

Water-jet assisted lipocontouring (WAL) of the gluteal region: Technique and long-term results

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The surgical options for aesthetic contouring of the buttocks include silicone implants, dermolipectomy and autologous fat transfer with the latter generally achieving good results for contouring of the buttocks. The success of this procedure is a result of the ideal properties of the gluteal region, which has a large amount of muscle tissue and is thus well suited to absorb large amounts of grafted material. In this article the authors present their technique for large-volume autologous fat grafting based on water-jet assisted liposuction (WAL), centrifugation of the added cells and a fan-shaped placement of the grafted material.



The selection of the patients for this procedure depends partly on their desired buttock shape and size. What is important for this indication is, of course, that there is sufficient subcutaneous reserve fat available. The BMI (Body Mass Index) provides a rough guide. Another advantage is also a high percentage of superficial (subcutaneous) fat as well as a somewhat 'wider' structure of the buttocks, that is, an A or C shape. Another important parameter is the ratio of the circumference below the 12th rib (waist) to the greatest circumference at the height of the trochanter, the so-called 'hourglass index'.

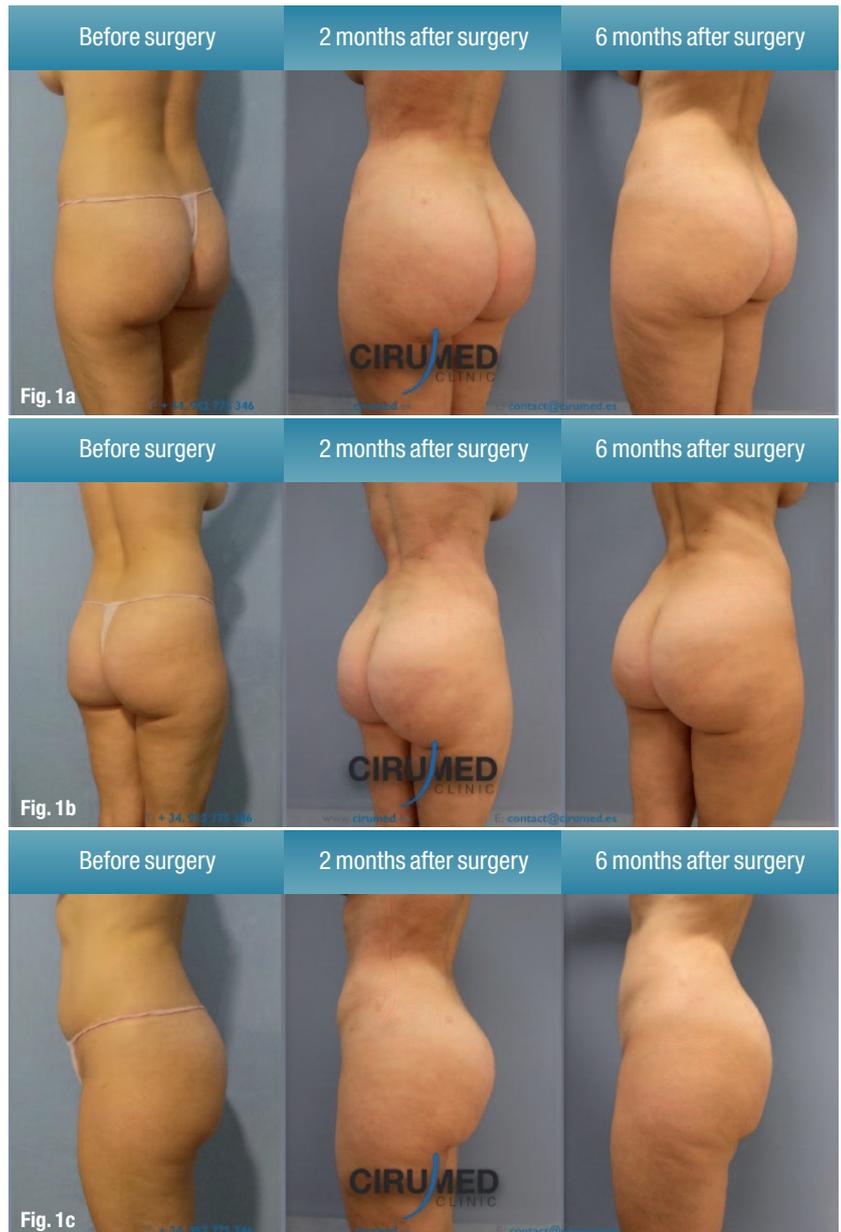
The authors recommend that patients have a BMI > 26. With a lower body mass index there is a relatively high risk of the patient being unsatisfied with the enlargement that can be achieved. For this reason, candidates with a BMI less than 26 should have realistic expectations of the achievable results beforehand.

