Cruroplasty or medial tight lift surgery: the experience of our department

Bouthayna Mderreg*,1, Mounia Nasr*, Jawad Hafidi*, Samir el Mazouz*,1, Nouredine Gharib* and Abdellah Abbassi*

*Plastic Surgery Department, University Hospital Avicenne Rabat, Morocco.

ABSTRACT Medial thighplasty is a surgical technique that reduces excess skin and fat in the medial part of the thighs and improves the skin quality and tone. Because of changes that occur with age and weight loss, the skin and subcutaneous tissue of the medial thigh region show relaxation from the loss of tone and elasticity, with inevitable ptosis of the tissues. Medial contouring of the thigh is frequently requested to improve appearance and function of medial thigh deformities, following massive weight loss or the ageing process. This surgical procedure can be associated with a significant rate of complications, especially postoperative oedema and scar migration, enhanced by performing simultaneous liposuction and anchorage sutures to guard against the effect of heavy skin flaps.

A total of 13 female patients presented during the period from January 2014 to March 2019 complaining of moderate to severe thigh laxity with or without lipodystrophy. In 10 patients, medial transverse thigh lift was performed, when the laxity was mainly in the upper half of the thigh. Whereas, in the other three patients a vertical thigh lift was chosen considering the location of the laxity that took the whole thigh. In both groups aggressive liposuction was performed and systematic anchorage suture to the Colles fascia. All patients recovered well in 2 weeks and showed improvement of thigh contour. No scar downward displacement or no skin necrosis or seroma was encountered neither labial distortion.

The objectives of this article are to expose the modern techniques of a facelift of the thigh, to specify the expected results with their limits, as well as to highlight the various complications with their management.

KEYWORDS Medial thigh lift, Body contouring, Scar migration, liposuction assisted

Background

Medial thighplasty, also known as a medial thigh lift, is a procedure that has been carried out for five decades. The original technique described by “Lewis” has undergone many changes and thereby been rendered widely available to plastic surgeons.

Medial thighplasty is an aesthetic reshaping of the thigh after removal of excess medial skin and fat. This surgical technique may be limited to the upper thigh by a horizontal excision adjacent to the labia majora (or scrotum) or extended with an ellipse vertical excision reaching the knee for distal deformity — this procedure, which was often unpopular with surgeons on account of frequent postoperative complications. Since the first description, numerous improvements of the surgical technique have allowed safe and efficient surgical correction of deformities. One of these techniques consists of one hand in anchoring the superficial fascia to Colles’ fascia, and in another hand simultaneous liposuction.[7,8]

In the present study our main target is patients who suffer different degrees of thigh lipodystrophy with skin laxity, and they were not candidates for bariatric surgery before. Performing thigh lift to those patients is always facing the problem of heavy skin flaps.

Material and methods

During the physical examination of the patient, it is necessary to evaluate the quality of skin (degree and extent of the laxity)
and the soft tissue excess (degree and location). Once these factors essential, the most appropriate surgical procedure is chosen. Moreover, it is essential to examine and rule out deep vein problems.

Thirteen female patients presented during the period from January 2014 till March 2019 complaining of moderate to severe thigh laxity with or without lipodystrophy. Their age ranged between 25 and 58 years with body mass index less than 38. Patients with massive weight loss were not included in the study. In 3 patients with Grade 2 on Pittsburgh Scale, in whom the medial thigh touches. We performed thigh lift with a vertical scar, in 10 patients with Grade 3 on Pittsburgh Scale, with cutaneous and fat excess extending beyond the junction of the upper and middle thirds of the thigh the two procedures were combined. When it was essential, we also did the liposuction of the whole thigh with aggressive liposuction interesting the area that will provide Table I.

All patients were given general anaesthesia in a supine position, and antithrombotic compression sleeve was applied.

Liposuction was carried out subfascial throughout the inner thigh and suprafascially in the resection area, skin thickness was kept not less than 1.5 cm, the operation is concluded by cutaneous resection under the demarc where the excess skin was pulled over in one piece, fixation of anchor points at Colles' fascia; to prevent the scar migration. And fixation of the inferior flap into the colls of fascia; to prevent the scar migration.

