

# Spiral Lift: Medial and Lateral Thigh Lift with Buttock Lift and Augmentation

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## Abstract

**Background** Patients with a pear- or guitar-shaped body contour deformity are not frequently encountered, but represent a surgical challenge. Traditionally, these patients have been treated with belt lipectomies, lower body lifts, medial thigh lifts, and liposculpture because liposuction alone often is insufficient. This article describes an alternative method for performing a medial, anterior, and lateral thigh lift with a buttock lift and autoprosthesis augmentation through a single spiral incision easily concealed by underwear.

**Methods** A retrospective study of patients treated for body contour deformities from January 2004 to June 2006 was conducted. The inclusion criteria for spiral lift were lipodystrophy and excess skin and subcutaneous tissue of the thighs, flanks, and buttocks without contour deformities of the abdomen. The incision extends from the inferior crease of the buttocks along the inguinal crease and continues just inferior to the anterior iliac spine, spiraling above the buttocks and meeting the contralateral incision at the sacrum. A dermal fat flap is rotated to function as an autologous buttock implant. Pre- and postoperative views, patient satisfaction, complications, and operative details are analyzed and described.

**Results** Of the 253 consecutive patients treated for body contour deformities, 5 met the inclusion criteria for the spiral lift. All the patients were women ranging in age from

30 to 43 years. Comparison of pre- and postoperative views demonstrated improved contour and firmness of the thighs and gluteal region with easily concealed scars. The inferior gluteal sulcus became less evident, and the buttock mass was elevated and augmented with maximum projection at midlevel. Patient and surgeon satisfaction was high. One patient experienced delayed wound healing. Stability in the body contour repair was demonstrated at the 1-year follow-up assessment.

**Conclusions** A reliable, versatile, and effective technique is described. Applicability and experience with the procedure are limited due to infrequent presentation of patients seeking correction for such a body contour deformity.

**Keywords** Body contour · Buttock augmentation · Buttock flap · Buttock lift · Lipectomy · Thigh lift

Developments in surgical techniques allow safe and efficient surgical correction of contour deformities [13]. The trunk, buttocks, and thighs represent areas of increased patient interest and surgical technique modification. Consequently, familiarity with the presentation and effective treatment of these contour alterations has become increasingly important [1, 5].

Patients with a pear- or guitar-shaped body contour deformity involving lipodystrophy and excess skin in the thighs, buttock, and waist, with abdominal sparing, are not frequently encountered, but represent a surgical challenge. These patients often present with additional trochanteric lipodystrophy and ptosis of the buttocks. This condition may consist of pure fat deposits or excess skin with or without fat accumulation. The development of these contour alterations can be attributed to lack of exercise, body weight variations, and genetics.

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These deformities are very difficult to correct with diet and exercise alone. Liposuction can offer an improvement in select cases, but usually is insufficient, whereas over-aggressive liposuction of the thighs can result in complications. Traditionally, these deformities have been treated with a combination of liposuction, flankplasty, belt lipectomies, lower body lifts, and/or medial thigh lifts. Baroudi [2] described an upper inner thigh lift and flankplasty with optional lipoplasty as an alternative method for performing a medial, anterior, and lateral thigh lift at the same time. We believe that this “extended flankplasty,” together with some modifications, accompanied by a buttock lift and autologous augmentation with a dermal fat flap [18] is a good option for the deformities described. This “spiral lift” can be accomplished with a single spiral incision easily concealed by underwear, resulting in removal of excess tissue as well as reconfiguration of a natural silhouette (Fig. 1).

## Materials and Methods

A retrospective study investigated patients treated for body contour and musculoaponeurotic deformities from January 2004 to June 2006. The inclusion criteria for the spiral lift were lipodystrophy and excess skin and subcutaneous tissue of the thighs, flanks, and buttocks; buttock ptosis; and a desire for enhancement and augmentation of the buttock contour. Patients with body contour deformities of the abdomen were excluded.

Each patient underwent a spiral lift consisting of resection and lift of the flanks, the buttocks, and the posterior,



**Fig. 1** Excised tissue extends from the inner inside crease of the buttocks along the inguinal crease and anterior iliac spine, spiraling above the buttocks and meeting the contralateral incision at the sacrum

medial, and anterior thigh. All cases were complemented with an autoprosthesis buttock augmentation using a dermal fat flap. Some patients underwent additional cosmetic procedures at the same time. All the procedures were performed by the senior author (SOS) at a certified outpatient surgery center with 23-h postoperative observation.