If the patient has a BMI between 23 and 26, the authors' recommendation depends on the result the patient wants to achieve. If a patient wants a very significant result, a combination of a silicone implant and autologous fat transplantation is recommended. According to the authors' experience, with a BMI of less than 23 it is very difficult to meet patient expectations using autologous fat transfer alone.

For transfer volumes of less than 2,000 ml, the authors recommend local anesthesia with sedation while for larger volumes general anesthesia is preferred. The use of spinal anesthesia is not established in practice for this procedure, not least because of the patient's repositioning usually required.

Surgical technique

The surgery starts with the patient in a supine position to have better access to the subcutaneous abdominal fat. The authors start with pre-infiltration through stab incisions in the bikini zone and navel using the body-jet evo system (human med, Schwerin, Germany) at a rate of about 60 jets/min. For this pre-infiltration a cannula with a single hole and a slight angle (45°) is used. The pre-infiltration is performed with Klein's solution, except for use of a general anesthesia. In such a case, a lidocaine-free solution is used to minimize the chemical trauma for the fat cells. Compared to conventional liposuction, only small infiltration volumes are required. As a guideline for beginners in this technique, use a pre-infiltration volume corresponding to about 10 per cent of the fat that is expected to be harvested. If the surgeon plans, for example, to harvest 1,000 cc of pure fat, a pre-infiltration with 100 cc during the five minutes before starting fat harvesting is more than adequate. This low pre-infiltration volume is one of the most significant advantages of the water-jet technique (hydrojet) because there is no swelling of the tissue. This



means the harvesting procedure is not only faster but also more precise. For the next step, the authors switch to a fat suction cannula (fat harvest). This is a sharp cannula with a central opening for infiltration and lateral slits for suctioning, facilitating the simultaneous infiltration and suction. The second generation of hydrojet, the body-jet® evo, has a specific program for lipotransfer in which the system automatically holds the suction pressure below 350 mmHg. Typical areas where liposuction is used are the abdomen and the back and flanks (fat deposits). Contouring these zones considerably improves the aesthetic outcome. The body-jet device is connected to a filter system ("LipoCollector") that separates the fat and fibrous tissue, producing fat that can be immediately grafted.

The LipoCollector was originally designed in a way that any additional processing of the harvested fat is

Fig. 1a-c: Gluteoplasty by means of an autologous fat transfer, injection of 1,200 cc using the water-jet assisted technique; results two to six months after surgery with almost identical volume.



Fig. 2a–c: ‘Brazilian butt lift’ with a grafted fat volume of 950 cc on each side; results after two and ten months respectively with unchanged volume.

not required. The authors, however, have modified the lipocollecting process. Although it is not strictly necessary when working with the LipoCollector, they achieve an improved quality of the material to be grafted by manual centrifugation. Based on the authors’ experience, this is a particularly gentle type of processing. For this purpose, 60 seconds are sufficient to concentrate the fat transplant by an additional 10 per cent.¹⁰ A longer centrifugation time does not result in a higher concentration but instead produces more oil, an indication of fat necrosis. The quality of the fat obtained by means of the water-jet is excellent. In liposuctions using the water-jet technology, the authors obtain a total fat volume from which, on average, up to 80 per cent can be grafted. They add 1 per cent Platelet-Rich Plasma (PRP) to the fat.

