

# Superomedial Pedicle vs. Inferior Pedicle Techniques in Reduction Mammoplasty

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## Abstract

**Background:** Reduction mammoplasty is a challenging combination of aesthetic and functional plastic surgery. It is a technique that provides a safe and predictable result with NAC preservation. The end result should be judged on volume, scar pattern, shape, symmetry, and nipple position with projection. Though the ideal normal breast does not exist, the ideal operated breast should satisfy certain morphologic criteria. Despite the diversity of procedures, there is no consensus about the ideal technique for reduction mammoplasty.

**Aim:** To compare the clinical and the aesthetic outcome of the superomedial pedicle and the inferior pedicle techniques in reduction mammoplasty for females complaining of symptomatic breast hypertrophy.

**Methods:** 24 patients with huge symptomatic breasts at the department of General Surgery, Ain-shams University hospitals from Jan 2017 to September 2018 were divided into two groups; Group (A) Patients underwent reduction mammoplasty using superomedial pedicle technique and Group (B) Patients offered inferior pedicle technique. Both groups were compared as regards aesthetic, surgical outcome and relief of complaint.

**Results:** 10 patients in group A suffered from pain and pra-srap groove opposite to 9 in group B. In group A and B 11 patients out of 12 in each group had the unaccepted body shape with social embarrassment. Mean BMI was 38.72 and 36.96 in group A and B respectively. The mean weight of excised tissue in our study was 1151.6 grams in group A and 1167.1 grams in group B. There was relief of pain in 100% of group A, 83.3% of group B. Pra strap groove diminished in 100% patients. optimum patient satisfaction occurred in 100% of group A and 83.3% of group B. Regarding the Desired size and shape of the breast, in group A; 11 patients (91.7%) gave Very good, 1 patient (8.3%) gave good while no patient gave poor (0%), on the other hand, 3 patients (25%) in group B gave very good, 7 (58.3%) good and 2 (16.7) poor. 4 patients in group B (33.3%) had boxy breast deformity, while no patient (0%) in group A had such complication.

**Conclusion:** Both superomedial and inferior pedicle techniques in reduction mammoplasty are safe, feasible and effective however boxy breast deformity.

**Keywords** Mammoplasty; Plastic surgery; Surgery

## Introduction

Female breast hypertrophy is an abnormal enlargement of the breast tissue in excess of the normal proportion. This condition may be caused by gland hypertrophy, excessive fatty tissue, or a combination of both. It varies in severity from mild (<300 g) to moderate (300-800 g) to severe (>800 g) [1]. Symptomatic breast hypertrophy can have negative physical and psychosocial manifestations such as persistent neck and shoulder pain, painful shoulder grooving from brassiere straps, a chronic rash of the infra mammary fold, backache, and peripheral neuropathies. As a consequence, it is a medical condition that requires therapeutic management. Since nonoperative treatments don't give long-lasting results, therefore, it is most often managed by reduction mammoplasty [2]. The long-standing debate over the optimal technique for breast reduction represents the difficulty plastic surgeons have in surgically creating the ideal breast. The primary surgical objectives remain to safely move a sensate and vascu-

lary NAC while creating a stable, aesthetically pleasing, and durable breast shape with minimal resultant scars [3].

Ribeiro introduced a dermal-lipoglandular flap based on the inferior aspect of the breast mound and used this tissue to "auto augment" the breast after tissue resection [4]. Courtiss and Goldwyn identified the mammoplasty technique in which the inferior pedicle contains the nipple-areola and the closure is accomplished by conversion of the keyhole incision into an inverted T incision [5].

The inferior pedicle techniques have been successfully perpetuated through plastic surgery training programs as safe techniques to reduce and reshape the breast with adequate vascularity, sensation, and position of the NAC. Another added advantage is the preservation of breast's lactation potential as continuity of the breast parenchyma is not disturbed however bottoming out remains one of the most potential drawbacks which can be avoided keeping the bulk of the tissue centrally located under the nipple-areolar complex with minimal tissue along the lower border of the pedicle. Also, Resection in several areas of the breast makes this procedure more complex [6].

