

Post Bariatric Medial Thigh Lift: A Case Series

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ABSTRACT

Background: Following massive weight loss (MWL) medial contouring of the thigh is frequently requested to improve appearance and function. Thigh lifting can be associated with significant complications.

We present a case series of post bariatric patients undergoing thigh lift using a technical approach that addressing both vertical and horizontal excess.

Material and Methods: From January 2012 to May 2014, 15 consecutive patients underwent a medial thigh lift post bariatric surgery. A retrospective review of the case notes was performed to assess complications that occurred.

Results: There were no major post-operative complications in terms of reoperation, hematoma, thromboembolism and no seromas.

Two patients, all of which were smokers had minor superficial wound healing complications. Aesthetic outcomes were satisfactory for all patients at a minimum follow-up of 6 months.

Conclusions: Medial thigh lift is a reproducible method for contouring the medial thigh in MWL patients. There is no fixed technique for all cases but the technique was determined after addressing both vertical and horizontal excess. As Lockwood medial thigh lift (transverse scar) does not address many of the anatomic issues encountered in MWL patients so vertical incision thigh lift with liposuction to medial side is preferred in the MWL patients (grade 3 on Pittsburgh rating scale).

INTRODUCTION

Since its earliest description in 1957, thigh lift surgery has been performed for the removal and suspension of excess and ptotic soft tissues of the proximal lower extremities [1].

Ideally suited to individuals with localized skin excess and minimal adiposity of the thighs, the medial thigh lift has historically yielded satisfactory results, although it has been somewhat reluctantly embraced by surgeons because of the potential for

scar prominence and malposition, labial distortion, under-correction of dermal excess, and recurrent ptosis [2].

Despite the benefits of bariatric surgery and associated weight loss in obese persons, massive weight loss frequently results in aesthetic and functional impairment [3].

Redundant skin of the medial thigh after massive weight loss is of particular concern to many patients and is often a site where rashes and sores develop [4].

The excess skin on the inner aspect of the thigh can impair mobility, further exacerbating the patient's perception of the aesthetic deficiency. A recent study has shown that although more than 50% of women rate their thighs as either unattractive or very unattractive after massive weight loss, only 7% preceded with thigh lift surgery to correct the deformity [5].

Surgical scars may be a point of concern. Therefore, the thigh plasty procedure has to be adapted to patients' contouring needs as well as their acceptance or refusal of surgical scars [6].

The upper inner or horizontally oriented medial thigh lift has proven ineffective for patients with serious amounts of excess tissue and soft-tissue laxity. Often, the soft-tissue laxity of the medial thighs extends all the way down to the knee. In these cases, a vertical thigh lift is more suitable to address significant circumferential thigh laxity. In return for a good thigh contour, a long vertical scar on the medial thigh needs to be accepted [6].

There are two types of patients after MWL. The type I MWL is those patients that demonstrate skin laxity over the entire thigh but do not demon-

strate significant residual lipodystrophy (often denoted as deflated). These patients are treated with a horizontal vector thigh lift. Patients who demonstrate both skin laxity and significant lipodystrophy (denoted as non-deflated) benefit from a staged procedure. The suction lipectomy can be performed at the first stage combined with a lower body lift. This is followed by a second-stage, horizontally based medial thigh lift operation 3 to 6 months later to achieve an aesthetic thigh [7].

Aim of the study:

In this study, we present a technical approach to thigh contouring after MWL that improves aesthetics and safety by treating both vertical and horizontal excess.

PATIENTS AND METHODS

During the physical examination of the patient, it was necessary to evaluate different parameters: Quality of skin (degree and extent of possible laxity) and the soft tissue excess (amount and location). Once these factors are evaluated, the most appropriate surgical procedure was chosen. Moreover, it was important to examine and rule out the pre-existing lymphoedema and deep vein thrombosis. Any evidence of lymphoedema or significant venous problems should be considered as contraindications for thighplasty.