Given the fact that the majority of wound dehiscence takes place in the inguinal folds, it matters to insist to the patient on the need for rigorous personal hygiene, which will help to minimize any staining or soiling arising from sutures. Conservation of a urinary catheter during hospitalisation can likewise help to limit soiling and palliate the urinary discomfort, particularly for women. It is interesting to note that when liposuction is not applied during operation and when classical full-thickness surgical resection is performant, an elevated rate of lymphedema has been reported [2,9], unlike the extensive liposuction technique [14], that conserve the integrity of the blood and lymph system. Colles’ fascial anchoring, which has been supplanted by some teams with fixation of the periosteum to the ischiatic bone, we consider it to be just as reliable a way of preventing scar migration and ptosis recurrence without generating occasionally considerable postoperative pain. Moreover, given the weight of gravity, the absence of deep-seated anchoring is systematically associated with downwards scar migration. Fascial anchoring consequently appears to be a fundamental factor in improvement of patient satisfaction; it should be added that while patients are customarily forewarned about uncertain postoperative aesthetic outcomes, they often remain quite demanding. And scar migration outside of women’s underwear is not only hard to accept but also an evident source of discontent. Due to these technical improvements, medial thighplasty has gained incidence of obesity we are confronted to a massive flow of new patients presenting with significant cutaneous deformities interesting the whole tight, which means more often we propose application of the vertical rather than the horizontal

### Results

Three patients underwent extended medial transverse thigh lift, and ten patients underwent vertical medial thigh lift with liposuction of the anterior tight and aggressive liposuction of the part that will be removed to preserve the connective tissue containing not only the blood vessels but also the lymph vessels. Thereby reducing the risk of postoperative seroma and lymphoedema. And fixation of the inferior flap into the colls fascia; to prevent the scar migration.

The volume of liposuction ranged between 3 and 5 l. Operative time in the medial transverse thigh lift ranged between 3 and 4 h, while in the vertical thigh lift was 4–5 h.

Hospital stay ranged around five days. Drains were used in the vertical lift specially and were removed after two days and sutures were removed after two weeks. Table II

No skin necrosis or seroma was encountered either labial distortion or separation.

All patients recovered well within two weeks without wound complications.

### Discussion

Pittsburgh rating scale Song et al. [4] have designed an all-inclusive and illustrative classification system that helps in quantifying the level of deformities. A four-point grading scale was designed for each region. Table III The Pittsburgh rating facilitates preoperative planning and is a useful tool in quantifying the improvement in appearance attributable to surgical manipulation.

Two types of patients were distinguished; on the one hand, patients with cutaneous ptosis related to ageing and predominating in the upper third of the thigh. These deformities are corrected by the classical horizontal scar technique [9,10]; in other hand patients with cutaneous and fat excess of the entire thigh related to weight loss, in this case a horizontal technique will not yield satisfactory results so, in addition, we may be obliged to perform vertical scar techniques.

Cruroplasty has noticeably evolved since it was first described by Lewis [1]. The two significant technical advances were Colles’ fascial anchoring [11,12], and aggressive liposuction [13], Figure: 1 after that cutaneous necrosis and seroma becomes an exceptional event. However, liposuction is far from being unanimously approved; some authors claim that it contributes to the appearance of wound infections.