The superomedial pedicle was introduced by Orlando and Guthrie in 1975 as a modification of the superior pedicle technique [7]. Its design was intended to shorten pedicle length while broadening the pedicle as a means to enhance blood flow and maintain innervation of the NAC. In this technique, the NAC is transposed on a superomedial de-epithelialized pedicle which contains a thin layer of subcutaneous tissue to protect the dermal blood supply. This pedicle is based on the full extent of the medial skin flap patterned after Wise and the entire new nipple position except for a small lateral portion. The nipple is laterally rotated into place instead of folding the pedicle upwards in. Subsequent reports by Hauben and Finger et al. verified the safety of this procedure which is advantageous in providing a substantial amount of superomedial fullness and better superior blood supply owing to its shorter length compared to an inferiorly based pedicle [8]. In the present study, we evaluated the superomedial pedicle technique and the inferior pedicle technique; both techniques were done on Wise-pattern skin resection. The aesthetic and surgical evaluation was assessed in both groups.

## Patients and Methods

Prior to the study, IRB approval was obtained from the Medical Research Ethics Committee of the Faculty of Medicine in Ain Shams University, and written informed consent was obtained from all patients before enrolment. Our study is a prospective study that was conducted on 24 patients with huge symptomatic breasts of the cup (D-G) at Department of General surgery Ain-shams University hospitals from Jan 2017 to September 2018. Patients were divided into two groups; Group (A) underwent the superior medial pedicle technique and Group (B) in which the inferior pedicle technique was performed. Nature and possible consequences of the clinical study were explained to all patients. Most of the patients were women after childbearing; who are interested in relief from symptoms of heavy breasts and correction of the post-lactation ptosis and post-menopausal patients require breast reduction to relieve the symptoms related to large and heavy breasts. All patients included were subjected to full preoperative assessment including history taking, clinical examination. Preoperative breast sonography for patients <35 years and sonomammography for patients >35 years to exclude any other pathology of the breast. Postoperatively, all patients were followed up weekly for one month then monthly for 6 months for assessment of the viability of flaps, the vascularity, and sensitivity of the NAC and the aesthetic outcome regarding the desired size, weight, shape and the symmetry of both breasts according to the breast measurements.

## Outcome

The primary end goal was to assess the aesthetic outcome of each technique from the patient point of view. The secondary end goal was to assess the degree of relief hypertrophy symptoms e.g. neck and shoulder pain, a rash of the infra mammary fold.

## Superomedial flap technique

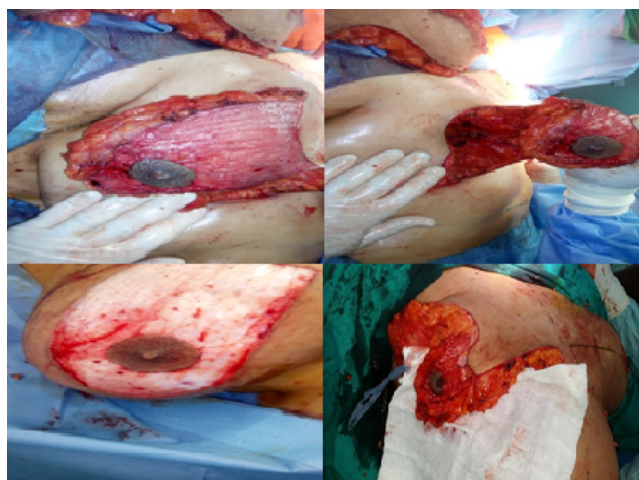
Preoperative markings were done with the patient in an upright position. Midline was drawn from the supra-sternal notch down onto the umbilicus (Figure 1). The breast meridian from the mid-clavicular point to the nipple. The infra-mammary line was marked. The vertical

axis of the breast was then marked 10 to 14 cm from the abdominal midline below the level of the infra mammary crease. To mark the upper limit of the new areola, an index finger was placed in the inframammary crease and a mark then made on the forward projection of the index finger onto the anterior surface of the breast. Another way to locate the new nipple site was 2-3 cm below the mid-arm point. Lateral and medial markings were determined next, for the medial one the breast was put upward and laterally and a line was made projecting the previously made vertical axis onto the breast. Similarly, the lateral line was drawn by pushing the breast upward and medially. The key hole-pattern centered over the new nipple mark was used to draw the wise-pattern and its ring diameter are about 38-45 mm Diameter of the new areola (diameter between 38 and 45 mm) was drawn between indentation marks of the metallic ring with its central hole applied just over the nipple. The superomedial pedicle is marked from the center of the new areola position passing around NAC and ends either or near the bottom of a medial limb of inverted V. The flap length is between 6-11 cm.