According to Pittsburgh rating scale, a four-point grading scale was designed: Grade 0, normal range; grade 1, mild deformity; grade 2, moderate deformity and grade 3, severe deformity. A mild deformity would require non-excisional or a minimally invasive procedure; a moderate one would need an excisional procedure while a severe deformity would require combinations of excision and lifting, and would involve large areas of undermining. The Pittsburgh rating facilitates the preoperative planning and is a useful tool in quantifying the improvement in appearance attributable to surgical manipulation [8].

From June 2012 to May 2014, 15 females patients underwent bariatric procedures for weight loss 10 laparoscopic sleeve gastrectomy (LSG), 2 Gastric band and 3 laparoscopic greater curvature plication (LGCP), then they underwent medial thigh reduction (mean age: 48 years, range: 33-67 years).

In 5 patients with Grade 2 on Pittsburgh Scale, we performed thigh lift with a horizontal scar; in 5 patients with Grade 2 on Pittsburgh Scale, we

used a technique with a vertical scar, in 5 patients with Grade 3 on Pittsburgh Scale, these two procedures were combined. When it was really necessary, we also did the liposuction of the medial thigh. The patients were observed every month for 6-12 months.

Preoperative evaluation:

The extent and location of the horizontal and vertical soft tissue excess was assessed. If horizontal excision was being incorporated, it was important to evaluate the degree of the traction transmitted across the perineal junction to the labia majora, as the lateral traction exerted on the labia majora with a subsequent exposure of the labia minora has often led to medico-legal actions against the surgeons.

Surgical technique:

The patient was placed in the lithotomy position in the operating room. The compressive elastic bandage of the leg from foot to knee was made to improve venous return to prevent thrombo-embolic complications. A Foley catheter was placed.

Horizontal scar:

The patient was drawn in an upright position. The amount of skin to be removed was estimated, and the fat deposits, which in case have to be removed with liposuction, were marked. The upper incision line was drawn in the inguinal groove, with the anterior end that comes to the average femoral triangle and the posterior end that reaches the middle of the gluteal groove. Then the inferior line was made, based on the amount of skin to be removed as calculated by the pinch test, and an ellipse, which is usually between 4 and 6cm, was drawn. The patient was placed on the operating table in a gynecological position. We usually wrap the lower limbs, as a preventive measure for thromboembolic risk. The procedure started with the proximal line incision, superficial dissection to preserve the superficial lymphatic network at the femoral triangle. We identify the fascia of Colles, which is anchored with non-absorbable sutures to the dermis of the upper and lower skin flap to lessen the tension on the scar and prolong the results over time. Then we completed the planned suture of the subcutaneous tissue, sub-dermal tissue and skin with absorbable suture Monocryl 2-0 and 4-0, to reduce tension on the scar. A semi-compressive dressing was almost absent and the drainage in this area would be only a possible vehicle of infection.

Vertical scar:

In this case, we determined with pinch test the amount of soft tissue excess and drew down the medial aspect of the thigh starting on the perineal crease, an ellipse of the area to be removed. A vertical line, in the center of this ellipse, corresponds to the scar and in some patients; the incision reached the knee below the medial condyle. This area was aggressively lip-suctioned to eliminate the fat without injuring the lymphatics and to visualize the excess skin. Utmost care should be taken to preserve the lymphatic vessels and the great saphenous vein. A perfect haemostasis was a must along with the placement of a drain on each side, spiral drain type, in the most sloping zone of the thigh near the knee. All this was complemented by a layer suture as the above procedure, based on the use of Monocryl 2-0 and 4-0, to reduce tension on the scar. Finally, we apply a semi compressive bandage.

Horizontal with a vertical scar combined:

The patient was placed on the operating table in a gynecological position. The upper incision line was drawn in the inguinal groove, with the anterior end that comes to the average femoral triangle and the posterior end that reaches the middle of the gluteal groove. In addition, we determined with pinch test the amount of soft tissue excess. The lower incision line was in the middle of the ellipse of the area to be removed. A vertical line, in the center of this ellipse, corresponds to the scar and in some patients; the incision reaches the knee below the medial condyle. All this was complemented by a layer suture as the above pro-

cedure. Finally, we apply a semi-compressive bandage.

