Advanced Techniques in Abdominoplasty: Optimizing Results & the Patient Experience

Karol A Gutowski, MD, FACS
Private Practice
Clinical Associate Professor – University of Illinois, Chicago
Merz – Trainer, Advisory Board
Suneva Medical - Instructor
Will use brand names due to lack of distinguishing generic names
Abdominoplasty Evolution

- Panniculectomy
- Flap elevation and umbilical transposition
- Concurrent non-flap liposuction
- Extended & circumferential abdominoplasty
- Lipo-abdominoplasty (flap liposuction)
- No-drain techniques
- Enhanced recovery protocols
- Addition of energy devices?
Patient Concerns

• “Ideal candidate” by BMI
• Pain
• Downtime
• Scar
  – Too high
  – Too visible
  – Too long
• Unnatural result
  – Dog ears
  – Mons aesthetics
Solutions

- “Ideal candidate” by BMI
  - Extend BMI range

- Pain
  - ERAS protocols + NDTT

- Downtime
  - ERAS protocols + NDTT

- Scar
  - Scar planning
  - Too high
    - Incision markings
  - Too visible
    - Scar care
  - Too long
    - Explain the need

- Unnatural result
  - Technique modifications
    - Dog ears
    - Lipo-abdominoplasty
    - Mons aesthetics
    - Mons lift
Lipo-Abdominoplasty

Traditional limited liposuction with abdominoplasty

Extensive liposuction with abdominoplasty
Not a Lipo-Abdominoplasty Candidate
Lipo-Abdominoplasty

Liposuction Abdominoplasty: An Advanced Body Contouring Technique

Daniel Brauman, M.B.B.S., M.D.
Josephine Capocci, B.S.N., M.S.N.
White Plains, N.Y.

Background: Liposuction abdominoplasty was first performed by the author in 1997. In 2002, the procedure was presented as an "evolving concept" at the 71st Annual Meeting of the American Society of Plastic Surgeons. Over the next 6 years, an additional 294 procedures were added to the initial 43 \( n = 337 \) patients, culminating in an advanced body contouring technique.
Lipo-Abdominoplasty

Liposuction Abdominoplasty: An Advanced Body Contouring Technique

Aesthetic Evaluation of Lipoabdominoplasty in Overweight Patients

Osvaldo R. Saldanha, M.D., Ph.D.
Alessandra G. Salles, M.D., Ph.D.
Marcus C. Ferreira, M.D., Ph.D.
Francis Llaverias, M.D.
Luís H. U. Morelli, M.D.
Osvaldo R. Saldanha Filho, M.D.
Cristianna B. Saldanha, M.D.

Background: The aim of this study was to evaluate the aesthetic results of lipoabdominoplasty in overweight patients (body mass index, 25 to 29.9) compared with normal weight patients (body mass index, 18.5 to 24.9).

Methods: The authors performed a retrospective and comparative analysis of late follow-up results after lipoabdominoplasty performed from 2000 to 2009 in two groups of 30 patients, one with a body mass index of 25 to 29.9 and one with a body mass index of 18 to 24.9. Aesthetic results were evaluated using a scale with five objective parameters, developed in the Faculty of Medicine, University of São Paulo. There were seven evaluators: three plastic surgeons, three nondoctors, and the surgeon performing the procedure.

Results: For all evaluators, the postoperative average grade was significantly higher than before surgery for the entire group of patients (n = 60) and in subgroups. The results were lower for the overweight patients.
Lipo-Abdominoplasty

Liposuction Abdominoplasty: An Advanced Body Contouring Technique

Aesthetic Evaluation of Lipoabdominoplasty in Overweight Patients

Lipoabdominoplasty with Progressive Traction Sutures
Extended BMI Range

• Patients with BMI > 30 can still get good results
  – If fat is extra-abdominal
  – Use circumferential truck liposuction
• BMI alone is not the deciding factor
• Consider body shape and fat distribution
• Manage expectations
BMI 37.8
Circumferential Liposuction
Extended Lipo-Abdominoplasty
Circumferential Liposuction
Extended Lipo-Abdominoplasty
Circumferential Liposuction
Extended Lipo-Abdominoplasty
Circumferential Liposuction
Extended Lipo-Abdominoplasty
Too Many Dog Ears & Flank Excess
Patients Are Telling Us What To Do

More lipo on flanks needed? (Photo)

Not enough fat removed

Not enough skin removed

Will bunched up skin smooth out? (Photo)

12 weeks post op of a tummy tuck and liposuction done to the flanks. I was told they got 900cc of out each side of my flanks. But I'm not satisfied with my results. Could this still be swelling or is more lipo needed? I love how flat my stomach is but when I sit down my sides roll over so bad! At 12 weeks when will it be ideal to get more lipo done?

