

AN INNOVATIVE APPROACH TO MINI ABDOMINOPLASTY PROCEDURES USING EXCLUSIVELY LOCAL ANESTHESIA

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Abstract

In our study we aim to evaluate the patient’s peri-operative experience of performing a mini-abdominoplasty using only tumescent anesthesia. Fifty mini-abdominoplasties with liposuction, using tumescent anesthesia, were performed between 2017-2019 in an ambulatory setting. All participants were female with a mean age of 53 years old. Tumescent infiltration was achieved with a mixture of 50cc of 2% Xylocaine, 1cc of 1:1000 epinephrine, and 10cc of 0.8% sodium bicarbonate in 1 liter of normal saline. Liposuction and tissue excision were then completed with the patient completely conscious. A survey was then completed by patients. The mean amount of fluid aspirated with liposuction was 2462cc. The average dimensions of excised tissue measured 50.6cm in length by 11.6cm in height. Intra- and post-operative pain was rated as 1.9 and 3.9 on a scale of 1-10, respectively. Mean patient satisfaction was 4.3 out of 5, with 28 patients rating their results as excellent. There were no major or minor complications. Nine patients had some form of revision performed, of which 5 were scar revisions. The study results demonstrate that this procedure can be safely performed under exclusively local anesthesia with minimal pain for the patient as well as provide satisfactory results with minimal to no complications.

Introduction

Abdominoplasties are an increasingly more common cosmetic procedure with the goal of providing the patient with a tighter, slimmer, but natural looking abdomen. Similar to most surgical practices, it was primarily performed under general anesthesia. Placing someone under general anesthesia requires multiple well-calculated drug doses, equipment, and time. Induction requires the use of strong sedatives such as barbiturates or Propofol.

With such an intricate process one must consider the possible areas of error. Although exceptionally safe, Propofol still has a side effect profile of hypotension. Inhaled anesthetics can also cause hypotension by decreasing myocardial contractility and systematic vascular resistance.

Abdominoplasty under general anesthesia comes with extended surgical times, hospital stay, recovery time, and price. It is reasonable to comprehend why physicians and patients have sought out to increase the quantity of procedures performed out-patient. Procedures previously done under general, such as rhinoplasties, suction-assisted lipectomies, and breast augmentations are now accomplished in-office under local. The expanded use of local anesthesia for aesthetic procedures has prompted physicians to exercise it in abdominoplasties. In our literature review, we found a very limited number of studies that describe abdominoplasties under local anesthesia. During our search, we discovered that some implemented this technique but under conscious sedation. To the best of our knowledge studies focusing on abdominoplasty with solely local anesthesia are rare.

Klein’s tumescent has been used for liposuction procedures with excellent results and comes with additive benefits, which includes: reduced blood loss, hematoma formation, IV fluid requirements, and post-operative pain. Our objective is to analyze the outcomes, including complication and satisfaction rates, of mini-abdominoplasty procedures using only tumescent for anesthesia.

Methods

The patients were considered appropriate candidates for mini-abdominoplasty if they presented with draping skin in the lower abdomen and/or moderate to severe skin laxity. Patients took 5mg Ativan 1 hour prior to the procedure. Cephalexin was started one day prior to the procedure and continued for 7 days. All patients in the study underwent tumescent anesthesia only.

Tumescent anesthesia was prepared by mixing 50cc of a 2% Xylocaine, 10cc of 0.8% sodium bicarbonate and 1cc of 1:1000 epinephrine into a 1000cc bag of normal saline. The amount of tumescent administered to each patient was calculated using the maximal Xylocaine dose formula of 55mg/kg body weight, based on the American Society of Dermatologic Surgeons guidelines.

The body areas to be treated included the upper and lower abdomen and flanks. Three-millimeter access incisions were made in the waistline, in both lower quadrants and midline above mons pubis. Infiltration was carried out with a 1.5mm infiltration cannula using the Euromi Nutational Infrasonic Liposculpture™ device and a MD Resources infiltration system™. Suction was carried out with a Euromi 3G cannula or 3.5 Verona cannula. Markings were then made to delineate the dimensions of tissue to be removed. A horizontal line (8-10 cm) was made in the midline below the umbilicus. This excision line paralleled the excision line that was to be made at the top of the pubic hair line. The lower excision line was extended laterally approximately 1cm above the leg crease as it meets the abdominal wall. The upper excision line was “winged out” bilaterally, and then curved down to meet the end of the lower excision line. Tissue excision was then performed.

