Local Recurrence After Breast Conservation For Breast Cancer

An Essay

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By
Ahmed Mahmoud Mahmoud Rashed
M.B.,B.Ch.

Under supervision of

Prof .Dr. Fateen Abd El Moneem Anoos
Professor of general surgery
Faculty of medicine
Ain Shams Universirty

Dr.Ahmed Sobhy El Sobky
Lecturer of general surgery
Faculty of medicine
Ain Shams University

Ain Shams University

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بسم الله الرحمن الرحيم

وَأَنْزَلَ اللَّهُ عَلَيْكَ الْكِتَابَ
وَالْحِكْمَةَ وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ
وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا

صدق الله العظيم
سورة النساء
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To My …

PARENTS for their love and patience,

WIFE for her support in hard times,

DAUGHTER for my love to her,

BROTHERS and my sister for their loudly support,

Any one shows me his light to the right way.

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List of Abbreviations

ALND	*Axillary lymph node dissection*
AJCC	*The American Joint Committee of Cancer*
BCS	*Breast conserving surgery*
BCT	*Breast conservative therapy*
BRCA	*Breast cancer antigen*
CAD	*Computer-aided detection*
CC	*Cranio-caudal*
CMF	*Cyclo phosphamide, methotrexiate and 5 flurouracil*
CT	*Computed tomography*
DCE-MRI	*Dynamic contrast enhanced magnetic resonance imaging*
DCIS	*Ductal carcinoma in situ.*
DVAB	*Directional Vacuum-Assisted Breast Biopsy*
EIC	*Extensive intraductal component*
EORTC	*European Organization for Research and Treatment of cancer*
ER	*Estrogen receptor*
FDG	*Fluro deoxy glucose*
FFDM	*Full-field digital mammography*
FNA	*Fine needle aspiration*
FNAB	*Fine needle aspiration biopsy*
H&E	*Hematoxilen and Eosin*
HDR	*High dose rate irradiation*
IBTR	*Ipsilateral breast tumor recurrence*
ID	*Intradermal*
IDC	*Invasive duct carcinoma*
ILC	*Invasive lobular carcinoma*
LCIS	*Lobular carcinoma in situ.*
LDR	*Low dose rate irradiation*
LRR	*Loco –regional recurrence*
MD	*Mammary ductoscopy*
MLO	*Mediolateral oblique*

MRI	*Magnetic resonance imaging*
MRM	*Modified radical mastectomy*
NCI	*The national Cancer institute*
NLB	*Needle localized biopsy*
NSABP	*The national Surgical Adjuvant Breast and Bowel project*
PET	*Positron Emission Tomography*
PR	*Progesteron receptor*
PT	*Peritumoral*
RF	*Radio frequency*
RT	*RadioTherapy*
SA	*Subareolar*
SD	*Subdermal*
SEER	*Surveillance, Epidemiology and End Result Program*
SERMs	*Selective estrogen receptor modulators*
SLN	*Sentinel lymph node*
SLNB	*Sentinel lymph node biopsy*
UKCCCR	*UK Coordination Committee on Cancer Research*

INTRODUCTION

Cancer breast is the commonest cancer in women in which cancer cells are found in the tissues of the breast. The most common type of breast cancer is ductal cancer. Cancer that begins in the lobes or lobules is called lobular carcinoma. ***(Fisher et al., 2005).***

The diagnostic process for a breast mass begins with assessment of risk based on family history, personal history of breast problems and physical examination. Significant signs of cancer include an irregular hard mass, lymph node involvement and skin changes. If none of these signs is present and the mass is asyptomatic, mammography and needle biopsy should be performed ***(Petit et al., 2004).***

Breast conserving surgery has been a recognized method of treatment of early breast cancer. The treatment methods include quadrantectomy or skin sparing mastectomy combined with ipsilateral axillary nodal dissection followed by radiotherapy. Modified radical mastectomy continues to be appropriate for some patients, but breast conservation therapy is now regarded as the optimal treatment for most of the patients ***(Santiago et al., 2007).***

The technique of breast conservative surgery has gained enormous popularity over the last two decades. The aim of such treatment is to eradicate the breast cancer while preserving the maximum amount of the breast tissue without increasing risk of local recurrence ***(Fisher et al., 2005).***

