



ENLIGHTENING COMBO

*Liposuction with laser assistance
and local anesthesia proves safe
and effective*

“Laser-assisted liposuction with local anesthesia may appeal to patients who might otherwise not consider a body contouring procedure.”

Christopher T. Chia, M.D.
New York

Cheryl Guttman Krader

SENIOR STAFF CORRESPONDENT

Outcomes from 1,500 consecutive cases of office-based, laser-assisted liposuction using local anesthesia show it is a viable alternative to liposuction under traditional anesthesia for body contouring in appropriately selected patients, says Christopher T. Chia, M.D.

In collaboration with his partner, Spero J. Theodorou, M.D., Dr. Chia initially conducted a review of their experience with 1,000 consecutive cases of laser-assisted liposuction (Chia CT, Theodorou SP. *Aesthetic Plast Surg.* 2012;36(4):795-802; Epub ahead of print). In a presentation at the New York Plastic Surgery Foundation's 2011 Cutting Edge Aesthetic Surgery Symposium, they reported on an expanded cohort that included data for 812 patients (1,500 cases) who were treated at a variety of anatomic sites and had fat aspirate volumes ranging from 50 mL to 1,400 mL.

Results in both the original and updated series showed laser-assisted liposuction with local anesthesia provided reproducible results and was associated with minimal morbidity. Overall, 99 percent of patients resumed normal daily activities by postoperative day two, only about 7 percent of patients required a touch-up. Complications, of which none were major, occurred at a rate of less than 1 percent.

“The complication rate and enhancement rate in this series compare favorably with outcomes reported for traditional liposuction. However, with avoidance of intravenous sedation or general anesthesia, the recovery time is much quicker, and so laser-assisted liposuction with local anesthesia may appeal to patients who might otherwise not consider a body contouring procedure,” says Dr. Chia, who is in private practice in New York and an attending surgeon, department of plastic surgery, Manhattan Eye, Ear & Throat Hospital.

STUDY DETAILS The 1,500 cases were performed over a 30-month period in an American Association for Accreditation of Ambulatory Surgery-accredited, office-based operating room and represented three sequential cohorts of 500 cases, each performed using different generations of an Nd:YAG laser lipolysis platform (Smartlipo, Cynosure). The first 500 cases were performed using the 1,064 nm single wavelength device (Smartlipo); the next 500 were done using the 1,064/1,320 nm dual wavelength system (Smartlipo MPX); and the last series was

done using the 1,064/1,440 nm wavelength combination of the triple wavelength laser (Smartlipo TriPlex).

“The different wavelengths target different chromophores; 1,064 nm has high affinity for methemoglobin and hemoglobin, 1,320 nm is absorbed primarily by water, and 1,440 nm has relatively high affinity for fat,” Dr. Chia says. “These wavelengths break fat apart by a photomechanical effect, and they also cause nonspecific thermal injury that leads to tissue contraction. In our practice, we find the combination of the 1,064 nm and 1,440 nm wavelengths to be quite effective, especially for fat emulsification.”

Various fiberoptic cable sizes were used (300, 600 and 1,000 microns), although Dr. Chia says the 1,000 micron cable is now used exclusively. Applied energy ranged from 1,500 J to 65,000 J per site, depending on the wavelength(s) used, and power settings ranged from 7 watts to 38 watts.

Liposuction was performed using suction only in some cases, but mainly with power assistance, which the surgeons say they prefer because it is easier, faster and more efficient.

HETEROGENEOUS GROUP The most commonly treated sites were the abdomen (33 percent) and flanks (24 percent), but 13 other anatomic areas were also represented. All Fitzpatrick skin types were included, and the patients had a wide age range (18 to 62 years), although the mean age was 27 years, and the majority of patients (58 percent) were 35 or younger. Eighty percent of the patients were women; body mass index was 30 kg/m² or less in all patients.

“There are no contraindications for laser-assisted liposuction based on patient skin type, although darker-skin patients may have some temporary hyperpigmentation at the access incision sites. While our cohort represents adults of all ages and is predominantly women, we are seeing trends for patients seeking liposuction to be younger than previously and to include a greater proportion of men. We have also noted an upward trend in the average number of procedures performed per patient,” Dr. Chia says.

OUTLINING ANESTHESIA Patients undergoing laser-assisted liposuction with local anesthesia are premedicated orally with

diazepam, hydrocodone with acetaminophen, and an antibiotic. The tumescent anesthetic used is a modified Klein's solution containing Ringer's lactate, sodium bicarbonate, epinephrine and lidocaine. Maximum volume of the solution is calculated to avoid exceeding a total lidocaine dose of 35 mg/kg body weight, and therefore multiple sessions may be needed to complete larger-volume liposuction procedures involving multiple sites, Dr. Chia notes.

He also points out that the tumescent anesthetic solution is infused through a small entry site created with a 14-gauge needle, and because the patients are awake, the solution is infused slowly to minimize discomfort related to tissue distention.

“The slower infusion of the tumescent anesthetic solution and laser lipolysis step increase the total operating time, but that is offset by eliminating the time for induction and awakening needed when using sedation and general anesthesia,” Dr. Chia says. “Furthermore, the safety results in our series suggest no increased risks associated with the longer operative time, and while there are also added costs for using the laser that amount to about \$200 taking into account disposables and per case cost of laser ownership, there is reduced need for physiologic monitoring and operating room personnel when liposuction is performed in an awake patient with local anesthesia. Other than the surgeon and the patient, the only other person in the operating room is one medical assistant.”

SAFETY LESSONS Reviewing complications encountered in the 1,500 case series, Dr. Chia notes there were four burns (0.27 percent), of which two were in the neck and two in the flank. Other complications included two infections (0.13 percent) and single cases of seroma and hematoma (0.06 percent each). Three of the four burns as well as the hematoma occurred within the first 25 cases performed.

“Practitioners should be aware of the potential for heat buildup and thermal injury when using the laser with overlapping approaches in areas with thin overlying skin and adjust the power setting in order to avoid burns,” Dr. Chia says.

He adds that after encountering a patient with a seroma, a closed suction drain is now placed routinely in all patients who have more than 1 L of aspirate removed from the abdomen. ◀

Disclosures:
Drs. Chia and Theodorou are consultants to Cynosure and Invasix.