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Superomedial Pedicle Breast Reduction With A T Inverted Shaped Scar (Modified Hall-Findlay's Technique) Experience With 77 Consecutive Patients

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Abstract:
Superomedial pedicle with T inverted scar can be safely utilized in large size breast reduction without an expanded danger of NAC. The modified Hall- Findlay technique has aesthetic results and low complication rates in patients underwent breast reduction. Between January 2014 and January 2020, a total of 77 consecutive patients underwent superomedial pedicle breast reduction in Plastic Surgery Unit from the Mohammed Vth Teaching Armed Forces Hospital in Morocco. The mean age of the participants was 40 years, The overall complication rate using an inverted-T approach was 17%. The advantages of the superomedial pedicle included superior vascularity; shorter pedicle length; less de-epithelialization; favorable arc of rotation; no need to use parenchymal suturing techniques; providing superomedial fullness; and reduced incidence of bottoming-out.

Keywords*: Breast reduction, superomedial pedicle, nipple areoalr complex, Hall-Findlay*

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I. Introduction

The breasts, emblem of woman and femininity,have been in all eras an object of seduction and an attribute of feminine beauty. This is why the demands of breast surgery have been steadily increasing. The evolution of reduction mammaplasty over the past century can be characterized as innovative, imaginative, and diverse. It is estimated that over 50 variations and techniques for reduction mammaplasty have been described. These variations are based on skin pattern design, as well as pedicle selection for transposition of the nipple areolar complex [1]. In addition, the ideal technique should be consistently reproducible and teachable to the next generation of surgeons.

The superomedial pedicle of vertical reductions or superior pedicle-based reduction was modified from Hall-Findlay's medial, who had gained popularity as a means to decrease operative times, improve superior pole fullness, and reduce the tendency of pseudoptosis/bottoming-out [2] . It has been described with the use of circumvertical/lollipop, circumvertical with short transverse, and classic Wise- pattern skin resections [3].

In this article, we report a serie of 77 cases collected over a period of 6 years. we used a breast reduction technique with superior-medial pedicle and inverted T-shaped scar. The technique was used for gigantomastia, ptosis cure, and recurrent breast reduction. The technique seems of great interest to us because it can be applied for a wide range of indications: from gigantomastia to aesthetic ptosis treatment. This technique respects the mammary anatomy as much as possible, which allows for great vascular safety and speed of execution.

II. Material and methods

Between January 2014 and January 2020, a total of 77 consecutive patients underwent superomedial pedicle breast reduction in Plastic Surgery Unit of Military Hospital Mohamed V Rabat. The mean age of the participants was 40 years (range: 21–52). Among the patients, 3 had a BMI of 32, 27 had a BMI of 30, the other 50 had a BMI between 20 and 29, with the mean of 26. The majority of patients were nonsmokers, 07 being advised to stop smoking 6 weeks prior to their operation in line with the local protocol. Five patients had high blood pressure and two had type I diabetes, both controlled by medications. All patients were admitted on the day of surgery and marked in the standing position. All procedures were carried out under general anesthetic, and prophylactic antibiotics were administered at induction. Preoperative mammogram and echography is

mandatory for all patients. Submit all resected breast tissue for pathologic examination to exclude previously unrecognized breast cancer.The first postoperative follow-up was in a week time, the second at 3 months, the third at 6 months and one year, and all patients were advised to wear a sports bra for 24 hours for 8 weeks.

Marking

It is practiced on a patient awake before premedication in a standing or sitting position, arms along the body, Standard breast landmarks are drawn including the sternal notch, chest midline, inframammary fold (IMF), breast meridian, which may not coincide with the preoperative nipple position, and the breast meridian at the IMF. We begin by drawing a line in the midline from the sternal notch to the umbilicus. Next, a line is drawn bi- laterally, measured 5 cm lateral to the sternal notch, which goes from the clavicle to the nipple. This line marks the breast meridian. Pitanguy's point is then measured by palpating the inframammary crease and transposing this location to the overlying breast to mark the new nipple areolar complex (NAC) location.