Postoperative care:

In all patients, broad-spectrum antibiotic therapy was administered for at least 5 days and thrombosis prophylaxis is implemented with the subcutaneous administration of enoxaparin sodium, leg wrapping and mobilization on the second postoperative day. Removal of the drain according to the output as we used suction drainage, in the vertical procedure and a Penrose drain in the horizontal procedure.

RESULTS

The incidence of complications in our study was reduced by the appropriate management of co-morbid conditions before, during and after surgery, correction of anemia and nutritional deficiencies, selection of the most suitable procedure for individual patients, precise markings, meticulous surgery, absolute haemostasis, three-point sutures to obliterate the dead space, meticulous multi-layered closure over drains, properly instituted postoperative care, supervised nursing and regular follow-up.

The complications were minimal. The patients were observed every month with an 8 month median follow-up (range: 6-12 months). In 2 patients we observed scar enlargement due to poor wound healing (one patient with a horizontal scar, one patient with a vertical scar). In the patient with a horizontal scar, minimal scar migration was observed. No patients with recurrence of ptosis. No skin necrosis was seen. Lymphoedematous changes were not observed in any of the patients.

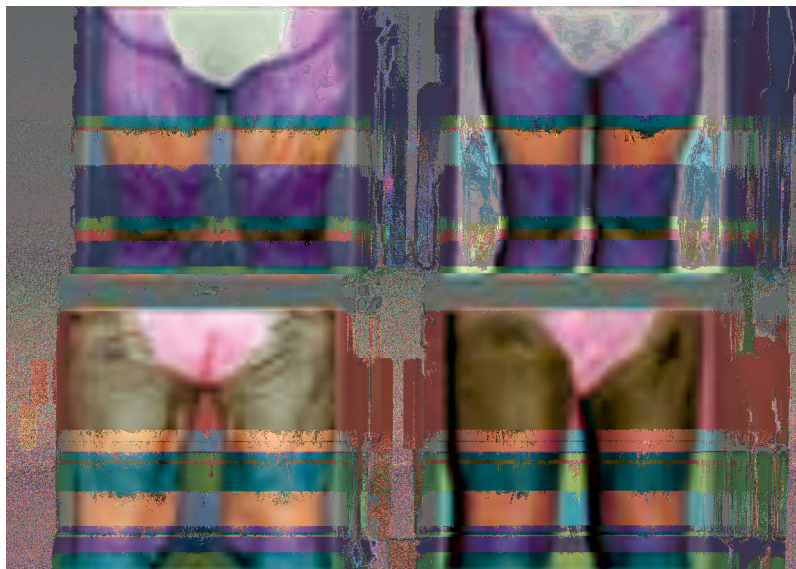


Fig. (1): A case of PMWL horizontal tight lift in a female patient. The upper 2 photos are pre & post anterior view. The lower 2 photos are pre & post posterior view.

Fig. (2): A case of PMWL vertical tight lift in a female patient. (A) Pre-operative. (B) Post operative view of the inner thigh, notice the vertical scar.

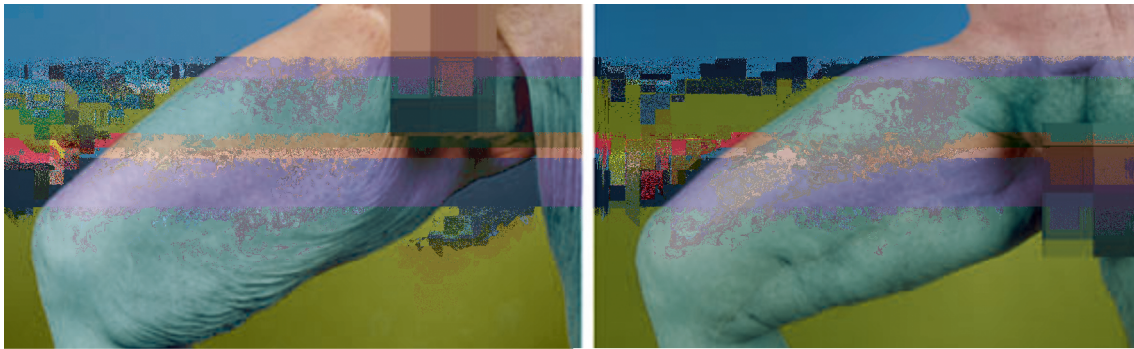


Fig. (3): A case of PMWL vertical tight lift in a female patient. (A) Pre-operative. (B) Post operative view of the inner thigh, notice the vertical scar.

