborative Group established the equivalency of mastectomy and breast conserving therapy in 1985, breast