I tried calling the PS but have not gotten a response. Not sure traveling to Miami for sx was smart. Maybe being in home state would produce better response. I am 17 days post TT. I have a bunching of skin at the end of my incision. It looks and feels like maybe it's stitched too tight. Will this go away when the swelling goes down? What can I do to help it heal? Should I be concerned? Will I need more sx?
Prevent Abdominoplasty Dog Ears

- **Line** markings
  - Align tissue correctly
- **Liposuction** of flanks & love handles
  - Lateral debulking
- **Longer** incision
  - More lateral skin excision after debulking
- **Longitudinal** traction (NOT Lateral)
  - Prevent tissue from bunching up
Standing: Mark Vertical **Lines** Every 5 cm
Liposuction From Front & Back
Longer Incision Past Anterior Axillary Line

Potential dog ear

Textbook incision stops here
Longitudinal Pull for Marking Skin Excision

Lines maintain proper tissue position

Longitudinal pull

Skin excess & dog ear forming

Lateral pull
Need to Lower the Incision
Drain Free Procedures

- **Breast**
  - Reduction
  - Mastopexy
  - Augmentation

- **Trunk**
  - Abdominoplasty
  - Body lift

- **Extremity**
  - Arm lift
  - Thigh lift (depends)
Drains

• “Standard of care” for many procedures
• Benefit: often NOT proven
• Downside: pain, cost, less mobility, anxiety, phone calls, infection, scars
• Not substitute for good surgical technique
PTS Criticisms

• Requires an assistant
• Takes too long
• Does it really work?
• Cost

But I was trained to do it this way.......
Patient’s Perception of Drains

Tummy Tuck Q&A

Tummy Tuck Without Drainage Vs. with Drains?

Do tickets make a difference in swelling? I noticed that people who have tummy tucks without drainage seems to be more satisfied with tummy tucks done with. What is the difference?

Tags: COMPARISON, SWELLING, DRAINAGE

Answer this question

Tummy Tucks and Drains

Tummy tuck drainage at surgeon's discretion.

To drain or not to drain is at the surgeon's discretion as there is no consensus. The majority of surgeon's drain, some for just a couple of days, some for weeks. Some try to subdue the cavity closed thus eliminating the need for drainage. The main purpose is to prevent bloodstains or seromas from forming. It usually does not prevent long pasta from occurring and the amount of swelling should be less as drainage (which contributes to swelling) should also be less.

+2

Dr. T.W. Yuen, MD

Beverly Hills Plastic Surgeon

Is Drainless Tummy Tuck a Safe Procedure?

Drainless tummy tuck can be done safely without a drain. According to answers posted on the site it seems that performing a tummy tuck without a drain is not recommended. There was a similar debate concerning drains after a facelift many years ago, and again surgeons divided into those that did and those that did not. Today very few surgeons consider using a drain in a facelift procedure, and my feeling is that in tummy tuck in the future few surgeons will continue placing a drain. In our practice for the past nine years we have not.

+4

Dr. E. Johnson, MD

Chicago Plastic Surgeon

Drainless works in experienced hands

Drainless Tummy Tuck operations are performed by Plastic Surgeons who use a lifting technique. In this procedure, multiple layers are placed between the muscle and fat layer to lift the skin like a drawstring. It requires a bit more time in the OR and needs an experienced physician. We perform more than 100 Tummy Tucks a year and still use drains. Our complication rate with drains is extremely low, so I see no reason to add the time to the procedure.
Patient’s Perception of Drains

Recovering MARCH Tummy Tuckers!

By 3boys 1princess on 07 Apr 2011

Thought I would start another thread for recovery questions and comments. Here goes the first one...