Each patient’s medical record was reviewed, with a focus on physical and mental health, expectations, and indications for the procedure. The details of the operation were explained, and the patients were shown before and after views to ensure that they clearly understood the magnitude of the procedure and the location of the scars. Anterior, lateral, and posterior preoperative and postoperative photographs were compared. Patient and surgeon satisfaction, operative time, total resection weight, liposuction volume, blood loss, and complications were recorded and analyzed.

## Preoperative Markings

Preoperative markings are crucial to a successful surgery and to the achievement of desired results. Patients were marked preoperatively in standing and prone positions (Fig. 2). The thigh was abducted while the patient was in the prone position to assess lateral mobility and the extent of lateral resection. Symmetry of the incisions was evaluated while the patient was standing. A line was drawn, starting at the inferior gluteal fold, extending medially to the upper inner thigh, proceeding anteriorly and anteriorly through the pudendal region, and moving along the inguinal line through the anterior iliac spine to the posterior iliac crest, above the buttocks and to the sacrum. At the sacrum, the line from the contralateral side was joined, forming a V. The pinching method was used to estimate the amount of possible skin resection. The areas of liposuction were marked in the traditional manner.

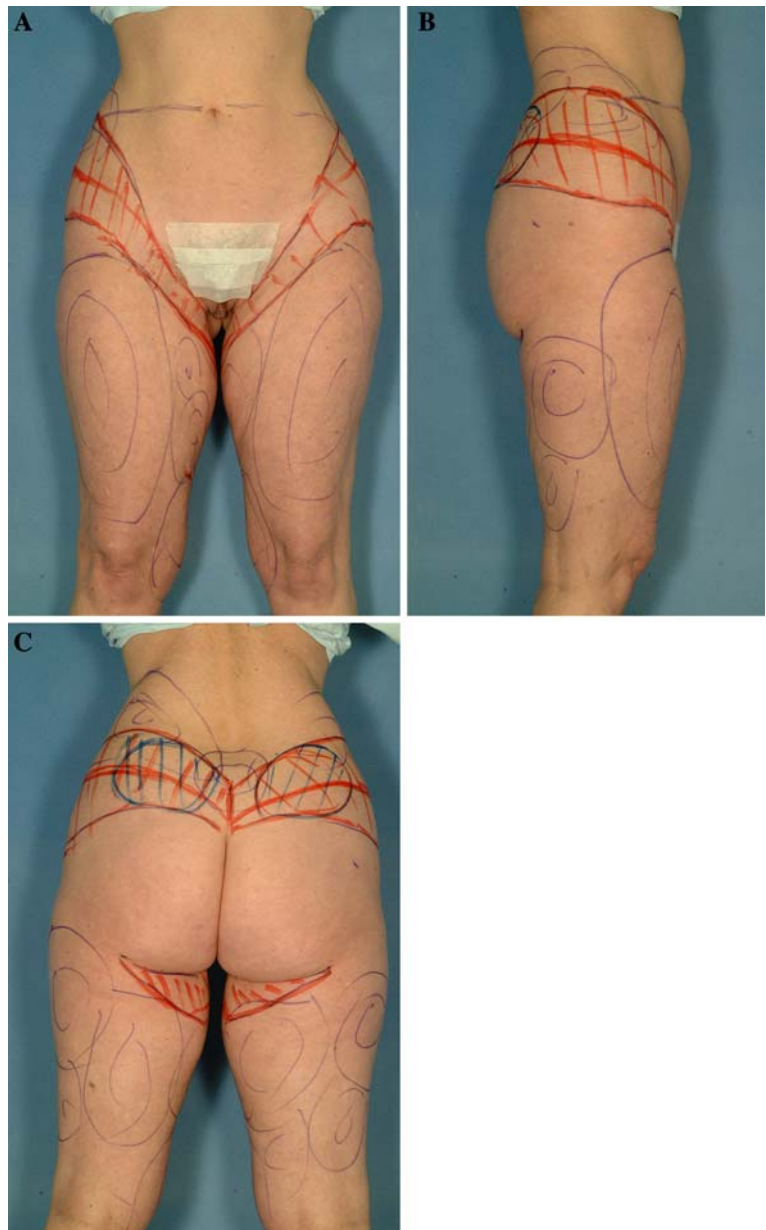
A dermal fat flap originating in the medial half of the supragluteal tissue marked for excision was designed (Figs. 2 and 3). The size of the flap was individualized according to the contour of the patient’s buttocks.

