

Common Sense for the Common Good: Staying Subcutaneous during Fat Transplantation to the Gluteal Region

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Law is nothing other than a certain ordinance of reason for the common good, promulgated by the person who has the care of the community.

—Thomas Aquinas

There are few things more devastating than to have a patient die in the operating room while undergoing elective cosmetic surgery. Large-volume fat grafting to the gluteal region, or “Brazilian butt lift,” is a surgical procedure that faces serious examination. The currently reported intraoperative mortality rate is high and there are unresolved technical controversies. These controversies distill down to one surgical strategy—whether to insert fat into the muscle, or not.

When we watch movie scenes from the 1980s and 1990s, we are often struck by the relative paucity of airport security. In today’s terrorist world, we are conditioned to submit to scanners, “strip searching,” and bag inspection. In this scenario, we weigh the individual’s right to privacy against the safety and security of the entire flight (the “common good”). When we talk about our First Amendment right to free speech, we understand it has a certain dual character. Although there exists an individual right grounded in the equal dignity of free citizens, it must be balanced against the common or collective good that cannot and does not tolerate violent, abusive, sexist, or racial speech. Martial law and curfew are yet more examples of human rights being compromised for the common good. Procedural common good is therefore defined as the outcome that is achieved through collective participation in the formation of a shared will.¹

As board-certified plastic surgeons and as aesthetic plastic surgeons, our collective will is

to always serve our patients safely. In the case of abdominoplasty combined with other procedures, we rallied our collective wisdom to improve patient safety and to risk-manage high complication rates.² As a group, we have already responded to the challenge presented by gluteal augmentation with fat transplantation.³ Experimental and clinical studies, task forces, and published papers are all well-intentioned and are underway.^{4,5} These efforts, in time, will likely provide the answers to many unknown questions that plastic surgeons, patients, plaintiffs’ lawyers, and the media have about this operation. However, the aforementioned initiatives require time, which is not on our side. If the one in 3000 mortality rate from a recent Aesthetic Surgery Education and Research Foundation study is indeed accurate,⁶ we should expect to hear of one gluteal lift death per month. We must do everything we can to eliminate this mortality—immediately. Gluteal augmentation with fat surgery must accept and submit to technical mandates in the interest of patients and in the interest of the common good.

Logic’s mathematical approach to deductive reasoning and its irrefutable truths help shape the way we process information. If we are inspired by logic, we are challenged by its lack of emotion and how we have to adapt and change to accept its often unappealing conclusions. Below are 10 key gluteal fat grafting facts. Following the logic in these facts, each one of us can reach our own conclusions.

1. Massive intraoperative lethal fat embolism occurs when there is injury to deep pelvic veins, which lie deep to the gluteal muscle fascia and deep to gluteal subcutaneous fat.

