

# Unusual Early Calf Implants Displacement and Surgical Correction

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**Abstract:** Body shape improvement may benefit from a variety of silicone filled implants, calf augmentation being one of the most successful surgical operations, for aesthetic or reconstructive indications. There are several early and late postoperative complications, but the early calf implant displacement has not been mentioned in the literature. We present a case with implant displacement to the posterior calf midline, during the first weeks after the surgery, because of postoperative compressive garments and intense manual massage. Six weeks after the surgery the calf implant has been removed and reinserted into a new pocket created behind the existing one. In the postoperative weeks the patient didn't wear any compressive dressing or garments and the calf massage was completely avoided. At 6 weeks after the surgery the result was pleasant and stable.

**Keywords:** Calf Augmentations; Silicone Implant; Implant Displacement Correction.

## Introduction

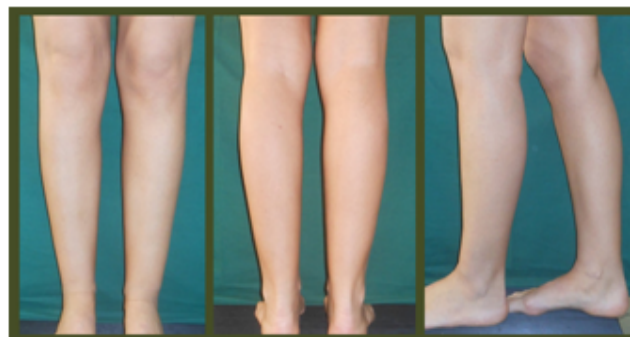
Calf augmentation using silicone implants represents in the last decade an increasing surgical procedure, for cosmetic [1-4] or reconstructive purposes [5] as: (1). Sequel of club foot and/or cerebral palsy and spina bifida. (2). Congenital hypoplasia and/or aplasia or reduction of subcutaneous cellular adipose tissue, muscular hypotrophy or atrophy. (3). Poliomyelitis and osteomyelitis. (4). Trauma Early postoperative complications mentioned in the literature include severe pain, hematoma, seroma, infection and wound dehiscence. The implant displacement has been noticed only as late postoperative complication [3, 6-8].

## Case presentation

We present a case with an unusual early calf implant displacement, happened to a 34 years lady (176 cm high and 60 kg body weight), physiotherapist. She came for the surgical correction of her lower legs shape deformity. Type I according to Cuenca-Guerra classification [6], with the volume deficit in the inner side, because of the lack of development of soleus and gastrocnemius muscle medial portions [Figure1].

With the patient in the prone position, under general anaesthesia, we did the calf augmentation using EuroSilicone®, Silicone gel-filled calf prosthesis (catalogue edition 2013) symmetric shape (90cc, 17.0 cm length, 3.7cm width and 2.8cm projection), placed in a retrofascial pocket technique (between the gastrocnemius muscle and the fascia cruris), as described by Mario Dini in 2002 [1]. No intraoperative problems occurred and the surgery ended in 40 minutes. On the table the result was looking good, with a nice shape on the medial side of the patient lower legs.

recommendation for wearing compressive garments and to have gentle massage of the legs, to prevent the postoperative oedema.



**Figure 1:** Preoperative patient pictures with Type I lower legs deformity: lack of development of soleus and gastrocnemius muscle medial portions [6].

Compressive garments (Lipoelastic®, liponurse knee-high stocking anti-embolism, size M, 150 den, with compression class 17-22 mm Hg), have been applied on each leg and the patient returned in the ward and rested with lower legs gently elevated. After 5 hours the patient was walking without any complaint, and 24 hours after the surgery has been discharged happy and enthusiastic, with written recommendation for wearing compressive garments and to have gentle massage of the legs, to prevent the postoperative oedema.

At the first follow-up time, at 5 days, she came demonstrating a huge willing to have a faster recovery. We noticed an impression of a mild implant displacement to the posterior midline of the lower leg [Figure 2]. At 10 days after the surgery she was telling at phone that her lower legs look horrible, with a huge prominence on the posterior region, like at male's bodybuilders. We asked her to leave the compressive garments and try to move slowly the implant back in the initial position through a gentle massage (manipulation). Because of the failure of this attempt, she was scheduled for a follow-up and a possible revision surgery at her most convenient early time, in about 40 days.

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During the follow-up consultation, we had been surprised to see [Figure 3] a complete posterior calf implant displacement, with an unnatural “clown like” appearance from the profile view. The ultrasound examination confirms implant displacement, with a very thin periprosthetic capsule, without any fluid traces in the pocket.



