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# As Liposuction Deaths Mount, Study Exposes Cracks in Safety

by Michael Vlessides

A quarter-century after the nation's plastic surgeons received what amounted to *carte blanche* to perform liposuction, a new analysis suggests that the procedure is no safer than it was back then. Making matters worse, the researchers said, the surgery has been oversimplified in the popular media, while Americans, who continue to become obese at an alarming pace, are hungry for a quick solution to their weight problem. Throw into the mix an ample supply of seemingly unscrupulous physicians and state regulators who do not appear ready to crack down on them, and the result is a recipe for a national disaster.



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Selma Calmes, MD, consultant in anesthesiology for the Los Angeles County Coroner/Medical Examiner, has begun to dig behind the details of patient death during liposuction—and she does not like what she's finding.

Along with colleague J. Daniel Augustine, MD, Dr. Calmes was scheduled to report at the 2012 annual meeting of the American Society of Anesthesiologists (ASA; abstract 144) that numerous deaths due to liposuction have been reported since Klein and Lillis popularized the notion of high-volume tumescent anesthesia in the United States in their seminal 1985 paper in the *Journal of the American Academy of Cosmetic Surgery* (1987;4:263-267). Twenty states established regulations in response. But people are still dying, and the researchers said much more could be done to save them.

Drs. Calmes and Augustine, a forensic pathologist, analyzed liposuction death records from the coroner's database, collecting a variety of procedure-related information. They also analyzed autopsy and toxicology findings from the cases.

"There are hazards to liposuction that most people do not even realize," Dr. Calmes said. "Fat cells are held together by a fine network of fibrous tissue. During liposuction, this tissue is traumatized by a trocar, and fat cells can be picked up by open blood vessels and carried to the heart and lungs."

Fat emboli are just one hazard faced by liposuction patients. Local anesthetic toxicity also is a real risk factor, as surgeons typically infuse dilute local anesthetic agents while the fat cells are being disrupted and sucked from the patient's body. Infection also is a concern during liposuction. In September, Maryland officials shut down a Baltimore-area clinic after three women undergoing liposuction developed serious streptococcus infections. One of the patients died as a result of the infection.

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The risks do not end there. "The amount of local anesthetic that the surgeons inject is very high," Dr. Calmes said. "So most of our patients had a high blood level of lidocaine." Sedatives are administered intravenously during the procedure, another area of risk given that trained anesthesia personnel are rarely present for office-based liposuction.

Yet liposuction can be risky even when anesthesiologists are providing care. Karen B. Domino, MD, professor of anesthesiology and adjunct professor of neurological surgery at the University of Washington, in Seattle, analyzed the ASA Closed Claims database for *Anesthesiology News*, looking for malpractice claims involving anesthesiologists who provided care for liposuction. Of the 9,536 claims in the database, 18 were associated with liposuction as the primary procedure. Of those, eight patients died, whereas another sustained permanent brain damage. Payment to the plaintiff was made in 12 of the 18 claims, with a median award of more than \$400,000.

Causes of injuries were mostly anesthetic complications, including difficult intubation, inadequate oxygenation/ventilation, airway obstruction, burns from use of hot water bottles to warm the patient, medication errors and slow recognition/ treatment of anaphylaxis. There were three cases of problems with fluid management and one case of local anesthetic toxicity related to liposuction.

### Look Out for Local

Guy Weinberg, MD, professor of anesthesiology at the University of Illinois College of Medicine in Chicago, said the same standards of care should be used for local anesthetic administration during liposuction as for regional anesthesia. "Moreover, it is necessary that any physician using local anesthetics be aware of the current recommendations for managing local anesthetic systemic toxicity, including its prevention, diagnosis and treatment," Dr. Weinberg said. Dr. Weinberg had created a Web site, [www.lipidrescue.org](http://www.lipidrescue.org) (<http://www.lipidrescue.org>), addressing local anesthetic toxicity.