## Surgical Technique

The patient was placed in the prone position under general anesthesia with legs abducted to expose the medial thigh and to maximize lateral resection. Traditional deep and superficial liposuction of the marked areas was performed after the subcutaneous tissue had been infiltrated with a tumescent solution comprising 1 l of Hartmann solution, 1 mg of epinephrine, and 10 ml of 1% lidocaine.

Excision and approximation of the inferior gluteal fold were accomplished and left to be completed once the

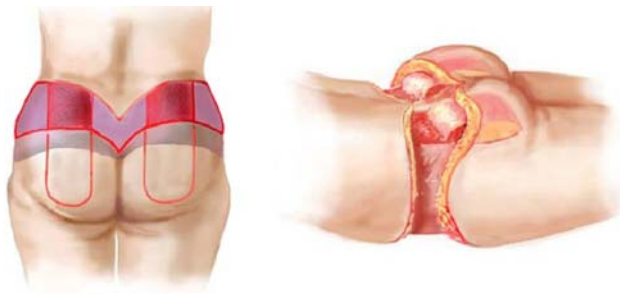
**Fig. 2** Preoperative markings. Tissue to be excised is marked in red ink. The dermal fat flaps are marked in dark blue ink, and the areas of liposuction are marked with blue concentric circles



patient was rotated to the supine position. The marked supragluteal and flank wedges of skin were resected down to the fascia, and the gluteal flap was deepithelialized (Fig. 3). The inferior border of the flap was dissected at an oblique angle to allow for greater caudal mobility. A pocket was created for insertion of the flap by undermining the buttock skin and subcutaneous tissue in the plane above the fascia and extending it a sufficient length to reach the inferior gluteal crease. The superior aspect of the flap was detached in a subfascial plane inferiorly until it could be rotated caudally  $180^\circ$  into the pocket and anchored to the fascia with polyglactin 910 (3/0 Vicryl) suture. The remaining buttock skin was pulled superiorly over the flap, and two drains were placed. The lateral thigh was

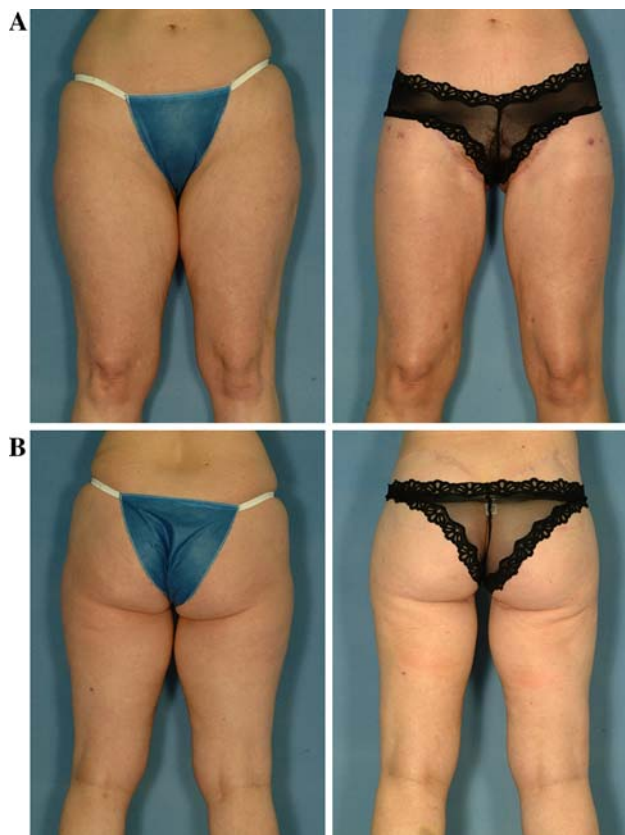
undermined inferiorly deep to the superficial fascial system using a Lockwood underminer, Byron Medical, Tucson, AZ. The superficial fascial system then was approximated with polyglactin 910 (0 Vicryl) after which the skin and subcutaneous tissue were closed in layered fashion.

Next, the patient was turned to the supine position with the legs abducted to expose the medial thighs. Liposuction was performed where necessary, as previously described. Thereafter, a crescent of redundant skin and fat was resected at the superior medial thigh, spiraling anteriorly to the flank and posteriorly to the infragluteal fold, thus joining the previous flank and infragluteal excision sites. The Lockwood underminer was used for limited undermining of the anterior thigh in an inferior fashion deep to