**Figure 1:** Preoperative marking of the superomedial technique.

**Surgical technique:** The inverted V area was de-epithelialized including the outer rim of the old areola outside the new areolar marking. IMC incision was deepened till the deep fascia and the breast was lifted off the pectoral fascia up to the nipple-areola level. Then the breast was lifted upwards perpendicular to the chest wall and the lower portion of the breast was excised (Figures 2 and 3). A wedge of lateral tissue and a tangential disk of deep central tissue were resected. Superomedial pedicle was undermined at 2 cm thickness and made progressively thicker towards the base. The pedicle was freed laterally by an incision at the lateral edge of the V all the way upwards NAC then laterally rotated easily into their new place. Breasts checked for symmetry. Temporary clips were used to approximate flaps and to the new IMC. The proposed areolar position was prepared by drawing a circle and the skin was excised in full thickness to accommodate for the transposed areola. Final closure proceeded by 4-0 Vicryl intracuticular sutures of the areola and 4-0 subcutaneous Vicryl sutures and subcuticular 3-0 Prolene. Drains were removed after 48 hours (Figure 4).



**Figure 2:** Lateral view of the superomedial pedicle right breast.



**Figure 3:** Lateral view of the superomedial pedicle left breast.



**Figure 4:** Immediate post-operative photo.

### Inferior pedicle technique

Midline was marked by connecting the suprasternal notch to the umbilicus. The inframammary fold was marked between two points. The medial point is 3-4 cm lateral to the sternal border and hidden under the medial fold of the breast. The lateral point of the inframammary fold is drawn 1 cm medial to its preoperative position. Breast meridian is outlined. The new level of the nipple was marked as a point in breast meridian lying 20-22 cm from the suprasternal notch. The areola was marked. The upper limit of the new areola was above the nipple point by a distance equal to the radius of the new areola (22

mm). Marking of the new areola was done. The base was marked 5 cm lateral and 5 cm medial from breast meridian. The outlines of the pedicle were drawn, extending beyond (NAC) (Figure 5).



**Figure 5:** Preoperative marking for inferior pedicle breast reduction.

**Surgical technique:** De-epithelialization of the pedicle was done. Medial, lateral and superior breast skin flaps were elevated with beveling downwards towards the chest wall until the loose areolar tissue layer overlying the pectoral fascia is reached and is preserved. Skin flaps should not be less than 2 cm. in thickness. The breast tissue was removed in a horseshoe-shaped pattern around the inferior pedicle with an attempt made to perform most tissue resection laterally and the least amount of resection is done medially. The pedicle was shaped by inserting 5-7 absorbable 3/0 sutures which were tied in solid knots over large loose loops designed to just bring the breast tissue together in a kissing fashion without strangling the blood supply. Then the breast was sutured to the chest wall superomedially by few loose stitches. 11- The skin edges were brought together. The periareolar incision and the vertical limb were closed. The breast was supported by elastic adhesive tapes leaving a trap door dressing on the nipple and areola to allow their inspection during follow up (Figure 6).



**Figure 6:** Intraoperative photo showing the pedicle.

### Results

#### Patient characteristics

The age of patients in our study ranged from 33 to 50 years in group A with a mean age of 40.25 years and ranged from 30 to 48 years in group B with a mean age of 38.83 years. 9 patients of group A had a positive family history while 8 patients of group B had a positive family history. Regarding the complaint; all patients suffered from the large size of breasts. 10 patients in group A suffered from pain and pra-srap groove opposite to 9 in group B. In group A and B 11 patients out of 12 in each group said they have unaccepted body shape and complained from social embarrassment. The mean BMI in our patients was 38.72 in group A and 36.96 in group B. All patients underwent general anesthesia with no statistically significant differences between both groups in the anesthetic outcome or operative time. The mean weight of excised tissue in our study was 1151.6 grams in group A and 1167.1 gram in group B (Tables 1 and 2).