How long have you had your drains or how long did you have them? I am 10 days out and still have both. NOT happy about that. Think that I am doing too much, but LIFE goes on. Was supposed to get 1 out tomorrow but drainage jumped back up to 40 today. YUCK!! Hope everyone is recovering nicely and if you have any questions or comments POST THEM HERE!!
Tissue Adhesives

- Lack of high-quality evidence to support TAs to prevent seroma after abdominoplasty
- Well-designed RCTs are needed
Progressive Tension Sutures: A Technique to Reduce Local Complications in Abdominoplasty

Harlan Pollock, M.D., and Todd Pollock, M.D.

Dallas, Texas
Individual Sutures
Progressive Inferior Tension

30 to 40 minutes
Introduction of Barbed PTS

Body Contouring

Abdominoplasty With Progressive Tension Closure Using A Barbed Suture Technique

ASJ 2009
Jeremy P. Warner, MD; and Karol A. Gutowski, MD

Ideas and Innovations

Use of Absorbable Running Barbed Suture and Progressive Tension Technique in Abdominoplasty: A Novel Approach

PRS 2010
Allen D. Rosen, M.D.
Morristown, N.J.
Subsequent Publications

Prevention of Seroma After Abdominoplasty

Gertrude M. Beer, MD; and Heinz Wallner, MD

Abstract

Background: Seroma is one of the most troubling complications after abdominoplasty, incidence rates of which are on the increase. Some studies have reported that the use of two separate subcutaneous layers may reduce the risk of seroma.

Objective: The authors present a series of consecutive cases in which the use of two separate subcutaneous layers has been applied in a group of 60 patients. The complications of seroma were evaluated.

Methods: A retrospective study was conducted in the Plastic Surgery Department of the Hospital of the University of Vienna from 2008 to 2019. The study included 60 patients who underwent abdominoplasty with the use of two separate subcutaneous layers. Follow-up was performed at 1, 3, and 6 months.

Results: The incidence of seroma was 5.0% (3/60 patients) with no significant differences in the incidence of seroma between the two groups. The patients who developed seromas underwent surgical intervention to drain the fluid.

Conclusions: The use of two separate subcutaneous layers in abdominoplasty can reduce the incidence of seroma.

Reducing Seroma in Outpatient Abdominoplasty: Analysis of 516 Consecutive Cases

John W. Antonetti, MD, and Alfred R. Antonetti, MD

Abstract

Background: The incidence of seroma after abdominoplasty is high. The use of modifications in surgical technique, such as the use of subcutaneous tissue flaps, has been shown to reduce the incidence of seroma.

Objective: The objective of this study was to analyze the incidence of seroma in a series of 516 consecutive outpatient abdominoplasties performed over a period of 10 years.

Methods: A retrospective review was conducted of all abdominoplasties performed in a private practice from 2008 to 2019. The patient records were analyzed for the incidence of seroma, and the surgical technique was examined.

Results: The incidence of seroma was 2.2% (11/516 patients). The patients who developed seromas underwent surgical intervention to drain the fluid.

Conclusions: The use of subcutaneous tissue flaps can reduce the incidence of seroma in outpatient abdominoplasty.

Commentary

Karl A. Gutowski, MD, FACS

Although seromas after abdominoplasty can be a cause of significant morbidity, early recognition and prompt intervention can minimize the need for additional surgical procedures. Early recognition and prompt intervention can minimize the need for additional surgical procedures.
Use of Quilting Sutures During Abdominoplasty to Prevent Seroma Formation: Are They Really Effective?

Marcos Sforza, MD; Rodwan Husein; Katarina Andjelkov, MD, PhD; Paulo Cesar Rozental-Fernandes, MD; Renato Zaccheddu, MD; and Milan Jovanovic, MD, PhD

Decrease in Seroma Rate After Adopting Progressive Tension Sutures Without Drains: A Single Surgery Center Experience of 451 Abdominoplasties Over 7 Years

Luis H. Macias, MD, FACS; Edwin Kwon, MD; Daniel J. Gould, MD, PhD; Michelle A. Spring, MD, FACS; and W. Grant Stevens, MD, FACS
Barbed Suture Technology
Barbed Suture Technology