**Fig. 3** Creation of an autologous buttock augmentation flap. Tissue to be excised is in purple, and the deepithelialized flaps are in red. The flap is dissected down to the fascia at an oblique angle undermining the superior and inferior border, rotated caudally 180° into the pocket, and anchored to the fascia with suture. The remaining buttock skin is pulled to cover the flap

the superficial fascial system. The medial thigh was not undermined. The inferior skin flap then was suspended from the superficial fascial system to Colles' fascia of the perineum medially, to the inguinal ligament anteriorly, and to the periosteum of the anterior superior iliac spine laterally with polydioxanone. Next, the superior and inferior edges were approximated in a layered fashion with subdermic running absorbable polyglactin 910 (3/0 Vicryl)



**Fig. 4** Preoperative and postoperative photographs

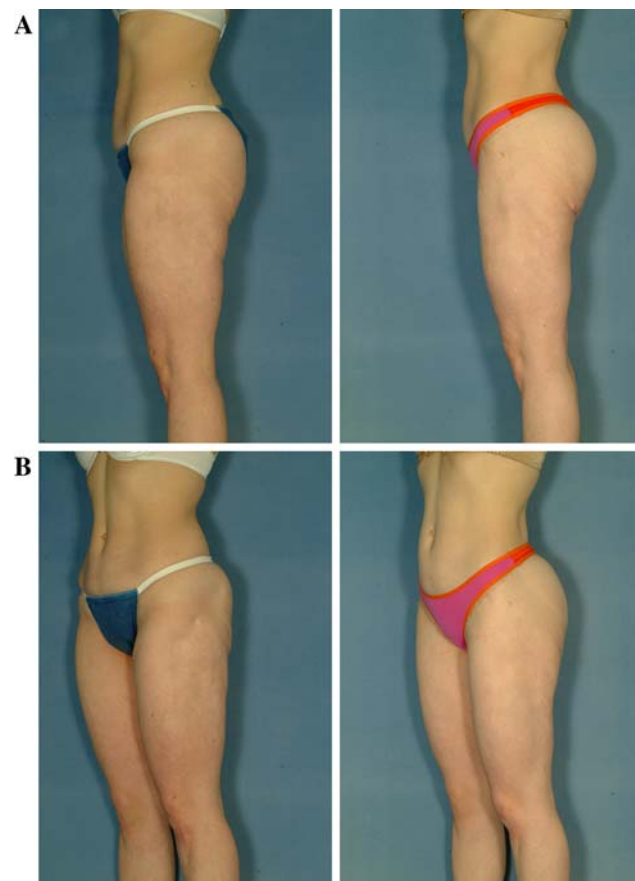
and subcutaneous running absorbable poliglecaprone 25 (4/0 Monocryl).

## Results

Of the 253 consecutive patients treated for body contour deformities during the study, 5 met the inclusion criteria for the spiral lift. All patients were women ranging in age from 30 to 43 years. The mean operative time was 256 min (range, 220–286 min). The total resection weight ranged from 2.3 to 3.7 kg (average, 2.6 kg), and the average volume of fat obtained by liposuction was 5,200 ml (range, 5,000–7,000 ml). The mean operative blood loss was 220 ml (range, 125–295 ml).

No infections or major complications were encountered. One patient experienced delayed wound healing. In no case did necrosis of the buttock dermal fat flap occur.

Preoperative and postoperative views (Figs. 4–6), show that all the cases resulted in significantly improved body contour and firmness of the skin in the medial and lateral thigh, the trochanteric area, and the gluteal region. The



**Fig. 5** Preoperative and postoperative photographs. Patients with previous overaggressive liposuction of lateral thighs showing marked skin dimpling successfully corrected with the spiral lift

gluteal sulcus became less evident. The buttock mass was elevated, and the maximum projection was achieved at the midlevel of the buttock. Both patient and surgeon satisfaction were recorded as good to excellent in every case, and in the majority of cases, the results exceeded patients' expectations. The scars were considered acceptable with respect to the procedure and easily concealed by a bikini-type bathing suit. Stability in the body contour repair was demonstrated in the 1-year follow-up assessment.

## Discussion

Body contouring has continued to increase in popularity, as have the alternatives and procedures for addressing deformities. The trunk, buttocks, and thighs represent areas of increased patient interest and surgical technique modification. Consequently, familiarity with the presentation and effective treatment of these deformities has become increasingly important [1, 4, 5].

