

## Mastectomy with Y-Shaped Incision a Technique Designed for Women with Obesity

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**Abstract**

**Background:** Traditional transverse incision for mastectomy in women with large breasts or obesity can result in a persistent fold of skin at the lateral end of the scar, causing a dog ear deformity, which is unsightly, interferes with wearing external breast prosthesis, can be an annoying problem for patients, and can be a source of a long-term complaint requiring surgical correction. Evaluate the access to axilla and prevention of lateral dog-ear deformity after mastectomy with a Y-shaped incision and wound closure specially designed for women with obesity in Zagazig university hospitals. **Method:** This Clinical study was held in the surgery department at Zagazig University Hospital from March 2020 to Oct 2021. Included sixty females (BMI of equal to and more than 35) with breast cancer. Undergoes Y-shaped incision modified mastectomy. **Results:** There were two cases of hematoma and one case for each of surgical site infection, axillary triangle marginal necrosis, and apex necrosis. **Conclusions:** According to our research, the operator and all patients were cosmetically satisfied at the end of the surgical fear, with a better outcome, less complications, and a shorter hospital stay. In obese women, a Y-shaped incision can solve cosmetic surgery challenges by providing excellent axilla accessibility, a pleasing scar, and less complications.

**Keywords:** Mastectomy, Y-Shaped Incision, Women with Obesity, Breast cancer.

### INTRODUCTION

Breast cancer is the most frequent cancer in women in the world, with an estimated 1.67 million new cases diagnosed each year. Obesity, lack of physical activity, alcoholism, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late in life or not at all, older age, having a prior history of breast cancer, and having a family history of breast cancer are all risk factors for developing breast cancer [1].

The principle of radical surgery for breast cancer by combining mastectomy with removal of both pectoral muscles and axillary lymph node dissection was introduced by Halsted. This radical mastectomy principle was subsequently modified by saving the pectoral muscles with a lot of techniques. Modified mastectomy did not increase the local recurrence rate, achieving sufficient tumor clearance [2].

However, because of different reasons, modified radical mastectomy remains the treatment of

choice in some women not eligible for less invasive techniques. The oncological outcome is the first goal of breast cancer management, but the functional result and reduction of morbidity are also the indicators for quality of operative treatment [3].

The dog-ear deformity is caused by the typical transverse incision for mastectomy, which results in a persistent fold of skin at the lateral end of the scar. It is more common in women with large breasts or obesity, and it creates poor cosmesis, interferes with the wearing of external breast prosthesis, can be a bothersome problem for patients, and may be the source of a long-term complaint that requires surgical treatment [4].

Several surgical techniques, such as the Y-shaped or fish-shaped incision, excision technique, oncoplastic technique, triangular advancement technique, and the L technique, have been published to avoid or treat dog-ear in the lateral aspect of the mastectomy scar, but there is no standardized technique [5].

This study aims to evaluate the access to axilla and prevention of lateral dog-ear deformity after mastectomy with a Y-shaped incision and wound closure specially designed for women with obesity in Zagazig university hospitals.

**METHODS**

This Clinical study was held at General surgery department, Zagazig University Hospital From March 2020 to Oct 2021. sixty females (BMI of equal to and more than 35) with breast cancer were included in this study after approval of the Ethical Committee and informed consent after explanation of the aim of study.

The study was done according to The Code of Ethics of the World Medical Association (declaration of Helsinki) for study involving humans.

**Operation:**

Under general anaesthesia with antibacterial prophylaxis. The pectoralis muscles were not transected during the modified radical mastectomy.

The Y-shaped incision was formed by adding two oblique incisions to the typical transverse incision in the lateral section, resulting in the production of an additional triangular skin flap with an apex near the edge of the pectoral muscles and a basis along the posterior axillary line.

The margin of the latissimus dorsi muscle was exposed when it was lifted and retracted laterally.

The dissection was carefully guided up to the plainly visible axillary vein. When enlarged nodes at level III were observed, a complete all-level axillary lymphadenectomy was performed.

Dissection is performed with electrocautery with ligation of the perforators of the internal mammary artery.

Before closing the wound, the triangular flap was advanced medially, whereas superior and inferior areas of redundant skin overlying the latissimus dorsi muscle were excised.

Subcutaneous tissue closure was done followed by skin closure and a low-suction drain is placed. Patients were reviewed as outpatients weekly for 1 month.

**STATISTICAL ANALYSIS:**

The study results were collected, analyzed, tabulated, and summarized statistical analysis using SPSS version 23.

**RESULTS**

We summarize demographic data in table 1. In the present study, operation time ranged from 90 to 135 min with a mean of 110±17 min. And the mean length of the triangular flap was 16±1.5 and 11±1.3 cm for basis and limb, respectively.

There were two cases of hematoma and one case for each of surgical site infection, axillary triangle marginal necrosis, and apex necrosis table 2.