Table (1): Comparison of the horizontal and vertical techniques.

	Vertical scar	Horizontal scar
Incision	Visible, on medial border of thigh	Less visible, in groin area
Skin removed	More	Less
Pittsburgh scale	Grade 2 to 3 with liposuction	Grade 1 to 2 \pm liposuction
Colle's fascia suspension	No	Yes
Disturbance to labia majora	Sometimes present (removed by adding horizontal incision)	Not present
Injury to lymphatic-vascular system	Possible by injury of medial group of lymphatics and long saphenous vein	Possible by injury to lymphatics at femoral triangle
Limb contouring	More functional	More aesthetic

DISCUSSION

A lot of patients who have undergone MWL find themselves with laxity and redundancy of skin and fat deposit residues in different parts of the body. The medial thigh lift should be taken into account when the skin and redundant subcutaneous tissue cause skin diseases, and difficulties in personal hygiene, physical exercise and daily life [9]. The problems faced by patients following MWL are not only relative to aesthetics but mainly to vital functions. This concept justifies these proce-

dures as functional surgery in pathological individuals [10].

The medial thigh lift was first described by Lewis [1] more than 30 years ago, but many techniques have been developed since then. However, this procedure never achieved widespread acceptance because of some complications such as vulvar distortion, vascular and lymphatic alterations and early recurrence of ptosis. To reduce these complications, Lockwood [2] introduced the technique of superficial suspension of the fascia, which consists

in anchoring the dermis to Colles' fascia. However, this technique is usable exclusively in the horizontal procedure.

All recent modifications attempt to increase fascial support and decrease tension on the healing scars. No studies, however, have examined the superiority of one technique over another. Regardless, there is clearly merit in limiting the size of the tissue flaps and the degree on undermining [11]. Anyway, the Lockwood medial thigh lift does not address many of the anatomic issues encountered in MWL patients.

Often the skin laxity in former obese patients involves the thigh throughout its length; therefore, a thigh lift with vertical elliptical resection is needed. This type of excision uses both front and rear horizontal vectors, leading to a circumferential reduction of thighs, with a skin tension that is distributed all along the thigh. Horizontal incision may be associated with this procedure in order to eliminate 'dog ears' but does not contribute to medial lifting. Moreover, compared to the medial technique, this type of technique does not imply the risk of tension of the scar with its consequent downward migration and the displacement of the labia major [12].

The vertical wedge is situated posteriorly; it does not cause distortion of the labia major and it reduces the risk of permanent lymphedema. This part of the body is difficult to manage in the postoperative phase, for different reasons. The healing time is usually longer because of the humidity of the area. The skin is thin and delicate and therefore can easily go to necrosis. It is also a highly sensitive area, and so the postoperative phase may be particularly painful [13].

Other than the common complications of infection, seroma, bad scarring and hematoma, and wound separation are extremely frequent with edema of varying degrees, after vertical thigh reduction. A visible scar along with possibly distorted labia major is common after the horizontal procedure. In order to reduce these complications, we limit subcutaneous undermining and avoid operating the femoral triangle area. Also we do not put any tension on the labia major. Associated with this type of surgery we cite, besides those already mentioned in the case of a transverse process (migration and displacement of the scar of the labia major), the possible damage to vascular, and especially lymphatic, structures. During the medial thigh lift, the resection of the hypodermis causes the destruction of the lymphatic collectors,

with the risk of a persistent edema. This complication can be avoided by leaving a thin layer of hypodermis, covering the fascia that contains lymphatic vessels [14]. In addition, we used the technique of incision of the only dermis up to the subcutaneous tissue, and then execute a real 'stripping' of the dermal skin flap which has to be removed, leaving intact the lymphatic vascular structures.