A marking pen is used to delineate the superomedial pedicle coursing around the nipple areolar complex including a 1 cm cuff around the edge of the areola.. The base of the pedicle typically ranges from 6 to 10 cm and the length of the pedicle ranges from 10 to 15 cm. The distal aspect of the medial pedicle is delineated with a 1 cm margin around the nipple areolar complex to preserve the vascular subdermal plexus. the lateral resection limits with large vertical axis are delinated, at the origin of the vertical scar of segment III. lower resection limits with large horizontal axis are also delinated ,at the origin of the horizontal scar in the submammary fold. The patient is then photographed. (Fig 1)

Surgical technique

Following transport to the operating room, the patient is placed in the supine position under general anesthesia. A urinary catheter is usually not necessary. Intravenous antibiotics are administered. Local anesthetic agents can be considered prior to the incisions for improved hemostasis. A 42–45 mm cookie-cutter is used to inscribe the nipple areolar complex. The epidermis is incised to the level of the mid-dermal layer. The superomedial pedicle is de-epithelialized . The inverted-T markings are incised. The breast tourniquet is released to allow for isolation of the pedicle. The assistant is directed to maintain the breast in a straight position on the chest wall, and the pedicle is created using the cautery to dissect straight down to the chest wall. All the remaining breast tissue within the Wise pattern is resected down to just above the pectoralis fascia.

The superomedial pedicle is usually maintained on its dermo-parenchymal attachments such that the chest wall perforators are included. This maneuver increases the likelihood of adequate perfusion to the nipple areolar complex. The superomedial pedicle is then repositioned such that the nipple areolar complex is at the apex of the vertical limbs. Parenchymal suturing can be considered for optimal shaping and contour but may not be necessary. A trifurcation suture is placed to ensure tension free closure of the inverted-T incision (Fig 2). Irrigation is performed, and hemostasis is ensured followed by closed suction drain placement. The skin is closed in layers with absorbable sutures. The weight of reduction specimen from each breast was calculated intraoperatively. A gauze bandage is lightly placed over the incisions and the skin is covered with elastoplast.

Post-operative monitoring focuses on the vascularization of the NAC to detect any possible suffering. Wearing a soft bra without underwire is recommended for a few months. The first postoperative follow-up was in a week time, the second at 3 months, the third at 6 months, and one year.

III. Results

The mean age of the participants was 40 years (range: 21–52). Among the patients, 3 had a BMI of 32, 24 had a BMI of 30 and the other 50 had a BMI between 24 and 29, with the mean of 26. 91% of patients were nonsmokers, 07 being advised to stop smoking 6 weeks prior to their operation in line with the local protocol. Five patients had high blood pressure and three had type I diabetes, both controlled by medications.

Seven cases were smokers, 3.8 % were diabetic and 34% were married (26) cases,14 from them have children and all 14 were breast feeder. The mean weights were 1045 g/breast following inverted-T reduction.

The overall complication rate using an inverted-T approach was 17% and included seroma (1.2%); delayed healing (2.4%); altered nipple sensation (3.6%); There were one case of total nipple loss with a BMI. (Figures 2, 3, 4)

IV. Discussion

The objective of breast plastic surgery is to restore the youthful and graceful form of the breast. The objectives of this type of surgery range from the decrease of excess glandular tissue in the case of hypertrophy to breast cone remodeling in ptosis. Therefore, the focus of breast reduction surgery is to achieve an adequate volume, and to attain adequate suspension and a new shape of the breast. Several techniques are currently in use for breast reduction and the vascular pedicles responsible for the blood supply to the nipple areolar complex (NAC) are particularly important in these procedures. Breast hypertrophy can be a source of emotional and

psychological distress for patients, as well as the cause of multiple problems related to the effects of the excess weight (tissue and glandular weight) on the lumbar area and shoulders as a result of gravity [4][5].

The arterial supply to the breast is derived from branches of the internal mammary artery, lateral thoracic artery, intercostal artery and pectoral branch of the thoracoacromial axis. Variable anastomoses exist among these vessels providing a robust supply to the breast skin, via the subdermal plexus and the breast parenchyma. The internal mammary artery provides about 60% of the blood supply to the breast mainly through its second and third perforating branches, usually found at the breast meridian. This superficial source supplies the superior or superomedial based pedicle. A large musculocutaneous perforator (through the pectoralis major muscle) from either the fifth or sixth branch sustains the inferior or central based pedicle and is found just medial to the breast meridian about 2 to 4 cm above the inframammary fold. The medially or superomedially based pedicle is the basis for the Hall-Findlay developed vertical reduction mammaplasty technique [6]. The NAC receives sensory innervation mainly from the lateral cutaneous branch of the fourth intercostal nerve. The posterior branch runs along the pectoralis fascia till the level of the breast meridian where it makes an almost perpendicular turn, vertically coursing towards the NAC. Preservation of a full thickness pedicle with its attached pectoralis fascia is crucial to NAC innervation which serves the suckling reflex. During tissue resection, unnecessary exposure of the pectoralis fascia risks increased bleeding and loss of sensation. Additional supply to the NAC is via a plexus formed by the terminal fourth and fifth anterior cutaneous nerves, as well as the fifth lateral cutaneous intercostal nerve [7].