The grafting procedure

What is important when grafting autologous fat is to use fan-shaped, layered deposits. The authors inject about 80 per cent of the volume of grafted fat intramuscularly. For intramuscular infiltration, 10cc syringes with a BEAULI lipotransfer cannula (14G, human med) are used. The intramuscular autologous fat augmentation increases the size of the buttocks but has minimal effect on the shape. Therefore, autologous fat injections into the superficial layers are particularly important to achieve the desired rounding. This superficial layer is not very well vascularized, making the fat grafting technically difficult.^{3,6} On the hips a rather superficial and subcutaneous infiltration is required. For this reason, the authors switch to 5 cc syringes and 16G cannulae. This injection technique certainly is a little laborious, but it delivers better results in terms of the shape and size. To optimize the good result, the tissue should most definitely not be oversaturated. An overcorrection does not increase the ultimately remaining volume of fat, but merely results in necrosis of the fatty tissue and formation of cysts. If the area that is being treated starts to become hard, under no circumstances should the surgeon continue to inject fat.

Follow-up care

The authors use compression pants specially developed for this type of surgery (Colombia Fajas, Barcelona, Spain) for six weeks after surgery. The standard adhesive tapes (Kinesio tapes) used in physiotherapy are also applied on the first day following surgery. However, the authors avoid applying Kinesio tapes in the operating room because they have often observed tape blisters due to the post-operative swelling.

Long-term results

The authors evaluate the outcome of the surgery using photovolumetry (Canfield Mirror System). Based on the volume, they document, on average, a post-operative fat retention of 80 per cent six months after the procedure. Similarly good results have previously been documented for water-jet assisted autologous fat grafting.⁵ In patients with a BMI between 26 and 30, the satisfaction index is very high. For patients with a BMI less than 26, the results for autologous fat transfer are good and the patients are generally very happy with the result. Even for large volumes, no patient treated in the authors’ clinics has yet complained about excess volume. In contrast, it is not unusual that even patients who have had a volume of > 1,000 cc grafted have expressed a desire to further augment the volume in a second sitting.

Discussion

Because of its extensive area and the high proportion of muscle tissue, the gluteus muscle is the ideal region for autologous fat grafting. For patients with a BMI > 26, the authors prefer autologous fat transfer because of its higher success rate and fewer complications compared to implants. Contouring the buttocks using autologous fat is a very rewarding procedure for surgeons and patients alike, and for this reason it is surprising that there are so few publications on this subject. There are a number of methods for harvesting the fat including tumescent liposuction using low pressure, vibration (power-assisted), ultrasound and water jet (hydrojet).

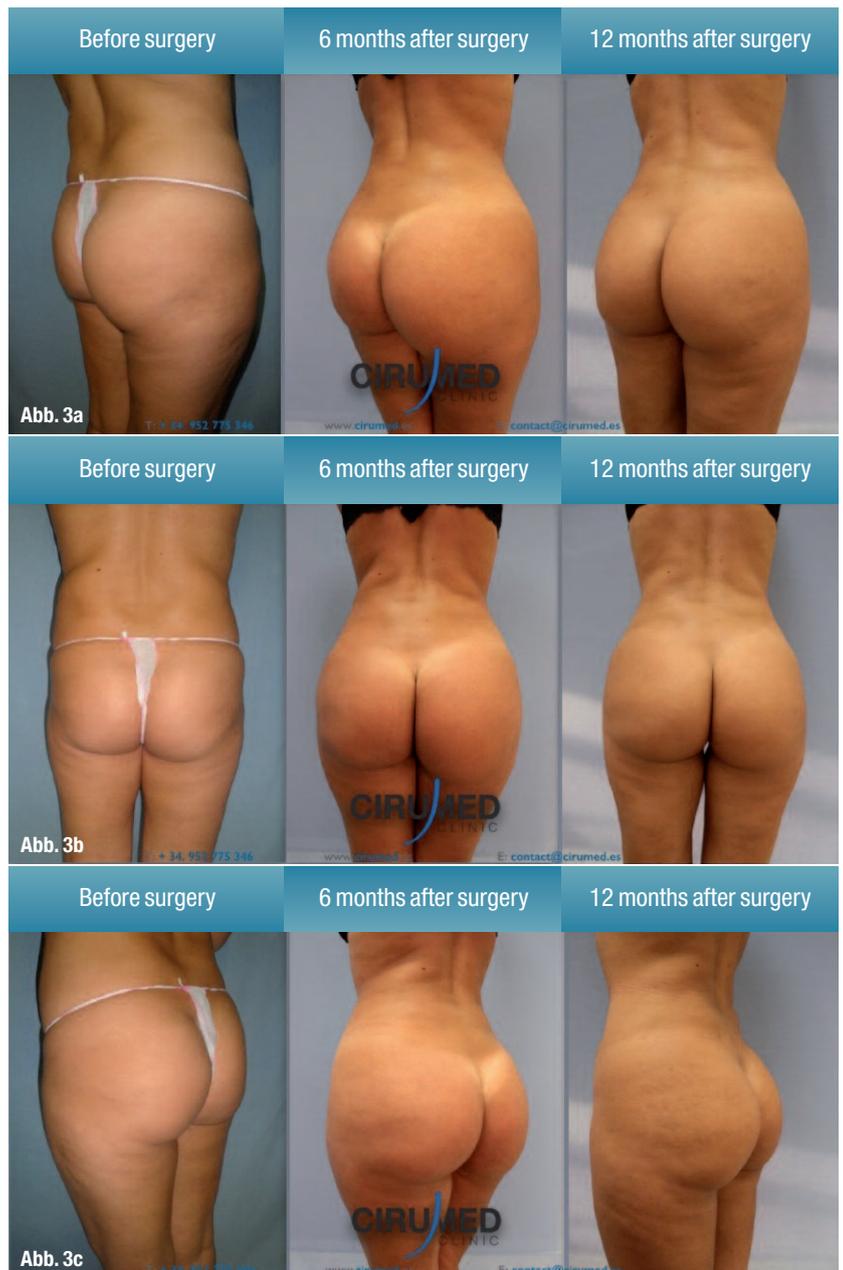
In the authors' practice, the WAL has proven to be superior to the alternative techniques. Using this technique a larger volume of fat is harvested while ensuring the harvested cells suffer minimal mechanical and chemical trauma. The rapid removal of the fat is also an important benefit.