Quill & Ethicon

Quill & V-Loc

Cost: $10 to $20
Barbed Progressive Tension Sutures
Barbed Progressive Tension Sutures

Finish lower abdominal PTS
Address the umbilical transposition
Barbed Progressive Tension Sutures

Protect the Needles
Barbed Progressive Tension Sutures

Use Non-Dominant Hand for Traction Toward Incision

- Traction
- Abdominal fat
- Rectus fascia
Unidirectional Barbed Suture

Rosen, PRS 2010
No Drain Body Contouring Patient

- Arm lift
- Mastopexy with lateral auto-augmentation
- Body lift
- Thigh lift
No Drain Body Contouring Patient

No undermining = no PTS

Undermining = PTS
No Drain Body Contouring Patient

After 2 weeks
No Drain Body Contouring Patient

After 3 months
Lipoabdominoplasty Without Drains or Progressive Tension Sutures: An Analysis of 100 Consecutive Patients

Sarah Epstein; Michael A. Epstein, MD, FACS; and Karol A. Gutowski, MD, FACS
No Drains No Suture
Treat Entire Trunk
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
No Drain Lipo-Abdominoplasty
Compression

TopiFoam

+ Compression Garment
+/- Soft Abdominal Binder
Technique Advantages

- Fast closure
  - 8 to 10 minutes additional time for PTS
- Can do without an assistant
- Maintains tissue approximation
  - Less tissue pull-through
- Eliminate abdominal drains
- Need for abdominal binder?
Seroma Treatment

- Aspirate if in doubt
- SeromaCath
- Scleroses
  - Doxycycline
  - Ethanol
- Excision
Not Using Drains is an Uplifting Experience!
A Better Patient Experience

- Modern pain control
- Minimize opioid medications
- Early mobilization
- No drain technique
- Compression garments, not stiff binders
Why is Non-Opioid Analgesia Important

- Opioid epidemic
- Less opioid use
- Less PONV
- Faster transfer from PACU
- Faster discharge home
- Normalized physiology (RR, HR, BP)
- Decreased surgical stress response?
- Decreased risk of long-term pain & CRPS?
- Better patient reviews on RealSelf
Liposomal Bupivacaine (Exparel)

• Controlled bupivacaine release
• Pain relief 2 to 3 days
• Can’t mix with lidocaine within 20 min
• May be an “add on” cost
• Mixed results in breast augmentation
• Use in plastic surgery not standardized

Systematic Review of Liposomal Bupivacaine (Exparel) for Postoperative Analgesia

Krishna S. Vyas, M.D., M.H.S.
Sibi Rajendran, B.S.
Shane D. Morrison, M.D., M.S.
Afaaf Shakir, B.S.
Samir Mardini, M.D.
Valerie Lemaine, M.D., M.P.H.

Background: Management of postoperative pain often requires multimodal approaches. Suboptimal dosages of current therapies can leave patients experiencing periods of insufficient analgesia, often requiring rescue therapy. With absence of a validated and standardized approach to pain management, further refinement of treatment protocols and targeted therapeutics is needed. Liposomal bupivacaine (Exparel) is a longer-acting form of traditional bupivacaine that delivers the drug by means of a multivesicular liposomal system. The effectiveness of liposomal bupivacaine has not been systematically analyzed relative to conventional treatments in plastic surgery.
Liposomal Bupivacaine – Big Picture

• **Lack of evidence** prevents assessment of liposomal bupivacaine as a peripheral nerve block (2016)
• Liposomal bupivacaine at surgical site (2017)
  – Does appear to reduce pain compared to placebo
  – Limited evidence does NOT demonstrate superiority to bupivacaine
Preemptive & Preventive Analgesia

- Preemptive analgesia (before incision) effectiveness is debatable
  - Local anesthetic at incision sites (mandatory in MAC cases)
  - Preoperative oral NSAIDs, acetaminophen (useful for short cases)
- Preventive analgesia (after incision) effectiveness is debatable
- Has to be part of ERAS protocol

Preemptive, Preventive, Multimodal Analgesia: What Do They Really Mean?

Eric B. Rosero, MD, MSc, Girish P. Joshi, MBBS, MD, FFARCSI, Dallas, Tex.