In addition, the risk of thrombosis in MWL patients undergoing body contouring is high because of the extended operation time, the size of the wound area and the potential fat trauma. Contributing risk factors are use of oral contraceptives, pregnancy, advanced age, recent surgery, coagulopathies and prolonged immobilization. In our study we include thrombosis prophylaxis with the use of intra-operative compression treatment of lower legs, low-molecular-weight heparin, circulation promoting measures such as infusions of 2-3 l of RL for dilution of circulating blood, postoperative beach chair position, early mobilization, etc. Intermittent compression pumps may also be used as an alternative to compression stockings.

The critical determinant of success in this procedure was in the preoperative assessment and surgical planning. The operation can then be tailored to the patient's individual needs based on the preoperative assessment of the amount of skin laxity as well as on the location of the lipodystrophy. The vertical lift seems to be more appropriate to most of Post Bariatric patients. There is no need for tension closure to Colles' fascia and the groin incision is made only anteriorly avoiding a T-incision and is limited to remove the "dog-ear".

Conclusion:

Post MWL thigh lift design based on the correct medial thigh classification that address both vertical and horizontal skin excess should lead to an operation that best suits the patient's anatomic needs and results in a cosmetically acceptable thighplasty. There is no fixed technique for all cases but the technique was determined after addressing both vertical and horizontal excess.

REFERENCES

- 1- Lewis J.R. Jr.: The thigh lift. J. Int. Coll. Surg., 27: 330-334, 1957.
- 2- Lockwood T.E.: Transverse flank-thigh-buttock lift with superficial fascial suspension. Plast. Reconstr. Surg., 87: 1019-1027, 1991.
- 3- Davis M.M., Slish K., Chao C., et al.: National trends in bariatric surgery, 1996-2002. Arch. Surg., 141: 71-74; discussion 75, 2006.

- 4- Shermak M.A., Mallalieu J. and Chang D.: Does thighplasty for upper thigh laxity after massive weight loss require a vertical incision? *Aesthet. Surg. J.*, 29: 513-522, 2009.
- 5- Kitzinger H.B., Abayev S., Pittermann A., et al.: The prevalence of body contouring surgery after gastric bypass surgery. *Obes. Surg.* 2012; 22:8-12.
- 6- Hunstad J.P. and Repta R.: *Atlas of abdominoplasty*. Philadelphia: Saunders Elsevier, 2009.
- 7- Le Louarn C. and Pascal J.F.: The concentric medial thigh lift. *Aesthetic. Plast. Surg.*, 28 (1): 20-3 (Epub 2004 Mar 25), 2004.
- 8- Song A.Y., Jean R.D., Hurwitz D.J., Fernstrom M.H., Scott J.A. and Rubin J.P.: A classification of contour deformities after bariatric weight loss: The Pittsburgh rating scale. *Plast. Reconstr. Surg.*, 116: 1535-44; discussion 1545-6, 2005.
- 9- Wolf A.M. and Kuhlmann H.W.: Reconstructive procedures after massive weight loss. *Obes. Surg.*, 17: 355-60, 2006.
- 10- Bruschi S., Datta G., Bocchiotti A., et al.: Limb contouring after massive weight loss: Functional rather than aesthetic improvement. *Obes. Surg.*, 19: 407-11, 2009.
- 11- Mathes D.W. and Kenkel J.M.: Current concepts in medial thighplasty. *Clin. Plast. Surg.*, 35: 151-63, 2008.
- 12- Kenkel J.M. and Eaves F.F.: Medial thigh lift. *Plast. Reconstr. Surg.*, 122: 621-2, 2008.
- 13- Le Louarn C. and Pascal J.F.: The concentric medial thigh lift. *Aesthetic. Plast. Surg.*, 28: 20-3, 2004.
- 14- Moreno C.H., Neto H.J., Junior A.H. and Malheiros C.A.: Thighplasty after bariatric surgery: Evaluation of lymphatic drainage in lower extremities. *Obes. Surg.*, 18: 1160-4, 2008.