In the Los Angeles study, the researchers identified nine liposuction deaths; records were unavailable for two patients, both of whom died in 1996. The remaining seven deaths occurred in 1999 (one), 2003 (one), 2004 (one), 2007 (one) and 2010 (three). Patients ranged in age from 29 to 61 years (mean 46.4 years), in weight from 150 to 206 pounds (mean 179 pounds), and in body mass index from 25 to 36 kg/m<sup>2</sup> (mean 29.5 kg/m<sup>2</sup>). Six of the seven patients who died and for whom records were available were women.

Perhaps not surprisingly, none of the cases was performed in a hospital. Four were in office-based settings, three in outpatient surgical units. General anesthesia was used in two cases, one by an anesthesiologist (the other practitioner could not be determined). The doctor performing the procedure or assisting with it sedated the other five patients.

Fewer than half of the patients in the study had all the required monitors. All had blood pressure monitors; two also had an electrocardiogram and three also had pulse oximeters. The only patient who received end-tidal carbon dioxide monitoring was the one who received general anesthesia from an anesthesiologist. Every patient who died underwent tumescent liposuction. Solution volume ranged from 0.8 to 7 L (mean 4.4 L); the volume of fat removed was 1.4 to 5.5 L (mean 3.7 L).

Two patients were discharged home and died there on the day of the procedure. One patient died in the doctor's office. The other four were transferred to a hospital, where they died. The interval until death ranged from one to seven days. Blood levels of lidocaine after death averaged 6.4 mcg/mL, but reached as high as 13 mcg/mL. Official causes of death included drug intoxication (lidocaine and sedatives), fat emboli, venous emboli and coronary artery disease.

### 'Periphery of Medicine'

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As Dr. Calmes pointed out, the inherent risks associated with liposuction are compounded by the fact that sometimes unscrupulous physicians might view the procedure as a cash cow.

"Technically, liposuction is easy to do and there's really no control over who's doing this at this point in time," she said. "We've found that doctors who fail in other specialties start doing liposuction in their office. The investment is minimal and there are lots of patients who pay cash up front because insurance does not cover this procedure. So I see it as the periphery of medicine done by people who aren't well observed and who want to make a relatively easy living."

Anne Taylor, MD, a plastic surgeon in Columbus, Ohio, agreed that patient safety needs to be of primary concern. "A fully trained, board-certified plastic surgeon has six years of training in surgery. So the patient needs to know what kind of training the surgeon has had, or if [he or she is] even a surgeon."

The hazards of liposuction often are exacerbated by the fact that patients are undergoing multiple procedures, a phenomenon that Dr. Calmes observed in the cases she reviewed: one woman was undergoing a mammoplasty; two had "buttock lifts."

Although some states have enacted legislation aimed at protecting liposuction patients, so-called "cosmetic surgeons" (who are not board-certified plastic surgeons) have not gone down without a fight. To make matters worse, Dr. Calmes said, few physicians performing these procedures are being monitored by regulatory agencies. "I discovered to my horror that nobody is actually tracking these things," she said.

"In my opinion, they should be more stringently regulating these procedures," Dr. Calmes said, "because physicians are abusing this method and patients are dying." She recommended that medical boards enable strict reporting systems for liposuction deaths, and enact stricter regulations around the procedure. Limiting surgeons to one cosmetic procedure at a time would also improve patient safety. Having a trained anesthesia practitioner present during the procedure would also go a long way toward improving patient safety as well, as would enforcing monitoring requirements.

### **Limited Oversight Leads To Patient 'Lottery'**

Dr. Taylor, former editor of *Plastic Surgery News*, a publication of the American Society of Plastic Surgeons, agreed that anesthesiologists have an important role to play during these procedures. "I like to collaborate with anesthesia," she noted. "I think it's safer to have an anesthesiologist as part of the operating room team versus trying to do liposuction in an office setting, where you are by yourself."