Group		N	Mean	SD	t	P Value	Sig.
Age	Group A	12	40.25	5.56	0.59	0.561	NS
	Group B	12	38.83	6.19			
Children number	Group A	12	2.67	1.07	0.32	0.752	NS
	Group B	12	2.50	1.45			
Clinical examination							.
Height	Group A	12	157.67	4.96	-0.17	0.870	NS
	Group B	12	158.00	4.94			
Weight	Group A	12	94.83	11.91	0.55	0.590	NS
	Group B	12	92.42	9.62			
BMI	Group A	12	38.72	4.19	1.14	0.266	NS
	Group B	12	36.96	3.31			
Weight of excised tissue	Group A	12	1151.67	268.29	-0.15	0.884	NS
	Group B	12	1167.17	244.21			

**Table 1:** Patient characteristics.

Patient history		Group A (n=12)	Group B (n=12)	Total (n=24)	χ <sup>2</sup>	P Value	Sig.
Family history	Negative	3 (25.0%)	4 (33.3%)	7 (29.2%)	0.20	1.0	NS
	Positive	9 (75.0%)	8 (66.7%)	17 (70.8%)			
Pt complaint							
Large size	No	0	0	0	-	-	-
	Yes	12 (100%)	12 (100%)	12 (100%)			
Pain	No	2 (16.7%)	3 (25.0%)	5 (20.8%)	0.25	0.50	NS
	Yes	10 (83.3%)	9 (75.0%)	19 (79.2%)			
Pra-strap groove	No	2 (16.7%)	3 (25.0%)	5 (20.8%)	0.25	0.50	NS
	Yes	10 (83.3%)	9 (75.0%)	19 (79.2%)			
Unacceptable body shape	No	1 (8.3%)	1 (8.3%)	2 (8.3%)	0.0	1.0	NS
	Yes	11 (91.7%)	11 (91.7%)	22 (91.7%)			
Social embarrassment	No	1 (8.3%)	1 (8.3%)	2 (8.3%)	0.0	1.0	NS
	Yes	11 (91.7%)	11 (91.7%)	22 (91.7%)			

**Table 2:** Comparison between the two groups regards family history and complains.

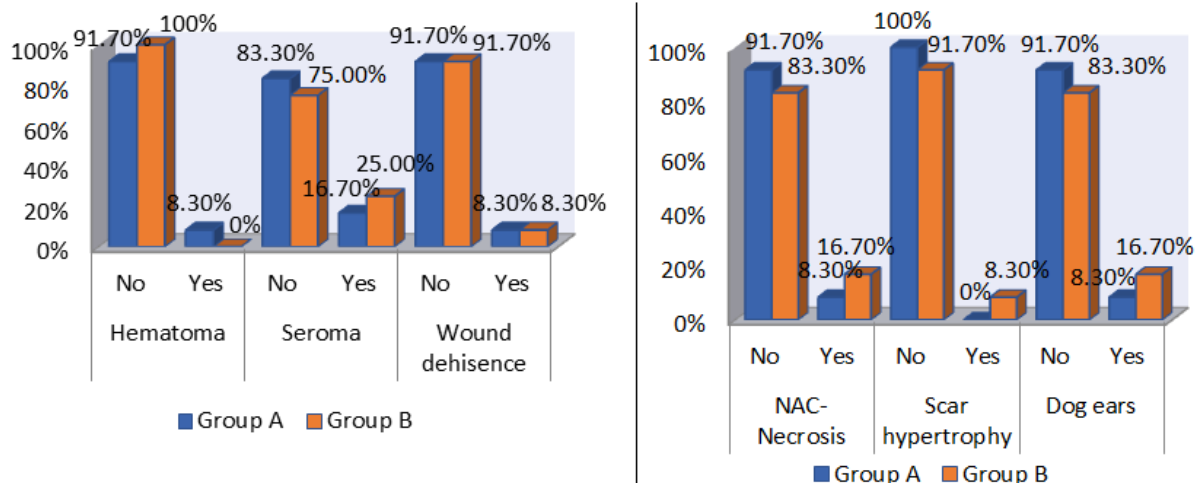
### Post-operative assessment

There were statistically highly significant difference regards desired size and shape and no statistically significant difference between the two groups regards asymmetry and relief of complaint. 1 patient out of 24 (4.2%) had postoperative hematoma. Regarding Seroma 2 patients (16.7%) in group, A had mild seroma while in group B 3 patients (25%) had a mild seroma. wound infection did not occur, however,