Contraindications to conservative surgery when two or more primary tumours are located in different quadrants of the breast or there are associated diffuse microcalcifications which appear malignant. A pregnant woman (1^{st}.and 2^{nd}.trimester) and awoman with previous breast irradiation are also not a candidate. ***(Silverstein et al., 2006).***

An important treatment related risk factor for local recurrence is the adequacy of surgical excision. This is demonstrated by the fact that most recurrence after breast conserving surgery occurs at the same side and are clonally related to their primary lesions ***(Bijker et al., 2006).***

Preoperative breast ultrasonography and mammography including the recent digital mammography techniques are done in all cases to exclude a multifocal disease and to assess tumour location, size, skin changes and distance of the tumour from the nipple and any other characteristic of the tumour ***(Baxter et al., 2004)***

Clinical history, physical examination and breast imaging are the most effective means of follow up. Patients at exceptionally high risk of recurrence or development of a second primary tumour should be watched more closely. MR mammography is important for the early recognition of recurrence and should then be done at least annually ***(Veronesi et al., 2005).***

AIM OF THE WORK

To detect the incidence, causes, diagnosis and management of local recurrence after conservative breast surgery.

CHAPTER (1)

ANATOMY OF THE FEMALE BREAST

The breast tissue includes both epithelial parenchymal elements and stroma. The epithelial component comprises about 10%-15% of the breast mass and the remainder is being stroma***.(Bland,2007).***

Gross anatomy of the breast:

In young adult females, each breast is a rounded eminence lying within the superficial fascia, chiefly anterior to the upper thorax. The base of the breast (its attached surface) extends vertically from the second or third to the sixth rib, and in the transverse plane, from the sternal edge, medially, almost to the mid-axillary line laterally. The superolateral quadrant is prolonged towards the axilla along the inferolateral edge of pectoralis major, from which it projects a little, and may extend through the deep fascia up to the apex of the axilla (the axillary tail of Spence) ***(Bannister, 2005).***

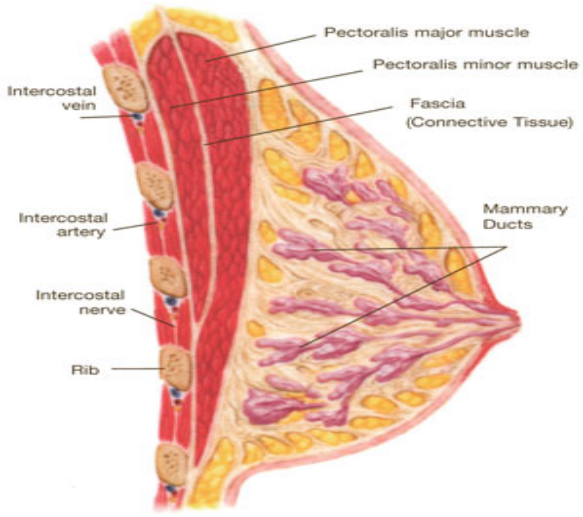

Fig. (1): Sagittal section for the breast ***(Lawson, 2002)***

The breast lies upon the deep pectoral fascia, which in turn overlies pectoralis major and serratus anterior, and below, obliquus externus abdomimis and its aponeorosis as that forms the breast and the deep fascia is loose connective tissue in the retro mammary(sub mammary)space, which allows the breast some degree of movement on the deep pectoral fascia ***(Bland, 2007).***

Advanced mammary carcinoma may, by invasion, fix the breast to pectoral major. Occasionally, small projections of glandular tissues may pass through the deep fascia into the underlying muscle in normal subjects ***(Bannister, 2005).***

Arterial blood supply:

There are three main sources of arterial blood supply:

1. Internal mammary artery.
2. Lateral thoracic artery.
3. Intercostal arteries.

Many parts of mammary gland are supplied by two and sometimes three of main sources. The medial portion of gland derives its major supply from the penetrating or intercostals branches of the internal mammary artery. The entire gland derives its major supply from intercostal arteries whereas the branches of lateral thoracic artery supply the lateral portion of the gland.