

Liposuction—Gadgets and Widgets: Save Your Money

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Summary: In the past few decades, numerous adjunctives and devices have been introduced to body contouring surgeries, especially liposuction. Most of these devices require special maintenance and accessories for their proper functionality, which might be expensive in many parts of the world or for young surgeons starting their own practice. In this article, we suggest some tools that could be used during liposuction to save money, minimize complications rates, and enhance the results without endangering the patient's overall safety. (*Plast Reconstr Surg Glob Open* 2020;8:e2759; doi: [10.1097/GOX.0000000000002759](https://doi.org/10.1097/GOX.0000000000002759); Published online 27 April 2020.)

INTRODUCTION

Liposuction remains one of the most common cosmetic procedures performed in the United States and the rest of the world.^{1,2}

In the last decade, several technologies were introduced as adjunctives to liposuction. These include but are not limited to: radiofrequency, ultrasound, and laser devices; tools for fluid infiltration; and fat injections.

However, many of these devices are expensive and are not available for purchasing by many plastic surgeons, especially for those in the developing countries and for those who are starting their practice.

In this article, we suggest some tools that could be used during liposuction to save money, minimize complication rates, and enhance the results.

METHODOLOGY

Patient Scrubbing

Before surgery, all our patients are scrubbed while they are standing. Sterile drapes were kept in the operating room table, patients are scrubbed and draped while standing and then they were laid on the operating table. Because it is crucial to turn patients from side to side, especially during 360 liposuction and body contouring surgeries (eg, lower body lifts), scrubbing will save the need for the use of new drapes and towels, and eventually will save money. No preoperative medication or any form

of anesthesia was given to the patients before scrubbing to avoid unnecessary drowsiness and hypotension.

Minimizing Burns and Friction

Using the insulin syringes (28G), the plunger is removed, and the barrel flange is used as a port for the cannulas. The port is secured in place using 2-0 silk sutures (Fig. 1). Four-millimeter cannulas can easily fit through this port of entry, which can be easily applied with ultrasound probes. This minimizes the friction with the skin and will consequently reduce burns and possible ugly scarring. In addition, a topical eye ointment or sterile gel can be applied for minimizing frictions. Another method for minimizing burns and friction is continuous irrigation of saline applied on the cannula's entry sites. The 18G needle is broken, and the syringe cap is refitted to create a stronger pressure for irrigation. This minimizes the heat produced from friction, which may subsequently lead to burns.

Fluid Infiltration

Instead of infiltration devices (which might be relatively expensive), a pump connected to intravenous line can be used. The latter is then introduced into the infiltration bottles (at its top when flipped) for faster delivery of the fluids.

Drawings

Although markings are an essential part of preoperative planning, losing these marks is common with liposuction because of fluid splashing. A blue stain (as an ink) and a culture swab stick used in specimen collection for culture and sensitivity (as a pen), are used together to mark the patients intraoperative before losing the preoperative markings and the whole plan for liposculpture. This is particularly important in the high-definition male cases with a rather sophisticated marking that is done while the patient is standing and according to his musculature. This

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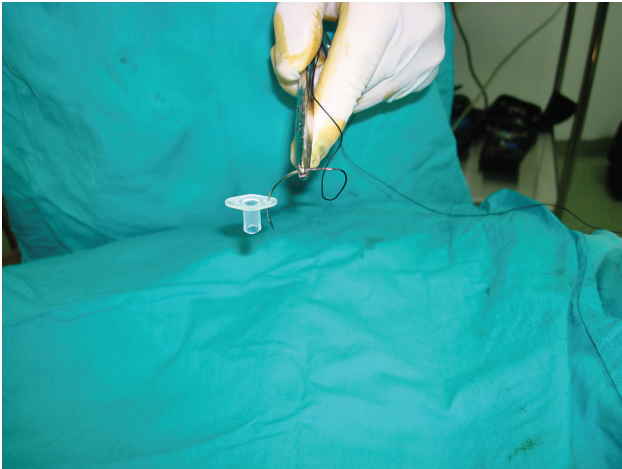


Fig. 1. Using the insulin syringes (28G), the plunger is removed, and the barrel flange is used as a port for the cannulas.

marking can be greatly influenced by the patient's positioning during surgery (Fig. 2).

