

# **Evaluation of Oncoplastic approaches for early breast cancer located at the upper outer quadrant**

## **Thesis**

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

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**2017**



## Acknowledgement

*First, thanks are all due to **Allah** for Blessing this work until it has reached its end, as a part of his generous help throughout our life.*

*My profound thanks and deep appreciation to **Prof. Dr. Ismail Abd El Hakim Kotb**, Professor of General Surgery, Faculty of Medicine, Ain Shams University for his great support and advice, his valuable remarks that gave me the confidence and encouragement to fulfill this work.*

*I am deeply grateful to **Prof. Dr. Rania Mohammed El Ahmady** Assistant professor of General Surgery, Faculty of Medicine, Ain Shams University for adding a lot to this work by his surgical experience and for his keen supervision.*

*I am also thankful to **Dr. Ahmad Gamal El Din Osman And Dr. Sherif Mohammed Mohsen Ismail** lecturers of General Surgery, Faculty of Medicine, Ain Shams University for their valuable supervision, co-operation and direction that extended throughout this work.*

*I want also to thank **my family** for supporting me throughout my life.*

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*Ramy Fouad Hafez*

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# LIST OF ABBREVIATIONS

ABBREVIATIONS	
AJCC	American Joint Committee On Cancer
ATM	Ataxia-Telangiectasia Mutation Gene
BAPS	British Association Of Plastic Surgeons
BASO	British Association Of Surgical Oncology
BCS	Breast Conserving Surgery
BRCA	Breast Cancer Gene
CHEK	Check Point Kinase Gene
CT	Computerized Topography
DCIS	Duct Carcinoma In Situ
ER	Estrogen Receptors
HDU	High Dependency Unit
HT	Hormonal Therapy
IBC	Inflammatory Breast Cancer
IDC	Invasive Duct Carcinoma
ILC	Invasive Lobular Carcinoma
LCIS	Lobular Carcinoma In Situ
MDT	Multi-Disciplinary Team
MRI	Magnetic Resonance Imaging
MRM	Modified Radical Mastectomy
NAC	Nipple Areola Complex
NSABP	National Surgical Adjuvant Breast Project
OPS	Oncoplastic Breast Surgery
PR	Progesterone Receptors
PTEN	Phosphatase And Tensin Gene
STK	Serine/Threonine Kinase Mutation
TNM	Tumor Node Metastasis
UICC	Union International Cancer Center
UOQ	Upper Outer Quadrant

# Abstract

## **BACKGROUND:**

Support for the oncological safety of oncoplastic breast conservation surgery (OBCS) is mostly based on evidence comparing recurrence rates after OBCS to wide local excision (WLE). However, OBCS is often indicated for larger cancers and oncological results should also be compared to patients treated with mastectomy. Upper outer quadrant is the most common site for breast cancer in females. In this study we compared the outcome of different oncoplastic techniques dedicated for breast cancer at the upper outer quadrant.

## **METHODS:**

Patients treated with OBCS between 2014 and 2017 were identified from a prospectively maintained database. For comparison, 30 patients were operated by the different OPS with three major techniques, Donut mammoplasty, lateral mammoplasty and radial mammoplasty.

## **RESULTS:**

Our overall cosmetic outcome was 4.23 which is excellent and patient satisfaction was high. The oncological safety was similar to that of BCS and complications rate is similar also. The donut mammoplasty had the best cosmetic outcome and the least intraoperative and post operative complications.

## **CONCLUSION:**

OPS is a safe alternative for conventional BCS. Donut mammoplasty has the best cosmetic outcome and symmetry.

## ***KEYWORDS***

Breast conserving surgery, Oncoplastic surgery, breast cancer, donut mammoplasty, radial mammoplasty, lateral mammoplasty, cosmetic outcome, oncologic safety.

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# 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. (*Warren K, 2013*)

According to national cancer institute, breast cancer in Egypt accounts for about 35% of total malignancies among Egyptian females; it is a devastating disease that causes suffering and mortality among women. (*Farahat, 2012*).