In our examination, the age of patients were ranged between 21 and 52 years with a mean of 40 years, patients weight were ranged between 77 and 93 kg with a mean of 84.25 kg, BMI ranged between 24 and 32 with a mean of 26,73. Abd El-Latif TE and al. [4] utilized a T inverted mammaplasty including the superomedial dermoglandular pedicle for differing degrees of breast reduction. the age of patients were ranged between 33 and 45 years with a mean of 38.0±3.21, patients weight were ranged between 72 and 95 kg with a mean of 85.25±7.22, BMI ranged between 26 and 33 with a mean of 29.78±2.42. The mean weights were 1045 g/breast following inverted-T reduction. Postoperative complications rate was 17%, no haematoma was recorded, 2 cases with high BMI showed postoperative wound dehicence and one case of total nipple loss. Davison et al. have reviewed their 6-year experience with the superomedial pedicle in 215 patients. The mean weights were 688 g/breast following circumvertical reduction; 1137 g/breast following circumvertical reduction with a short transverse scar; 1184 g/breast following inverted-T reduction.The overall complication rate using an inverted-T approach was 18% and included seroma (3.7%); hematoma (3.7%); delayed healing (0.75%); cel-lulitis (1.5%); altered nipple sensation (0.75%); superficial necrosis (1.5%); and complex scar (1.5%). There were no cases of total nipple loss. A.J. Bauermeister et al. [8] found that the factors that contribute to increase the complication rate when performing superomedial reduction mammaplasty were BMI > 30, ptosis grade of 3, breast reduction weight > 831 g, and a nipple to ster- nal notch distance > 35.5 cm.

V. **Conclusion**

Superomedial pedicle with T inverted scar can be safely utilized in large size breast reduction without an expanded danger of NAC. The modified Hall- Findlay technique has aesthetic results and low complication rates in patients underwent breast reduction. The advantages of the superomedial pedicle included superior vascularity; shorter pedicle length; less de-epithelialization; favorable arc of rotation; no need to use parenchymal suturing techniques; providing superomedial fullness; and reduced incidence of bottoming-out.