Fat Harvesting

The fat harvested for reinjection needs to be collected in sterile containers. The under-water seal (chest tube) represents an excellent alternative for fat collection, which is much cheaper than regular containers. The chest tube creates an isolated air-sealed suction, and the fat is



Fig. 2. A swab collection stick (instead of a marking pen) dipped in methylene blue stain is used to reinforce the markings intraoperatively.

not exposed to air, maintaining the sanitation process. Following decantation, a catheter is connected to suction to absorb the infranatant fluid and the fat is left behind. This system is used once and then disposed of, so that there is no risk of any disease transmission due to faulty sterilization or sanitation. The chest tube can take up to 2L of fat and is graded as well.

Fat Decantation

Fat is collected in a nasogastric tube (Ryle's, feeding syringes) placed upright to decant. The upright position can be maintained using a stainless steel rack (which can be custom made) or using sterile towels (to create a doughnut) to hold the syringes upright (Fig. 3).

Fat Filtration

For fat filtration, filter nets are used, which appear the same as the tea nets. The advantage of these nets (being made of stainless steel) is that they can be easily sterilized in regular autoclaves (Fig. 4).

A stainless steel spoon can be used to handle and transfer the fat through the nets and into syringes for injection preparation. Again, the spoon can be easily autoclaved for sterilization.

The 3-way cannulas (used by the anesthesia team) can be used as a filter for converting larger fat globules into relatively smaller ones. This can save the hassle of buying many connectors and filters out in the market with relatively higher prices.

Fat Injection

After fat decantation, the infranatant fluid is suctioned and the fat is prepared for injection. We prefer adding 2 ampoules of gentamicin to each liter of decanted pure fat.



Fig. 3. Fat in a doughnut. The feeding syringes are kept upside down for fat to decant and are supported by a sterile wrap.



Fig. 4. Stainless steel nets are used for fat filtration. The net is cheap and can be autoclaved.

Using the feeding syringes and a sterile silicone lumen, the cannulas used for harvesting are used for injections.

Dressings

We prefer keeping the incision site open at the end of liposuction to help with drainage process. This will lead to much soaking of the corset and clothes, especially in the first 48 hours. The female pads were cut into small pieces and then were applied over the liposuction access sites. A sterile gauze is applied on top of the incisions before the pad application. This approach helps absorb much of the fluids and minimizes the overall soaking, with minimal to no risk of infection. This has a great impact on the overall patient's experience and markedly minimizes the discomfort that may arise from seeing blood-tinged fluids.

DISCUSSION

Plastic surgery is a field of innovation and creativity. New technologies are introduced almost daily to make plastic surgery practice easier for surgeons while maintaining (or even enhancing) patients' safety.⁴

Liposuction is one of the most booming fields in terms of the introduction and advancement of technology, with several liposuction-assisted techniques available and implemented.⁵ Many tools have been used during the process of liposuction and fat harvesting. These tools are relatively expensive and might not be available, especially

in many developing countries, in countries where the law prohibits their entry, or in countries in which getting the tools is difficult due to much paperwork involved in addition to the shipping and delivery fees.

This represents a real challenge for many plastic surgeons, especially for those who are working in developing countries, or for young surgeons starting their own practice with a relatively small capital. Moreover, young plastic surgeons lack the connections and the means to get these tools, especially if there are legal boundaries to introducing them into their home country.

Necessity is the mother of invention. In this review, authors tried to suggest some of the gadgets and widgets that can be easily introduced in any starting practice and are readily available in any part of the world. Although those tools aimed mainly to save money, it is crucial that they will not be causing any complications, will maintain safety, and do not jeopardize the sterilization or the sanitation process. The tools used are cheap when compared with the new tools. A good example is the ports used for protection from ultrasound probes: the cost of one port is nearly \$40, while the cost for the insulin syringe (28G) does not exceed 10 cents.

The use of these gadgets did not hinder the overall time during surgery. The previously mentioned gadgets are readily available in any developing country, not much time is needed for their application, no special storage is required, and they do not require special precautions during the sterilization process. In other words, the efficiency was not compromised.

CONCLUSIONS

In this review, we suggest some gadgets and widgets that can be used during liposuction and fat harvesting. They represent a good option and efficient alternative to other expensive or nonavailable tools.

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