wound dehiscence occurred in 1 patient in each of the two groups. Seven patients (29%) complained of decreased NAC in the early postoperative period. However, after 6 months, only 1 (4.1%) patient in Group A still had decreased NAC sensation opposite to patients (16.7%) in group B. 4 patients in group B (33.3%) had Poxxy breast deformity, while no patient (0%) in group A had such complication. NAC Necrosis occurred in none of our patients (0%). Scar hypertrophy

occurred in only 1 patient in group B (8.3%). And finally, Dog ears occurred in 1 patient in group A (8.3%) and 2 patients in group B (16.7%) (Figure 7). There were no statistically significant differences; between the two groups regards assessment of complication for

hematoma, seroma, wound dehiscence, NAC malposition, scar hypertrophy, and dog ears. There was a statistically significant difference between two studied groups regards boxy breast deformity (Table 3).



**Figure 7:** Bar chart representing comparison between the two studied groups regards assessment of complication.

Relief of patient complaint		Group A (n=12)	Group B (n=12)	Total (n=24)	X <sup>2</sup>	P Value	Sig.
Large size	Not satisfied	0	2 (16.7%)	2 (8.3%)	2.18	0.487	NS
	Satisfied	12 (100%)	10 (83.3%)	22 (91.7%)			
Pain	Present	0	2 (16.7%)	2 (8.3%)	2.18	0.487	NS
	Relieved	12 (100%)	10 (83.3%)	22 (91.7%)			
Pre-strap groove	No				-	-	-
	Diminished	12 (100%)	12 (100%)	24 (100%)			
Unacceptable body shape	Not accepted	0	2 (16.7%)	2 (8.3%)	2.18	0.487	NS
	Accepted	12 (100%)	10 (83.3%)	22 (91.7%)			
Social embarrassment	Embarrassed	0	2 (16.7%)	2 (8.3%)	2.18	0.487	NS
	Confident	12 (100%)	10 (83.3%)	22 (91.7%)			
Aesthetic outcome							
Desired size	Poor	0	2 (16.7%)	2 (8.3%)	10.53	0.003	HS
	good	1 (8.3%)	7 (58.3%)	8 (33.3%)			
	Very good	11 (91.7%)	3 (25.0%)	14 (58.3%)			
Shape	Poor	0	2 (16.7%)	2 (8.3%)	10.53	0.003	HS
	good	1 (8.3%)	7 (58.3%)	8 (33.3%)			
	Very good	11 (91.7%)	3 (25.0%)	14 (58.3%)			
Asymmetry	No	11 (91.7%)	10 (83.3%)	21 (87.5%)	0.38	0.50	NS
	Yes	1 (8.3%)	2 (16.7%)	3 (12.5%)			

Complications							
Hematoma	No	11 (91.7%)	12 (100%)	23 (95.8%)	1.04	0.50	NS
	Yes	1 (8.3%)	0	1 (4.2%)			
Seroma	No	10 (83.3%)	9 (75.0%)	19 (79.2%)	0.25	0.50	NS
	Yes	2 (16.7%)	3 (25.0%)	5 (20.8%)			
Wound dehiscence	No	11 (91.7%)	11 (91.7%)	22 (91.7%)	0	1.0	NS
	Yes	1(8.3%)	1 (8.3%)	2 (8.3%)			
Wound infection	No	12 (100%)	12 (100%)	24 (100%)	-	-	-
	Yes						
NAC-Sensation	No	11 (91.7%)	10 (83.3%)	21 (87.5%)	0.38	0.50	NS
	Yes	1 (8.3%)	2 (16.7%)	3 (12.5%)			
NAC-necrosis	No	12 (100%)	12 (100%)	24 (100%)	-	-	-
	Yes						
Scar hypertrophy	No	12 (100%)	11 (91.7%)	23 (95.8%)	1.04	0.50	NS
	Yes	0	1 (8.3%)	1 (4.2%)			
Dog ears	No	11 (91.7%)	10 (83.3%)	21 (87.5%)	0.38	0.50	NS
	Yes	1 (8.3%)	2 (16.7%)	3 (12.5%)			
Boxy breast deformity	No	12 (100%)	8 (66.7%)	20 (83.3%)	4.80	0.047	S
	Yes	0	4 (33.3%)	4 (16.7%)			
Fisher's exact Chi-Square test							