**Table 1:** Demographic Data of studied group:

|                          | <i>Mean</i>      | <i>SD</i> | <i>Range</i> |
|--------------------------|------------------|-----------|--------------|
| Age (Years)              | 56.4             | 5.2       | 40 - 70      |
| BMI (Kg/m <sup>2</sup> ) | 36               | 0.9       | 35 - 40      |
|                          | <b>Frequency</b> |           | <b>%</b>     |
| Right                    | 36               |           | 60           |
| Left                     | 24               |           | 40           |

**Table 2:** Complications

|                                     | <i>Frequency</i> | <i>%</i> |
|-------------------------------------|------------------|----------|
| Hematoma                            | 2                | 3.3      |
| Surgical site infection             | 1                | 1.6      |
| Apex necrosis                       | 1                | 1.6      |
| Axillary Triangle marginal necrosis | 1                | 1.6      |

**Table 3:** Post-operative data

|                     | <i>Mean</i> | <i>SD</i> | <i>Range</i> |
|---------------------|-------------|-----------|--------------|
| Drainage (ml)       | 260         | 80.7      | 180 - 470    |
| Drain removal (day) | 3           | 0.9       | 2-4          |
| Hospital Stay (Day) | 4.4         | 1.2       | 4-6          |



**Figure 1:** Y shaped Wound pre closure.



**Figure 2:** Y shaped Wound after closure.

#### **DISCUSSION**

In This clinical study, 60 obese patients with breast cancer were recruited from the general surgery department, Zagazig University Hospital.

Many factors were affecting the decision-making process of appropriate operation techniques.

To reduce psychological stress, the surgeon must use minimum invasive procedures and better cosmetic scaring to keep a higher quality of life for their patients, ensuring that the technique provides complete excision of the tumour.

Several requirements must be met when a radical mastectomy incision is planned. It must remove enough skin to excise all tumor

ramifications, allow appropriate exposure for excision of all breast tissue, resulting in great axilla access, close with a little tension, and avoid a scar across the arm or across the axilla [6].

Moreover, the choice of the incision type without the local control compromising is greatly limited by the tumor localization. Recently, for optimal surgical management, not only oncological outcomes but also functional and cosmetic results should be considered [7].

The transverse scar may produce issues such as dog-ear deformities in the wound's medial and lateral sections. Dog ear deformity at the axillary end of the incision is common following mastectomy, particularly in women with large breasts or obesity with excess fat along the lateral fold, and is a cosmetic failure as well as a cause of long-term discomfort for patients [8].

To eliminate a lateral dog ear, a teardrop-shaped incision reported by Mirza et al can be used. It is performed with the teardrop at the medial point and the broader segment at the axillary fold [8].

After nearly two decades of research, Szynglarewicz et al discovered the Y-shaped approach to be a technically simple procedure for removing redundant skin at the axilla triangle in obese patients, providing good cosmetic results without the lateral dog-ear deformity regardless of breast size, allowing wide axilla access, and facilitating lymph node dissection and clearance [9].

According to our study, the end of operation scar was cosmetically satisfied to the operator and all patients with better outcomes and less complication and hospital stay.

In the study of Samy et al; dog ear remained after correction in two cases (10%) in the fish tail technique group, one due to inadequate excision of redundant skin after the stay suture taken between the lateral end of the scar and the point of the flap at the anterior axillary line, the other because of dehiscence of the anchoring suture to the chest wall [10].

While in the study of sznglarewicz et al; they reported zero incidences of lateral dog-ear deformity in all his study cases using fishtail technique [9].

Our results reveal that there was no intra-operative complication and only 5 cases of post-operative complication in form of two cases of hematoma which resolve spontaneously with frequent dressing and compression, one case of surgical site infection respond to the antibiotic, one case of axillary triangle marginal necrosis and apex necrosis healed by secondary intention after adequate debridement.

Hussein et al, reported that infection happened in 7,2 % of cases of fishtail plasty technique [11].

Samy and his colleague reported in their study three (15%) cases of wound infection at the apex of the fishtail (Y shaped); treated conservatively (dressing and antibiotic) [10].

Also, Szynglarewicz et al, reported that post-operative infection occurred in 0.85 % of cases at the apex of the fishtail was effectively managed with the conservative approach [9].

Davis *et al*, reported that the strongest influence on postoperative infection is morbid obesity that increases the risk by 1.3 times as it is associated with impaired wound healing and tissue hypoxia [12].

This can explain the relatively higher incidence of infection in our study because our entire sample was obese.

Flap necrosis occurred in two cases (10%) in the fishtail group, it was managed with excision and sewing under local anesthesia. Seroma was presented in five cases (25%) in fishtail group [10].

Like our study Szynglarewicz et al, study which reports that marginal skin flap necrosis occurred in 2 elderly patients. It was treated with necrosectomy and successfully healed by second intention Necrosis of margins of the axillary triangle was not noticed [9].

Geok Hoon Lim et al. conducted a comprehensive review of studies that described methods for preventing dog ear. The most described approaches were Y-closure and fish-shaped closure. They looked at the results of 160 patients who had Y-shaped or fish-shaped closures and discovered eight problems, including necrosis in three cases, infection in four, and hematoma in one. All complications were successfully handled [5].

Finally, we may conclude that Y-shaped incisions can overcome cosmetic surgery barriers in obese women by providing excellent access to the axilla, a pleased scar, and less complications.

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