Given the fact that the majority of wound dehiscence takes place in the inguinal folds, it matters to insist to the patient on the need for rigorous personal hygiene, which will help to minimize any staining or soiling arising from sutures. Conservation of a urinary catheter during hospitalisation can likewise help to limit soiling and palliate the urinary discomfort, particularly for women. It is interesting to note that when liposuction is not applied during operation and when classical full-thickness surgical resection is performant, an elevated rate of lymphedema has been reported [2,9], unlike the extensive liposuction technique [14], that conserve the integrity of the blood and lymph system. Colles’ fascial anchoring, which has been supplanted by some teams with fixation of the periosteum to the ischiatic bone, we consider it to be just as reliable a way of preventing scar migration and ptosis recurrence without generating occasionally considerable postoperative pain. Moreover, given the weight of gravity, the absence of deep-seated anchoring is systematically associated with downwards scar migration. Fascial anchoring consequently appears to be a fundamental factor in improvement of patient satisfaction; it should be added that while patients are customarily forewarned about uncertain postoperative aesthetic outcomes, they often remain quite demanding. And scar migration outside of women’s underwear is not only hard to accept but also an evident source of discontent. Due to these technical improvements, medial thighplasty has gained incidence of obesity we are confronted to a massive flow of new patients presenting with significant cutaneous deformities interesting the whole tight, which means more often we propose application of the vertical rather than the horizontal
Table 2: Results combining the number; liposuction volume; operative time and complication.

|                | Number | Liposuction volume | Operative time | Hôpital stay | complication                      |
|----------------|--------|-------------------|----------------|--------------|-----------------------------------|
| medial transverse thigh lift | 3      | 3-4L              | 3-4H           | 5days        | No skin necrosis                  |
|                |        |                   |                |              | No scar migration                  |
|                |        |                   |                |              | No labial distortion               |
|                |        |                   |                |              | No oedema                          |
| vertical medial thigh lift      | 10     | 3-5L              | 4-5H           | 5days        | No skin necrosis                  |
|                |        |                   |                |              | No scar migration                  |
|                |        |                   |                |              | No labial distortion               |
|                |        |                   |                |              | No oedema                          |
|                |        |                   |                |              | Suture disunion in T junction      |

Table 3: Surgical indication based on the Pittsburgh rating scale.

| Grades of Pittsburgh rating scale | Surgical indication                                      |
|----------------------------------|----------------------------------------------------------|
| Grade 0: normal range            |                                                          |
| Grade 1: mild deformity          | non-excisional or a minimally invasive procedure         |
| Grade 2: moderate deformity      | excisional procedure                                     |
| Grade 3: severe deformity        | combinations of excision and lifting                     |

Table 4: Surgical indications for the horizontal and the vertical scar technique

**Indication**

| Masssive weight loss following a diet deformities at locations ranging from cutaneous and fat to excess on the thigh in its entirety |
|-------------------------------------------------------------------------------|
| Predominating in the upper third of the thigh.                               |

**Horizontal scar technique**

| Masssive weight loss following a diet deformities at locations ranging from cutaneous and fat to excess on the thigh in its entirety |
|-----------------------------|
| Predominating in the upper third of the thigh.                               |

**Vertical scar technique**

| Masssive weight loss following a diet deformities at locations ranging from cutaneous and fat to excess on the thigh in its entirety |
|-----------------------------|
| Predominating in the upper third of the thigh.                               |

Table 5: Preoperative marking

| Surgical Technique            | Preoperative marking                                                                 |
|-------------------------------|--------------------------------------------------------------------------------------|
|  **Horizontal technique**     | A line is marked between the anterior superior iliac spine and the pubic tubercle to delineate the inguinal ligament; another line was marked 1–2 cm below and parallel to the above line defining the proposed incision line. The medial end of the incision line was directed posteroinferior 3–4 cm away from the labial edge. The lower excision line was marked while pulling the lax skin up without tension both during thigh abduction, adduction and external rotation. The pinch test is used to mark the skin ellipse. The centre of this ellipse was laid posterior to the meridian of the thigh and began just behind the medial condyle of the knee and extended vertically in a posterior direction to the perineum. The upper end of the ellipse stopped 3–4 cm below the edge of the labia majora. |
|  **Vertical technique**        | The pinch test is used to mark the skin ellipse. The centre of this ellipse was laid posterior to the meridian of the thigh and began just behind the medial condyle of the knee and extended vertically in a posterior direction to the perineum. The upper end of the ellipse stopped 3–4 cm below the edge of the labia majora. |
Figure 1: Aggressive liposuction.