**Table 3:** Post-operative assessment.

## Discussion

Breast hypertrophy has been and will always be a challenge to breast surgeons, after the evolution of the breast reduction surgery, the process took a long time for both, the patients as well as for the surgeons to have well and acceptable results. Nahai mentioned that any operation on the female breast is to be considered an aesthetic procedure not only augmentation and mastopexy but also reduction and reconstruction [9]. The multiplicity of reduction techniques indicates that no technique is perfect and no single technique suits all cases. Criticism of procedures includes the loss of long term projection, quality, and length of the scars and development of squaring. Several techniques have appeared over years, but yet till now, there is no single technique that fulfills all the criteria approached by the critics. Reduction mammoplasty by the inferior pedicle technique was applied frequently. This technique developed in the mid-1970s, by Curtiss, Georgiade, Goldwyn, Ribiero, and Robbins, for the purpose to increase vascularity [10]. These operations when combined with "Wise pattern" are reliable, reproducible and have become very popular because it is applied to the breasts in different sizes. This technique although reliable and easy to apply, it is linked to an increase "bottoming-out" deformity, consisting of boxy-shaped breast and decrease upper pole fullness.

Although, the inferior pedicle Wise-pattern reduction has been, and still is, the most widely used technique in the United States. Many

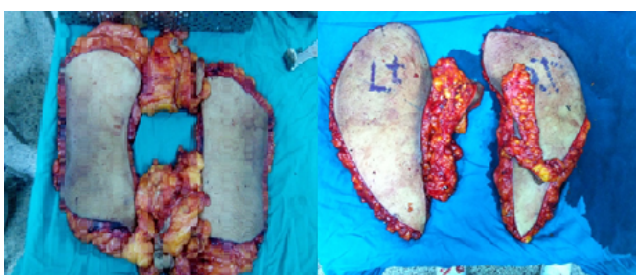
surgeons prefer the Wise-pattern technique in larger breasts because there will be no excess, redundant skin at the IMF that must be observed for some time, and may never completely resolve. Although it has its benefits, this technique also has some downsides. By using the inferior pedicle, you are relying on the skin envelope to hold up the weight of the inferior breast tissue and shape the breast. Many times, the surgeon creates a short, tight lower pole of the breast during the reduction to help prevent early bottoming-out. This yields a breast shape that is unnatural in the early postoperative period. Despite this, the breast usually continues to bottom-out over time, and the long-term result is usually a breast with pseudoptosis in the end [11].

The age of patients in our study ranged from 33 to 50 years in group A with a mean age of 40.25 years and ranged from 30 to 48 years in group B with a mean age of 38.83 years. Regarding the marital status of the patients, 100% was married. The mean BMI in our patients was 38.72 in group A and 36.96 in group B. Roehl et al. in a retrospective study of 179 reduction mammoplasty patients, concluded that breast reduction is a safe operation regardless of their BMI or size of reduction and with no increase in the rate of postoperative complications in the obese or morbidly obese patients or in gigantomastia patients [12]. On the other hand, obesity was reported by many studies to increase complications following reduction mammoplasty (Figure 8).



**Figure 8:** Anterior view before (left side) and after (right side) reduction mammoplasty.

The mean weight of excised tissue in our study was 1151.6 grams in group A and 1167.1 grams in group B. Said et al. reported resection weight ranging from 800 to 3900 grams per breast, using the superomedial pedicle technique [13]. Georgiade et al. reported safe resection volumes up to 2500 grams per breast in inferior pedicle Wise-pattern reduction mammoplasty [14]. Hunter and Ceydell studied 122 patients undergoing inferior pedicle reduction mammoplasty during 3 years' period and divided the patients into two groups according to the average quantity of tissue resection (<1000 gm and >1000 gm) [15]. They compared the two groups as regard the rate of complications and found no statistically significant difference between the two groups. Therefore, they concluded that reduction mammoplasty can be safely performed with resection volumes more than 1000 grams without added complications (Figure 9).



**Figure 9:** Excised breast tissue weight 950 gm using inferior pedicle technique (LT) and weight 1200 gm using superio-medial pedicle technique (RT).

T-Junction dehiscence occurred in 22 breasts (18%) in Landau et al. study, while in our study 2 cases (8.3%) developed unilateral postoperative T-Junction dehiscence [16]. Hauben described commencement of the key suturing starting laterally so that the lateral excess skin is pushed medially to relieve tension at tripod point [17]. He advised not to place a suture at this point at all. It seems this dehiscence in our cases is due to moderate tension at this point. In our Study, only 1 patient out of 24 (4.2%) had postoperative hematoma which resolved on follow up completely with no permanent effect on the aesthetic outcome.