**Figure 2:** Early postoperative pictures (anterior, posterior and lateral view) of the case, 5 days after the surgery.



**Figure 3:** Postoperative picture of the case 6 weeks after the surgery (anterior, posterior and lateral view), demonstrating calf implant displacement to the posterior midline (yellow ellipse for posterior view and yellow arrow for lateral view).



**Figure 4:** Postoperative picture of the case (anterior, posterior and lateral view) 6 weeks after the revision surgery. Normal calf implant position maintained without any postoperative compressive garments.

The revision surgery starts with the incision placed inside the previous scar, and the implant pocket opened at the same level, through a thin periprosthetic capsula. The calf implant came out smoothly, not damaged and without any fluid present in the pocket. Digital inspection of the pocket limits demonstrate the normal position at the medial inner side but the extension to the lateral side is close to the calf posterior midline, being about 8 cm wide. We did a small horizontal incision (5 cm length) on the posterior capsular wall

close to the cranial limit and, using the decollators for blunt dissection, we create a new pocket behind the existing one. The same calf implant devices have been reinserted into the new pocket without problems. We do not use any drains for calf implants.

We used for 24 hours a gentle compressive bandage and discharged the patient with strict recommendations not to wear compressive garments and not to have massage done on her lower legs.

## Discussions

The development of late complications such as capsular contracture, implant rupture or leaking, implant displacement and implant palpability occur in less than 4% cases [3, 6-8].

In the retrofascial position, the implant is lying over the medial gastrocnemius muscle with its epimysium and covered by the deep fascia of the calf, which is tight and fixed medially to the tibial bone and laterally to the peroneal septum separating the lateral calf compartment. This fascia gives off from the deep surface strong intermuscular septa (transverse fascia of the leg) separating the deep posterior compartment and superficial posterior compartment of the calf and several more slender processes which enclose the individual muscles in each region [9]. Inferiorly the fascia layer is adherent to the trigeminal tendon, and represent a significant limit of the pocket dissection. This can be evaluated and drawn before the surgery, asking the patient to stay stand on the toes, with gastrocnemian muscles contracted. Implant selection in terms of dimensions and volume depends on this clinical preoperative evaluation. The implant should stay unfolded, flat against the muscle and without pressure over the upper pole of the pocket in the popliteal fossa which may create discomfort to the patient and jeopardize the venous drainage of the leg. Felicio [4] reported one case with the calf implant moved upward and been removed from the patient.

If the implant selection is properly done in terms of dimensions and the pocket dissection according to the preoperative plan, staying under the crural fascia, there is low risk for capsular contracture (gastrocnemius is pressing the implant against the fascia), double contour (fascia is tight and continuous over the implant with the right length) or bad position, contrary to the other authors opinion [6, 10].

In literature, there is a limited reference concerning the management of the late complications that may arise [4, 11]. To prevent the retrofascial implant displacement Niechajev [12] recommended the use of instruments, implant lubrication and preservation of the midline fascial connection in the pocket.

This unusual case of early calf implants displacements brings several questions related to the possible aetiology of it, since we used the same surgical technique and postoperative management in more than 12 cases, all done for aesthetic reasons. Our routine postoperative indications include compressive garments dressed on the operation table, early ambulation on the feet tips (to stimulate muscular contraction and deep venous circulation) and gentle lower legs massage for 30 days, to avoid postoperative oedema. This is similar to other authors recommendations [1, 2, 4] and different to other authors who recommend that patients avoid walking for 7 days and allow walking in high-heels thereafter [3].

The possible aetiology of early calf implants displacements could be the combination between the too tight compressive garments with the intensive massage, done enthusiastically by the patient herself. In this condition, the patient did the massage focusing on the inner side

of the legs, being more comfortable for manipulation, and gradually the device has been moved to the posterior midline. The patient did a blind and closed subfascial dissection, using the device as a tool, creating a bigger implant pocket. This situation is similar to the pocket enlargement done by mammary implants hard massage, which can lead to anatomical implant rotation or twisting [13].

Our surgical solution to correct this situation was simple and quick: take the implant out and reinsert it into a new pocket created bluntly behind the posterior periprosthetic capsula. This technique is easy comparative to the deep suture between muscle and fascia recommended by von Szalay [14], submuscular positioning used by Kalixto and Vergara [10] or capsuloplasmy used by Datta, in reconstructive cases [8].

For postoperative management of this revision surgery, we agree with Felicio [4] and Pereira [7] not to use compressive bandages and we do not recommend any kind of massage, because the tension inside the calf fascia posterior compartment has not been affected by the new implant pocket position.

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