Conclusion

For surgeons interested in large-volume autologous tissue transfer, the water-jet assisted method is a highly effective option. The authors recommend making several adaptations to the original process. Although the manual centrifugation and the switch to a thin cannula for injection into the superficial layers increase the surgery time, this is compensated for by a very good attachment of the injected fat in the particularly important areas and a higher success rate for fat transfer in the subcutaneous sites.

Literature

- [1] Coleman SR. Long-term survival of fat transplants: controlled demonstrations. *Aesthetic Plast Surg* 1995;19:421-5.
- [2] Cardenas-Camarena L, Lacouture AM, Tobar-Losada A. Combined gluteoplasty: liposuction and lipoinjection. *Plast Reconstr Surg* 1999;104:1524-31.
- [3] Chajchir A, Besaquen I. Fat-graft injection for soft-tissue augmentation. *Plast Reconstr Surg* 1989;84:921-34.
- [4] Mendieta C. *The Art of Gluteal Sculpting*. Quality Medical Publishing Inc; 2011:149-2445.
- [5] Ueberreiter K, von Finckenstein JG, Cromme F, et al. BEAULI™—eine neue Methode zur einfachen und zuverlässigen Fettzell-Transplantation (BEAULI™—a new and easy method for large-volume fat grafts). *Handchir Mikrochir Plast Chir* 2010;42(6):379-85.
- [6] Chang KN. Surgical correction of post-liposuction contour irregularities. *Plast Reconstr Surg* 1994;94:126-36.
- [7] Pereira LH, Radwanski HN. Fat grafting of the buttocks and lower limbs. *Aesthetic Plast Surg* 1996;20:409-16.
- [8] Roberts TL 3rd, Toledo LS, Badin AZ. Augmentation of the buttocks by micro fat grafting. *Aesthet Surg J* 2001;21(4):311-9.
- [9] Gasparotti M, Lewis CM, Toledo LS. *Superficial liposculpture: manual of technique*. New York: Springer-Verlag; 1996:83-9.
- [10] Aslani A, Hamers, Ortiz Abello M, Marin I. Brazilian butt lift—Large volume fat grafting with Water Jetstream assisted liposuction, *Plastic and Maxillofacial Surgery News*, Vol. 1, Issue 6, pp.17-19



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Fig. 3a–c: Gluteal contouring using autologous fat transfer of 1,150 cc on each side six months and one year respectively after surgery with excellent consistency of volume. What must be noted is that this patient reported a post-operative weight loss of a little over 5 kg, which did not have a permanent effect on the volume constancy.