Regarding Seroma in our study, 2 patients (16.7%) in group A had a mild seroma which resolved spontaneously and completely within 3 months while in group B, 3 patients (25%) had mild seroma one of them required ultrasound-guided needle aspiration. We suppose that

these results were due to the patient's in compliance regarding wearing the compressive breast garment as all those patients who came with seroma reported giving up wearing the compressive bra less than 3 weeks postoperatively in addition to early returning to daily work. NAC viability and safety of superomedial pedicle is attributed to its broad pedicle (superiorly and medially base) which encompass the perforator of internal thoracic artery [17] (Figure 10 and 11).



**Figure 10:** Viable NAC post superior medial technique.



**Figure 11:** Postoperative hematoma post superomedial pedicle technique resolved spontaneously.

Zambacos and Mandrekas studied the rate of complications in the inferior pedicle reduction mammoplasty and reported an incidence of 0.4% of NAC necrosis and 1.5% of fat necrosis [18]. They stated that the incidence of NAC necrosis depends on the length and the base width of the pedicle more than any other variable while fat necrosis occurs due to the poor blood supply to areas of fat due to a combination of infection, bad surgical technique, and smoking. Al-Shahat et al. reported the performance of inferior pedicle reduction mammoplasty in 30 cases with 0% incidence of NAC necrosis [19]. They attributed this to the preservation of the horizontal breast septum that was described by Wuringer et al. and so improving the NAC vascularity [20]. They also reported preservation of NAC sensitivity. O'Dey et al. in an anatomical microdissection study stated that vascular variability and overlap may account for the remarkable safety diverse NAC-bearing pedicles, even though pedicle thickness influences vascular reliability [21]. They observed that the lateral and medial approaches, however, clearly show vascular advantages over that which can be observed in inferior and superior pedicles.

Wound infection in our study did not occur, however, wound dehiscence occurred in 1 patient of each group (8.3%) (Figure 12). Scar hypertrophy occurred in only one patient in group B (4.2% of all



patients) in our study. Antony et al. compared the superomedial pedicle vertical scar with traditional inferior pedicle Wise-pattern and reported wound infection rate of 2% in the former and 1% in the latter [22] (Figure 13).



**Figure 12:** Wound dehiscence post Inferior pedicle.



**Figure 13:** Scar hypertrophy occurred 3 months postoperative using inferior pedicle.

Women with larger breasts have the lower sensation of NAC preoperatively. This is explained by two factors. First, the increased surface area of the large breast with respect to the constant number of nerve fibers in the intercostal nerve that innervate the breast. Second, the increased weight and increased pull by gravity that results in traction injury to the intercostal nerves [22]. Seven patients (29%) in our study complained of decreased NAC sensation in the early postoperative period. However, after 6 months, only 1 (4.1%) patient (In Group B) still had decreased NAC sensation. In Said et al. series, nipple sensation was preserved in 41 breasts (82%) out of 60 breasts [13]; he tested sensation by touch and 2-point discrimination while we assessed nipple sensation by touch only. This sensory preservation of nipple is due to sensory supply of nipple-areola complex come equally from medial and lateral aspect through anterior and lateral cutaneous branch of 4<sup>th</sup> intercostal respectively additional nerve supply come from the anterior cutaneous branches of 2<sup>nd</sup> to 5<sup>th</sup> intercostal nerves and the lateral cutaneous branches of the 3<sup>rd</sup> to 5<sup>th</sup> intercostal nerve, this would explain the preservation of sensation despite probable severance of fourth lateral cutaneous branch or so-called nerve to the nipple. Mofid et al. found no significant difference between the medial and the inferior pedicle reduction mammoplasty regarding postoperative NAC sensation [23].

In our study, there was relief of pain in 100% of group A, 83.3% of group B. Pra strap groove diminished in 100% of our patients. The improvement in the difficulty in daily work and in the embarrassing comments from others in our study occurred in 100% of group A and 83.3% of group B. Only 2 patients of the 24 (8.3%) in our study (group

B) still complaining of unaccepted body shape, while 100% of patients in group A have accepted body shape postoperatively. Schnur et al. in their outcome study found that 85.1% of the women who underwent reduction mammoplasty experienced relief of symptoms beyond their expectations [24]. Of the remaining patients, 10.1% had as much relief as expected, and only 2.4% were worse than expected. Ninety-seven percent of patients rated their quality of life as improved postoperatively, and 97.3% would definitely or probably make the same decision with regard to the procedure.