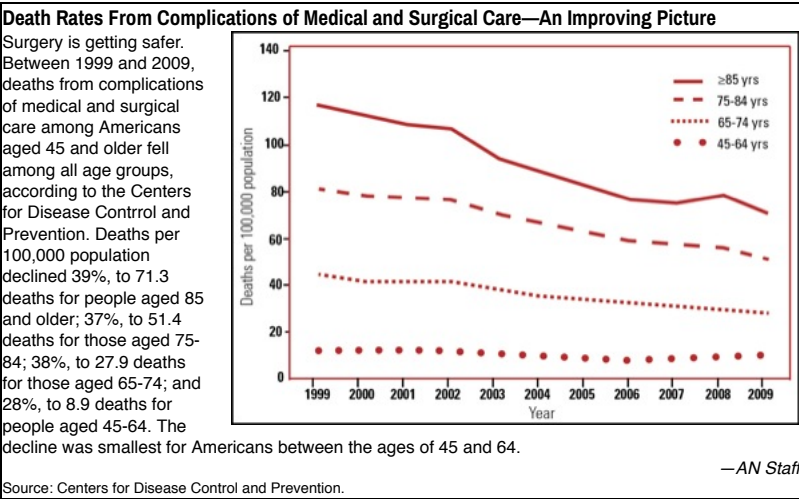
Dr. Calmes also recommended much stricter requirements in terms of who can perform liposuction. "Right now in California, I think you can watch a video and then perform the procedure and advertise yourself as a cosmetic surgeon," she said. Professional plastic surgery associations have pushed for this kind of tighter control, but as Dr. Calmes noted, "it seems like nobody is paying attention to them."

"The problem is not the board-certified plastic surgeons," she said. "The problem is the lower-level physician who wants to make a quick buck and the gullible patient who wants to go on a quick diet."

Elizabeth Frost, MD, professor of anesthesiology at Mount Sinai Medical Center, in New York City, pointed out that when it comes to a procedure like liposuction, consumers must be wary of how and where they spend their money. "Dr. Calmes decries the practice of tumescent liposuction by untrained or greedy physicians," Dr. Frost said. "I could not agree more. Certainly if states have provided guidelines based on best practice, they should be followed."

However, added Dr. Frost, a member of the editorial board of *Anesthesiology News*, "no evidence is presented that these deaths actually occurred at the hand of 'lower-level' individuals. As far as I know, most plastic surgeons are paid in advance and not by insurance. This is their practice and

they can hardly be condemned for it. As for the patient who wants a quick fix? How different is that from buying a lottery ticket? And as with so much in life, *caveat emptor!*"



- HIDE COMMENTS

Comment on This Article

venti.carla wrote on: 10/4/2014 5:37:11 PM (EST) 1271 days ago.

This comment is written in the spirit of hopefully educating those in the field, (and related fields), who wish to do the right thing. Also, perhaps prospective patients will find their way to this page.

1. I went to a Board Certified Plastic Surgeon. I was fit and healthy at that time.

2. While I was "unaware and unresponsive" the surgeon suctioned out areas of my body against my need, consent, or expectation. I emerged from surgery convulsing, with numbness, burn blisters, feeling hypothermic, trouble breathing, a true bloody mess... more problems than I can detail here. The surgeon's notes don't reflect what I told him or the truth, before or after surgery. Imagine that.

3. The surgeon I went to has hospital privileges

4. The facility, (that the surgeon owns himself), was nationally accredited.

I agree with the statement, (written by an anesthesiologist below), which states, "The plastic surgeons, who push the envelope in doing large volume liposuctions, combine liposuction with other procedures, and utilize general anesthesia, have the morbidity and mortality problems."

Many of the worst liposuction / plastic surgery horrors I know about have been at the hands of the Board Certified Plastic Surgeons, although Cosmetic Surgeons have also seriously and permanently harmed people I know.

Unbelievably, many doctors are performing liposuction that the patient does not want or need while they are "unaware and unresponsive" under anesthesia.

If you read the blogs and speak with harmed patients, they will tell you that their doctors are operating on non-consented areas, and removing more adipose that they agreed to or expected, in amounts and areas that normally cushion the body, and provide a needed layer of fat in between skin and underlying structure.

This is an ACTIVE national disaster.

No independent agency is actually tracking these things.

In my experience, (and the experience of other harmed patients I am in contact with), the plastic and cosmetic surgeons seem to be attempting to diminish, suppress, and invalidate the cries of the patients whose bodies and health they have ruined.