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2. Massive intraoperative lethal fat embolism is distinct from microfat embolism syndrome. Microfat embolism syndrome consists of smaller lobules of fat, smaller caliber veins as venous entry points, and differs in its clinical presentation and outcome. Microfat embolism syndrome is not always lethal, as smaller lobules do not block the cardiopulmonary circuit leading to electromechanical dissociation. Rather, the inflammatory nature of intravascular fat/lipids manifests its pathophysiology on the pulmonary and systemic circulation with pneumonitis and petechiae.
3. Recently (the past 12 months), cases of massive intraoperative lethal fat embolism mortality from fat grafting to the buttocks in the United States have been autopsied, some with plastic surgeons present.⁷ In all cases, at the time of the postmortem examination, fat was present deep in the muscle and showed laceration of a vein that was deep within or subjacent to the muscle.
4. In cases of examined massive intraoperative lethal fat embolism mortality, no autopsies have ever demonstrated grafted fat limited only to the subcutaneous layer and not in the muscle, nor has any post-Brazilian lift death autopsy ever showed injury to a vein in the subcutaneous fat layer as the cause of fat entry.
5. In the Aesthetic Surgery Education and Research Foundation survey on Brazilian lift mortality, a significant number of surgeons who had experienced a massive intraoperative lethal fat embolism mortality “reported” they had injected “subcutaneous only.” Some of these surgeons responded to the survey years after the event. Although their intent might have been to be subcutaneous only, there are no factual data to support such reports. Such reports do not constitute proof that subcutaneous placement of fat can result in massive intraoperative lethal fat embolism. There is no clinical, animal, or scientific evidence showing a causal relationship between subcutaneous injection of fat and massive intraoperative lethal fat embolism.
6. The data in the Aesthetic Surgery Education and Research Foundation study preceded the use of expansion vibration lipofilling. Expansion vibration lipofilling was developed⁸ as a way to internally and intraoperatively expand the recipient site, and to obtain shape change in the buttock, focusing on the subcutaneous plane.
7. There has been opinion stated by experts in gluteal fat grafting⁹ that despite a strategy to insert fat only in the subcutaneous plane with expansion vibration lipofilling, it likely results in unknown and inadvertent insertion of fat into the muscle. Based on these opinions, there has further been a challenge that, in patients undergoing subcutaneous-only transplantation, one should consider obtaining postoperative computed tomographic scans to prove that no fat is inadvertently injected in the muscle.
8. Although a postoperative computed tomography study is a good idea, a series of postoperative computed tomographic scans on cosmetic surgery patients undergoing elective gluteal augmentation with fat would require institutional review board approval because it results in radiation to patients and, most importantly, requires time. An alternative method—besides computed tomography—that demonstrates fat can be placed only in the subcutaneous position of the buttocks at the time of gluteal augmentation with fat with satisfactory aesthetic outcomes and with no injection below the gluteal fascia would refute the stated opinions made in item 7.
9. Intramuscular injection of small volumes (1 to 2 cc) of liquid medications is a painful stimulus in awake patients, and intramuscular injection of a semisolid such as fat is also a painful stimulus in awake patients.
10. A series of 38 patients underwent the gluteal augmentation with fat under local anesthesia.¹⁰ No general or regional anesthesia was used, nor was intravenous sedation used. Recipient-site local anesthesia, in the form of tumescent solution, was limited to the buttocks subcutaneous region before fat grafting. Patients also had donor fat harvested using the tumescent anesthesia technique. All patients had fat placed in the buttocks using expansion vibration lipofilling. All patients tolerated their procedures well and did not exhibit severe pain intraoperatively consistent with the painful stimulus of an intramuscular injection. All 38 patients had satisfactory results. Eleven patients elected to undergo additional surgery to achieve greater volume. During 38 consecutive cases of subcutaneous-only gluteal fat transplantation to the buttocks, there is sufficient evidence to presume that inadvertent intramuscular injection of fat did not occur. Opponents of this conclusion

argue that lymphatic absorption of anesthesia into the gluteus muscle may be sufficient to mask inadvertent intramuscular injection. However, the lymph vessels from the skin of the buttocks drain into the lateral group of superficial inguinal lymph nodes.¹¹ This refutes the opinion stated in item 7.

It is therefore possible to obtain a satisfactory aesthetic result in gluteal fat transplantation with insertion of fat limited to the subcutaneous space. Based on the lack of evidence for an association between subcutaneous fat grafting and massive intraoperative lethal fat embolism, “subcutaneous-only” strategies appear to be the safest surgical strategy when adhered to.

Based on the above, all gluteal augmentation with fat procedures are now performed with the intraoperative conscious strategy of staying in the subcutaneous space. Even if there is an inadvertent subfascial pass, the distinction must be made between “staying out of the muscle” as an end result of the surgery and “intending to stay out of the muscle” as a conscious strategy of the surgery. If one has to revise a case or perform a second round to make it larger, this is considered a small price to pay, in the author’s opinion, for improving the odds of patient safety.

The statisticians and the pundits will tell you that the numbers are not large enough to draw any conclusions about intramuscular versus subcutaneous, and we agree with these statements. That is the reason for this editorial.

Experts and master surgeons in Brazilian lift who routinely insert fat in the muscle, who fully understand the “danger zones” and who have no massive intraoperative lethal fat embolism events, might be able to avoid lethal complications, but this may not apply to all surgeons performing this

technique. Responsible surgeons must balance their surgical freedom of expression with the realistic abilities of all of their colleagues—for the common good of the procedure, for our specialty, and most of all, for our patients.

The safety of the people shall be the highest law.

—Marcus Tullius Cicero

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