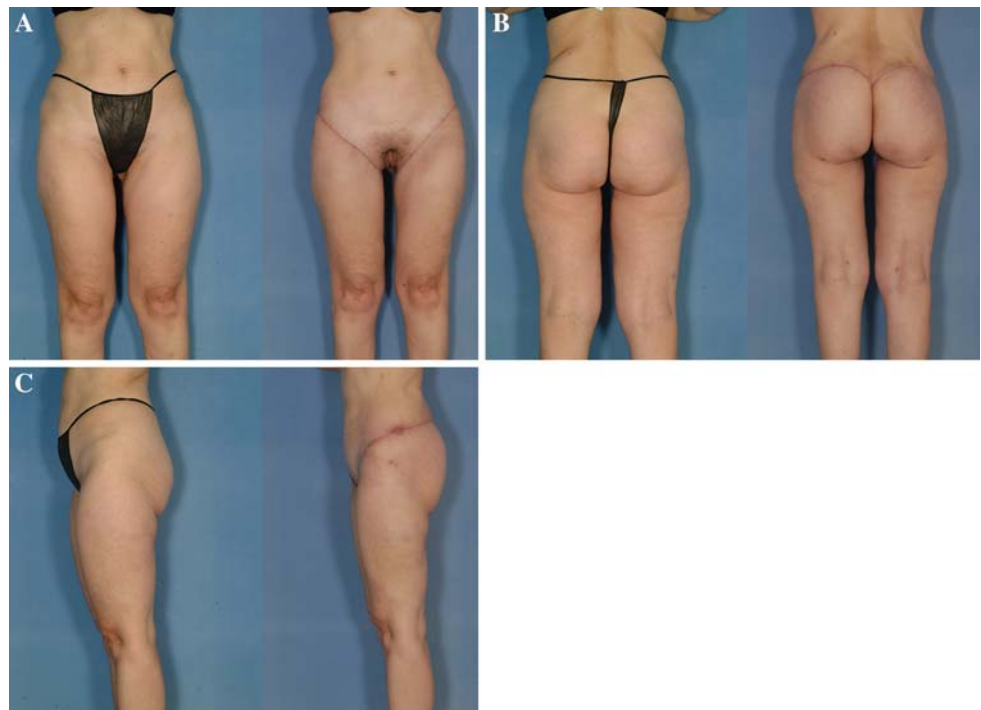
The pear- or guitar-shaped body contour is an unaesthetic appearance that may cause much frustration for the patient and surgeon when encountered. The deformities are very difficult to correct altogether with diet and exercise alone. Liposuction can offer an improvement for patients that present with fat deposits but no skin excess or laxity, yet it usually is insufficient. More aggressive liposuction to correct these areas can result in untoward results and complications (Fig. 5).

Traditionally, these patients have been treated with a combination of liposuction, flankplasty, belt lipectomies, lower body lifts, and/or medial thigh lifts [7, 10, 11, 15, 17]. Baroudi [2–4] described an upper inner thigh lift and flankplasty with optional lipoplasty as an alternative method for performing a medial, anterior, and lateral thigh lift with a buttock lift.

Our modifications of the procedure include superficial fascial anchoring to the Colles' fascia, the inguinal ligament, and the anterior superior iliac spine; aggressive liposuction; lateral and anterior thigh lift with undermining and high lateral tension; and a buttock lift with autoprosthesis augmentation using a dermal fat flap [10, 11, 18]. Anchoring of the inferior skin flap to the tough, inelastic deep layer of the superficial perineal fascia medially, the inguinal ligament superiorly, and the periosteum of the anterior superior iliac spine laterally has reduced inferior scar migration, labial separation, and early recurrence of ptosis [10]. Aggressive liposuction of the thigh is possible because it is performed in combination with the circumferential thigh lift, thus avoiding contour irregularities.

The buttock lift is complemented with buttock augmentation to avoid a flattened buttocks contour after an aggressive resection of excess skin and subcutaneous tissue in the supragluteal region [18]. In contrast to gluteal flaps previously described [8, 9, 12, 14, 16], maximal projection of the buttocks is achieved at midlevel, which is aesthetically ideal [6]. By combining these techniques, the overall result is improved because the procedure not only relies on

**Fig. 6** Preoperative and postoperative photographs



excision and lifting, but also includes a volumetric enhancement that leads to an improved and natural silhouette.

The technique resulted in improved contour and tension of the medial and lateral thigh, trochanteric area, and gluteal region. The gluteal sulcus became less evident. The buttock mass was elevated, and the maximum projection was achieved at the buttock's midlevel. The low complication rate, the easily concealed scar, and the high degree of contour correction contributed to a high satisfaction rate.

## Conclusion

The spiral lift effectively addresses the pear- or guitar-shaped body contour deformity. The high satisfaction rate, the ease of concealing the incision with clothing, and the low complication rate suggest that this is a reliable and versatile technique. However, applicability and experience with the procedure is limited due to the infrequent presentation of patients seeking repair for such a body contour deformity.

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