Regarding the Desired size and shape of the breast from the patient point of view, in group A; 11 patients (91.7%) gave Very good, 1 patient (8.3%) gave good while no patient gave poor (0%), on the other hand, 3 patients (25%) in group B gave Very good, 7 (58.3%) good and 2 (16.7) poor. Ciloglu et al. in their study found very high satisfaction degree among their patients treated by superomedial technique regarding postoperative breast shape and volume, scar, nipple sensation as well as reduction shoulder, neck and back pain with the possibility of lactation [25] (Figure 14).



**Figure 14:** Superomedial technique before and 6 months after. Regarding the desired size this 2 patients gave a (Very good) score.

Antony et al. in their matched cohort study found that the superomedial pedicle produces high levels of patient satisfaction in patients, particularly in those who wish to maintain a significant post-surgical breast volume [21]. Additionally, Hall-Findlay suggests that patients seeking smaller reductions may have cosmetic expectations beyond what is feasible in small-volume reduction mammoplasty [6]. Guthrie et al. compared 33 patients seeking reduction mammoplasty for macromastia with 22 control patients with macromastia and they observed that they experienced greater physical and sexual difficulties but similar social difficulties as compared to the control group [26]. They also observed that patients were more anxious and depressed and had poor body image and self-esteem. Chahraoui et al. reported improvements in physical, social and sexual life in 95%, 55.5% and 75% of patients respectively [27,28].

Regarding the symmetry of both breasts after surgery, 1 patient in group A (8.3%) complained of asymmetry while 2 patients in group B (16.7) had this complaint. DeFazio et al. reported an incidence of postoperative asymmetry of 8% in 241 cases who underwent inferior pedicle reduction mammoplasty [28]. Kreithen et al. reported 0% incidence of significant postoperative asymmetry in their cases operated upon by the same technique [29]. One cannot assess



asymmetry before at least three months pass postoperatively and fortunately, asymmetry is usually due to excess tissues (which can be removed in another sitting by liposuction or excision), not due to excess resection (which may need prosthesis).

In our study, 4 patients in group B (33.3%) had Poxy breast deformity, while no patient (0%) in group A had such complication. Çiloglu et al. in their study of 50 patients, they compared the aesthetic result of Wise pattern superomedial pedicle and inferior pedicle breast reduction techniques [25] (Figures 15 and 16).



**Figure 15:** Poxy breast deformity post inferior pedicle.



**Figure 16:** Inferior pedicle breast reduction before and 6 months postoperative.

They found that the inferior pedicle technique, when combined with "Wise pattern", are reliable; reproducible and has become very popular because it is applied to the breasts in different sizes. This technique although reliable, easy to apply, with good sensation, it is linked to an increase "bottoming-out" deformity, and "boxy shape" is one of the disadvantages of this reduction technique (Figures 17 and 18).



**Figure 17:** Inferior pedicle technique before and 6 months after surgery. Regarding the desired size this patient gave a (very good) score.



**Figure 18:** Inferior pedicle technique before and 3 months postoperative.

They found that statistically significant differences regarding the upper pole fullness ratio and bottoming-out deformity between the two groups. They concluded that the superomedial pedicle combined with "Wise pattern" skin incision provide upper pole fullness and reduce the formation of "boxy-type" breast. Brown et al. in their study on 79 patients who underwent superomedial pedicle Wise-pattern breast reductions [30]. They found that combining the two techniques and using the superomedial pedicle with a Wise-pattern skin resection can take advantage of the benefits of each while eliminating some of the downsides. In our study, there were no statistically significant differences between both groups in the anesthetic outcome or operative time.

## Conclusion

The superomedial technique is a safe operation in which nipple preservation rates approach 100% with high rates of nipple sensation. Long lasting conical breast projection is achievable in all cases. It has a low complication rate, predictable and rapid resection pattern, the shape of the reduced breast can be consistently created with aesthetically desirable upper and medial fullness while minimizing the risk of bottoming out.

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## Conflict of Interest Statement

The authors have no conflict of interest to disclose.

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