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Figures

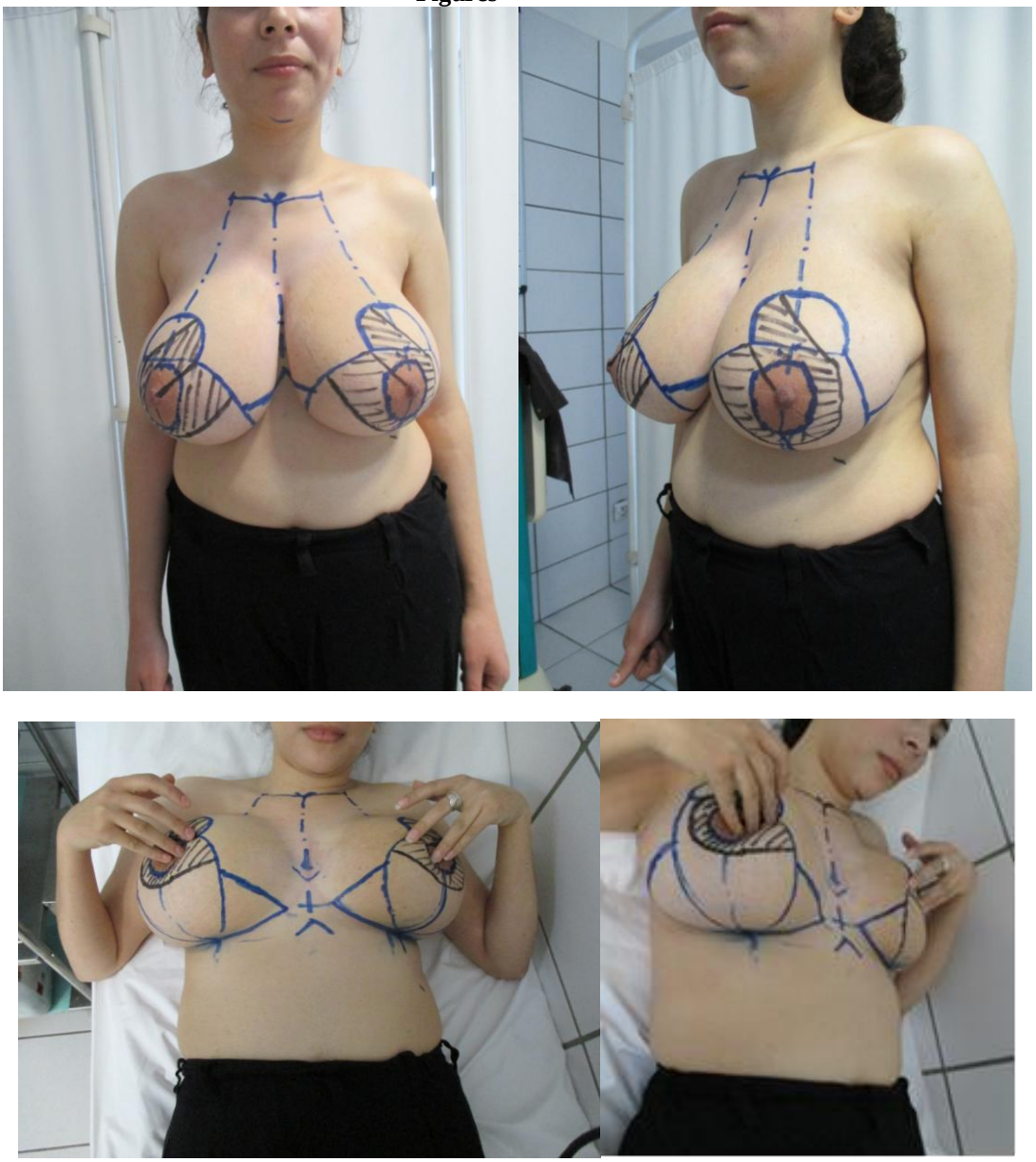

Fig 1 : preoperative markings

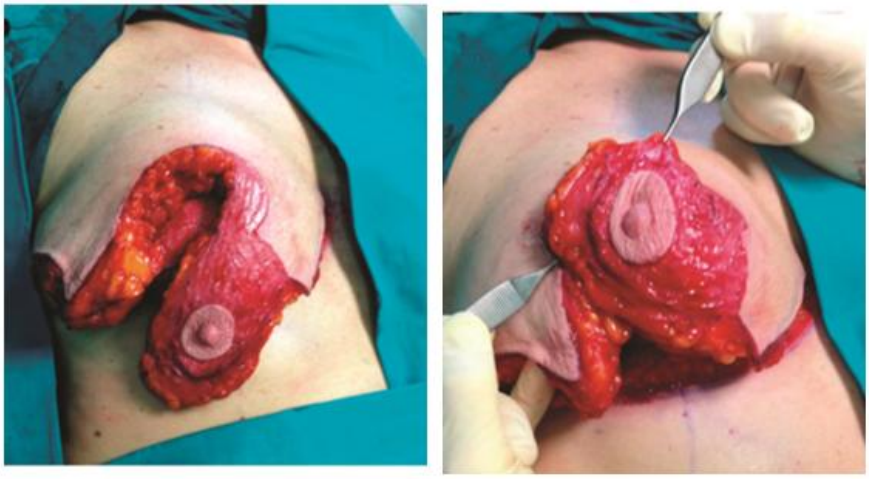

Fig 2 : Superomedial pedicle breast reduction with T inverted resection

Fig 3 : Preoperative and postoperative images of a patient scheduled for an inverted-T reduction mammaplasty using an superomedial pedicle.

Fig 4 : Preoperative and postoperative one-year view of a 30-year-old patient who underwent a superomedial pedicle breast reduction.

Fig 5 : : Preoperative and postoperative one-year view of a 25-year-old patient who underwent a superomedial pedicle breast reduction.

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