Once the tissue was totally excised, all small bleeding vessels were free-tied. Mean blood loss was 5cc. Subcutaneous tissue was approximated with 2-0 vicryl. Dermis was approximated with 0 Quill suture. Subcuticular tissue was closed with a 3-0 double armed Quill suture. Following closure, the surgical site was secured with Matisol skin adhesive and 1in steristrips. The patient was then placed into a compression garment with underlying abdominal pads. No surgical drains were placed. Vicodin 5mg is prescribed for post-operative analgesia. After discussion of post-operative management and follow-up scheduling, if the patient is able to ambulate and has no complaints, they have permission to go home. Patients are seen in the office around post-op days 7, 14, 30, and 90.

Patient charts were reviewed, with the following data assessed for this study: demographics, comorbidities, prior abdominal surgeries, surgery length, dimensions of tissue excised, volume aspirated with liposuction, amount of tumescent used, and any complications. Level of pain during and post-procedure, length of time for patient to return to activities of daily living, and overall patient satisfaction were evaluated through a questionnaire sent via email or by phone. Patients were also asked if they would prefer local or general anesthesia for their next procedure, as well as if they found it advantageous to go home the same day as their procedure.

Results

All of the patients were women with a mean age and BMI of 53yrs and 31.2, respectively. Mean total lipoaspirate collected was 2462cc. The mean total tumescent used during each procedure was 3619cc. Mean tissue length and height excised was 50.6cm and 11.6cm, respectively.

Patient’s rated their pain level during and after the procedure with a mean score of 1.9 and 3.9 out of 10, respectively. Thirty percent of patients stated that they were back to work within 1-3 days, 48% were back to work between 4-7 days, and 22% returned to work over 7 days later. Every patient found it advantageous to go home the same day as their operation. Patient satisfaction was measured as the following: 56% Excellent, 26% Very good, 12% Good.

No patient required IV fluids or blood transfusion. There were no minor complications including seroma, hematoma, superficial wound infection, wound dehiscence, or skin necrosis. Revisions were performed if the patient was not completely satisfied with their results. Mini-abdominoplasty revision was performed in 1 case (due to a “dog-ear effect” at the corners of the incision). Ten percent had liposuction performed again because of unevenness. Scar revision was completed in 10% of patients.



Figure 1. Pre-operative photographs of a 41-year-old female, with a plan to undergo abdominal/bilateral flank liposuction and mini abdominoplasty with exclusively tumescent



Figure 2. Photograph of the 41-year-old female in figure 1 on post-op day 14.

Discussion

Our study demonstrates that mini abdominoplasties can be performed without general anesthesia or conscious sedation. Intraoperatively, patients are not given a Foley catheter or pneumatic compression boots. Keeping the patient conscious negates these otherwise necessities.

Overall, we experienced no intra- or post-operative complications. Byun et al. believed substituting a scalpel for a Bovie device and infiltrating tumescent sufficiently were the cause of their complication-free results. We credit the low intra-operative pain level experienced by our patients, not only because of the tumescent, but also due to the absence of Bovie utilization. This eliminates muscle stimulation, thus decreasing pain.

Local anesthesia provides patients with a safe and comfortable experience along with several additional benefits. Since the patients are awake, the surgeon can place them in various positions to maximize thoroughness of the treated areas.

Another benefit of using local is the price reduction it provides for both the physician and patient. Lastly, avoidance of general anesthetic escapes the potential side effects of the multiple drugs used.

Conclusion

The results of our study support that found within the literature. No intra- or post-operative, major or minor, complications were encountered in this case series. Proper care with the surgical approach, tumescent infiltration, liposuction, and tissue excision facilitate positive outcomes. The fully-awake procedure saves the patient time, money, and allows one to quickly recover and return to work sooner.

We are enthusiastic about the high satisfaction rates experienced by our patients. Based on the survey, we recommend this approach to surgeons who feel comfortable with fully-awake procedures. Our results suggest that performing mini abdominoplasties with liposuction under local anesthetic can be a safe and effective procedure that has potential to be the new standard of care for patients without significant comorbidities.