Surgery destroyed the supportive structures of my body. I am now disfigured, disabled, in ill health, and experience burning, extreme, and unrelenting pain.

Sadly, there is not solid accountability in the field of plastic surgery. When patients suffer multiple, severe health and / or contour problems due to the negligence of their surgeons, they are treated as though they somehow wrought these horrors upon themselves. This is incorrect, uncalled for, and serves to further hurt and victimize those who are already harmed.

I believe that a national consensus among legislators should incorporate SO many more points than the four that are outlined below. When I was looking for a reconstructive surgeon, I paid attention to those four points, (and more), yet voila, surgery with a "recommended expert" ended my quality life...

I liked my life.

To be very clear, I went in for a needed procedure. I truly valued my good health, and was very conservative, prudent, and protective in terms of plans for surgery. I choose the surgeon I did in part because he promised to be the most conservative, however, the surgery that was done on me while I was unconscious was egregious and contra-indicated. What was done to me should be a never-event.


I ask that ethical practitioners step up and speak up – without using the fallback that board certified plastic surgeons are somehow exempt, when the truth is that are among the worst offenders.


Regardless, the scientific studies show metabolic and other disease-related problems caused by liposuction. I don't feel it's ethical to create

unnecessary harm for patients.

Thanks to all who take this comment to heart with the gravity deserving of it.

It's time for solid legislative action, and real public awareness NOW.

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**jmcullen** wrote on: 11/5/2012 8:54:41 PM (EST) 1969 days ago.

This is a "must read" for all surgeons! Anesthesia for aesthetic plastics is our entire practice, and I must emphasize the studies by Domino, Bananaker and Hug that clearly warn that "MAC" cases are just as dangerous as general (references upon request). I believe that legislation puts a bias on the surgeon to push the limits of local, and actually do TIVA under the false premise that it's "just IV sedation," and therefore safe than GA.


I tell patients to ask their surgeon four questions:


1. Is the surgeon a board certified Plastic Surgeon (we do not work with "cosmetic surgeons."
2. Since patients are "unaware and unresponsive," this general anesthesia requires the same standard of care as a hospital, i.e an anesthesiologist immediately available if not doing the case themselves.
3. Does the surgeon have hospital privileges to do the proposed procedure?
4. Is the facility nationally accredited?

If there is ever to be a national consensus among legislators, it should incorporate these four points.

I encourage those interested to continue the conversation on the LinkedIn group: Office Based Anesthesiology


Jonathan McMullen MD


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**juroca45** wrote on: 10/23/2012 3:01:06 PM (EST) 1982 days ago.

We have more than 2500 liposuction with epidural analgesia. 0 death. Minimal or non severe, fat or tromboembolia , we make two epidural puntions, one T5-6 and other L1-2 both with epidural catheters. Avoid general anesth. Our results are really good.

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**draamakrides** wrote on: 10/20/2012 9:55:38 AM (EST) 1985 days ago.

Liposuction can be dangerous when practiced inappropriately and too aggressively. I am an anesthesiologist, in addition I have also trained in liposuction. The training I received was with the great innovator of tumescent anesthesia Dr. Jefferey Klein. The keys to safe liposuction are the following; 1. Not utilizing general anesthesia. General anesthesia renders patient unable to respond and thus give feed back to a potential misadventure with the canulas, also enables longer procedures. 2. Avoid combining liposuction with additional procedures such as abdominoplasty, breast augmentation, face lift...etc. 3. Limit total dose of lidocaine to 35 -40 mg/kg. 4. Avoid large volume liposuction. Stick to a maximum of 2-3 L of aspirate. 5. Only treat two area of the body in one setting. 6. Utilize microcanula technique. 7. Do not fluid overload patient.

Further state regulation and limits on physicians practice is unacceptable. We are in an era where physician extenders are expanding their practices and there are calls to limit physicians?... simply ludicris!

As Dr. Frost indicates there is no evidence that non core physicians have a greater morbidity and mortality than the core physicians. In fact, I believe that it is the plastic surgeons, who push the envelope in doing large volume liposuctions, combine liposuction with other procedures, and utilize general anesthesia, that have the morbidity and mortality problems.

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