Figure 2: The skin flap is rolled up to respect the subfascial vessels.
scar technique. We prefer vertical inverted J-scar techniques to T techniques because they avoid classical cutaneous suffering at the T junction. However, to minimize the risk of complications such as lymphoedema or seroma and the lack of satisfaction, without overlooking the “horizontal” technique, whenever it is indicated. Monoblock resection techniques are considerate as obsolete; if we wish to improve the postoperative results, they should be ruled out. Figure: 2. When these techniques are still applied, it is essential to respect the subfascial fat containing the saphenous vein whose traumatisation is considered as a source of lymphoedema [3.4].

Given the fact that the majority of wound dehiscence takes place in the inguinal folds, it matters to insist to the patient on the need for rigorous personal hygiene, which will help to minimize any staining or soiling arising from sutures. Conservation of a urinary catheter during hospitalisation can likewise help to limit soiling and palliate the urinary discomfort, particularly for women.

And finally, wearing a medical Lipo Panty, immediately after surgery helps to reduce oedema and limit the risk of wound dehiscence. As for thromboembolic complications, they can be prevented by respecting an early rising, wearing compression stockings, and prophylactic anticoagulation by low molecular weight heparin for 15 days.

Conclusion
Medial tight lift is a procedure, which is often unpopular with surgeons on account of frequent postoperative complications, is aimed at correcting the cutaneous and fat excess in the inner thigh. Since the first description, numerous improvements of the surgical technique have heightened outcome predictability and lowered the rate of postoperative complications. One of these techniques consists of anchoring the superficial fascia to Colles’ fascia [5], leading to reduction of postoperative cutaneous ptosis and limiting the risks of vulvar widening. Another adjunctive technique consists of liposuction, which helps to reduce postoperative seromas and lymphoedemas [6.15].

Conflict of Interest
None

Funding
None

References
1. Lewis JR., Jr Correction of ptosis of the thighs: The thigh lift. Plast Reconstr Surg. 1966;37:494 8.[PubMed]
2. Lockwood TE. Fascial anchoring technique in medial thigh lifts. Plast Reconstr Surg. 1988;82:299–304.[PubMed]
3. Candiani P, Campiglio GL, Signorini M. Fascio-fascial suspension technique in medial thigh lifts. Aesthetic Plast Surg. 1995;19:137–40. [PubMed]
4. Grazer FM. Body contouring. Introduction. Clin Plast Surg. 1996;23:511–28. [PubMed]
5. Lewis JR., Jr The thigh lift. J Int Coll Surg. 1957;27:330–4. [PubMed]
6. Lockwood TE. Superficial fascial system (SFS) of the trunk and extremities: A new concept. Plast Reconstr Surg. 1991;87:1009–18. [PubMed]
7. Van Gaal LF, Mertens IL, De Block CE. Mechanisms linking obesity with cardiovascular disease. Nature 2006;444:875—80.
8. Le Louarn C, Pascal JF. Internal faces lifting legs complications. Ann Chir Plast Esthet 2004;49:610—3.
9. Lockwood TE. Transverse flank-thigh-buttock lift with superficial fascial suspension. Plast Reconstr Surg 1991;87:1019—27.
10. Armijo BS, Campbell CF, Rohrich RJ. Four-step medial thighplasty: refined and reproducible. Plast Reconstr Surg 2014;134: 717e—25e.
11. Gusenoff JA, Coon D, Nayar H, Kling RE, Rubin JP. Medial thigh lift in the massive weight loss population: outcomes and complications. Plast Reconstr Surg 2015;135:98—106.
12. Labardi L, Gentile P, Gigliotti S, et al. Medial thighplasty: horizontal and vertical procedures after massive weight loss. J Cutan Aesthetic Surg 2012;5:20—5.
13. Hurwitz DJ. Medial thighplasty. Aesthetic Surg J 2005;25:180—91.
14. N. Bertheuil. Medial thighplasty: Current concepts and practices. Annales de chirurgie plastique esthétique (2016) 61, e1—e7.
15. Y.-G. Illouz. Liposculpture et chirurgie de la silhouette. 2008 Elsevier Masson SAS.