Summary: To improve postoperative pain management, several concepts have been developed, including preemptive analgesia, preventive analgesia, and multimodal analgesia. This article will discuss the role of these concepts in improving perioperative pain management. Preemptive analgesia refers to the
Transversus Abdominis Plane (TAP) Block

- TRANSVERSUS ABDOMINIS PLANE (TAP)
- Between transversus abdominis and internal oblique muscle
- 30 mL 0.25% ropivacaine or bupivacaine (with Epi) per side
- Ultrasound guided by anesthesiologist
- Open access by surgeon intraoperative
Transversus Abdominis Plane (TAP) Block
Intraoperative TAP Block

- Anterior cutaneous branch intercostal nerve
- EOM
- IOM
- TAP (green)
- TAM
- Local anesthetic (30cc bolus)
- Ventral ramus of intercostal nerve
- Regional Block needle within the TAP
- Lateral cutaneous branch intercostal nerve

Oblique cross-section at T11 dermatome
Abdominal Wall Disruption
Abdominal Wall Hernias & Diastasis
Outpatient & Fast Recovery
Abdominoplasty Intraoperative TAP Block

• 10 ml 0.5% bupivacaine 0.5% + 10 ml 1% lidocaine with Epi
• Reduced morphine requirement
• Earlier ambulation
• Lower pain scores

**Transversus Abdominis Plane Block Anesthesia in Abdominoplasties**

*Background:* The transversus abdominis plane block is a promising approach to the provision of postoperative analgesia following abdominal incision. This effective method blocks the sensory nerve supply to the anterior abdominal wall. The authors evaluated its analgesic efficacy over the first 12 postoperative hours after abdominoplasty with liposculpture in a randomized, controlled, double-blind clinical trial.
Transversus Abdominis Plane (TAP) Block

- 1 cm incision in facia
- Blunt dissection through EOM & IOM
- Short infiltration cannula into TAP
- Figure 8 suture in fascia
NSAIDs Are Safe in Plastic Surgery

Time to dispel myth of NSAIDs causing bleeding in breast & body cases

Ketorolac Does Not Increase Perioperative Bleeding: A Meta-Analysis of Randomized Controlled Trials

Ryan M. Gobble, M.D.
Han L. T. Hoang, M.D.
Bart Kachniarz, B.A.
Dennis P. Orgill, M.D., Ph.D.

**Background:** Postoperative pain control is essential for optimal patient outcomes. Ketorolac is an attractive alternative for achieving pain control postoperatively, but concerns over postoperative bleeding have limited its use.

**Methods:** Computer searches of the MEDLINE, EMBASE, and Cochrane Library databases were performed. Twenty-seven double-blind, randomized,

Ibuprofen May Not Increase Bleeding Risk in Plastic Surgery: A Systematic Review and Meta-Analysis

Brian P. Kelley, M.D.
Katelyn G. Bennett, M.D.
Kevin C. Chung, M.D., M.S.
Jeffrey H. Kozlow, M.D., M.S.

**Background:** Nonsteroidal antiinflammatory drugs such as ibuprofen are common medications with multiple useful effects, including pain relief and reduction of inflammation. However, surgeons commonly withhold all nonsteroidal antiinflammatory drugs perioperatively because of bleeding concerns. However, not all nonsteroidal antiinflammatory drugs irreversibly block platelet function. The authors hypothesized that the use of ibuprofen would have no
Team Effort with Anesthesiologist

- Seek out those who want to give a better patient experience
- Collaborate on ERAS protocols
- Give them patient feedback
- Learn from each other
Lipo-Abdominoplasty & Body Lift Protocol

- Gabapentin 300 mg PO (#40)
  - 600 mg at bedtime before surgery, then every 6 hrs x 3 to 5 days
- TAP or RS block
- SQ tumescent infiltration (500 mg lidocaine/L + epi)
- Ketorolac 30 mg IV during skin closure
- Tramadol 25 mg before discharge
- Acetaminophen 500 mg + NSAID of choice every 4 hr
- Oxycodone + acetaminophen (5/325 mg) as needed (#24)
- Ondansetron 4 mg ODT prn #4
Advanced Techniques in Abdominoplasty: Optimizing Results & the Patient Experience

Karol A Gutowski, MD, FACS
Karol@DrGutowski.com

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