The diagnosis of breast cancer is a life-changing experience. Not only does it bring the woman face to face with her mortality, but also surgical treatment of breast cancer is accompanied by physical changes to the breast and body that may significantly, and often permanently, alter her perception of her physical, emotional, and sexual wholeness. (*Dennis et al, 2012*).

It's nowadays well known that up to 60% of the breast cancers are located in the upper outer quadrant, leading to frequently supero-lateral nipple areola complex distortion aggravated by postoperative radiation. Correction is technically demanding and the outcomes are variable. (*Benelli, 2012*).

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. (*Ballester, 2010*).

Modified radical mastectomy (MRM) was developed and gained acceptance for providing the same effectiveness as radical mastectomy with less side effects. However the sever disfigurement that those surgeries pose to the female has raised the demand to a newer technique that reduces the

disfigurement without altering the safety or the overall prognosis. (*Ballester, 2010*).

Since the Early Breast Cancer Trialists' Collaborative Group established the equivalency of mastectomy and breast conserving therapy in 1985, breast conserving surgery has remained the optimal surgical treatment for the breast cancer patient. (*Benelli, 2012*).

The goals of breast conserving surgery are the removal of breast cancer with an adequate surgical margin and maintenance of a breast that is cosmetically acceptable to the patient. (*Benelli, 2012*).

Mastectomy with or without breast reconstruction is the treatment of choice when tumor resection with cosmetic preservation is unattainable. Given the understandable desire to preserve a sense of wholeness, it is not surprising that many women consider mastectomy to be an unacceptable cosmetic alternative to breast conserving surgery. (*Benelli, 2012*).

In an attempt to resolve the conflict between oncologic safety and cosmetic satisfaction a novel approach named "Oncoplastic Surgery" has emerged and gained wide acceptance all over the world . (*Mustonen P and Harma M., 2002*)

The term oncoplastic surgery was first coined by Audretsch et al. in 1998 to describe the surgery techniques to reshape the breast at the time of lumpectomy or quadrantectomy. Oncoplastic techniques have a potential of reducing surgical margin involvement in breast conserving treatment by allowing wider excisions. It also allowed possible treatment of larger tumors with conservation rather than mastectomy. (*Audretsch, 2007*)

Oncoplastic surgery refers to describe techniques that combine the principles of surgical oncology with those of plastic surgery in an attempt to

achieve a desirable aesthetic result while maintaining a low cancer recurrence rate. The use of oncoplastic techniques has been driven by the fact that up to 30% of women undergoing breast conservation surgery (BCS) will have a residual deformity that might require surgical intervention. Deformities are generally seen in BCS when more than 20% of the breast volume has been resected as well as in tumors that are located medially, superiorly, or in the retro-areolar region. (*Malcom, 2011*)

In oncoplastic techniques devoted for upper outer breast lesions, after wide local excision the reshaping is made easy by mobilizing the nipple and areola complex medially through peri-areolar incision separating the nipple areola complex from the surrounding tissue, excision of this peri-areolar zone then re-attaching the NAC to the newly formed skin margin. (*Krishna et al, 2012*)

The end result will be a scar line over the original tumor site with peri-areolar extension. Putting in mind that this surgical techniques minimizes the supero-lateral distortion of the breast by the counteraction effect of the medially displaced NAC, rises the need of those techniques. (*Krishna et al, 2012*)

In the same time reduction of the contra-lateral side can be done in the same session to optimize the results and to obtain symmetry of the two breasts which improves the overall psychological outcome and reduces the bad impact of the surgery on the patient. (*Krishna et al, 2012*).

The optimal breast surgery is based on three basic principles: ideal breast cancer surgery with wider excisions, immediate breast reconstruction, and immediate symmetry of the other breast whenever necessary and that is the integral core of oncoplastic surgery. This is achieved through several techniques based on tumor location, characteristics of the breast, volume of

mammary resection and clinical evaluation of the patient into volume displacement and volume replacement procedures. The volume displacement techniques uses the remaining breast tissue, while the second, the volume replacement technique, uses other autologous tissue to supplement the insufficient breast tissue. (*Jung et al., 2012*).