Abdominoplasty & Circumferential Body Contouring For Massive Weight Loss

E. Antonio Mangubat, MD

Tony@Mangubat.com

(206) 304-4000

Myur Srikanth, MD, FACS FAACS

DISCLOSURE OF CONFLICTS OF INTEREST

E. Antonio Mangubat, MD

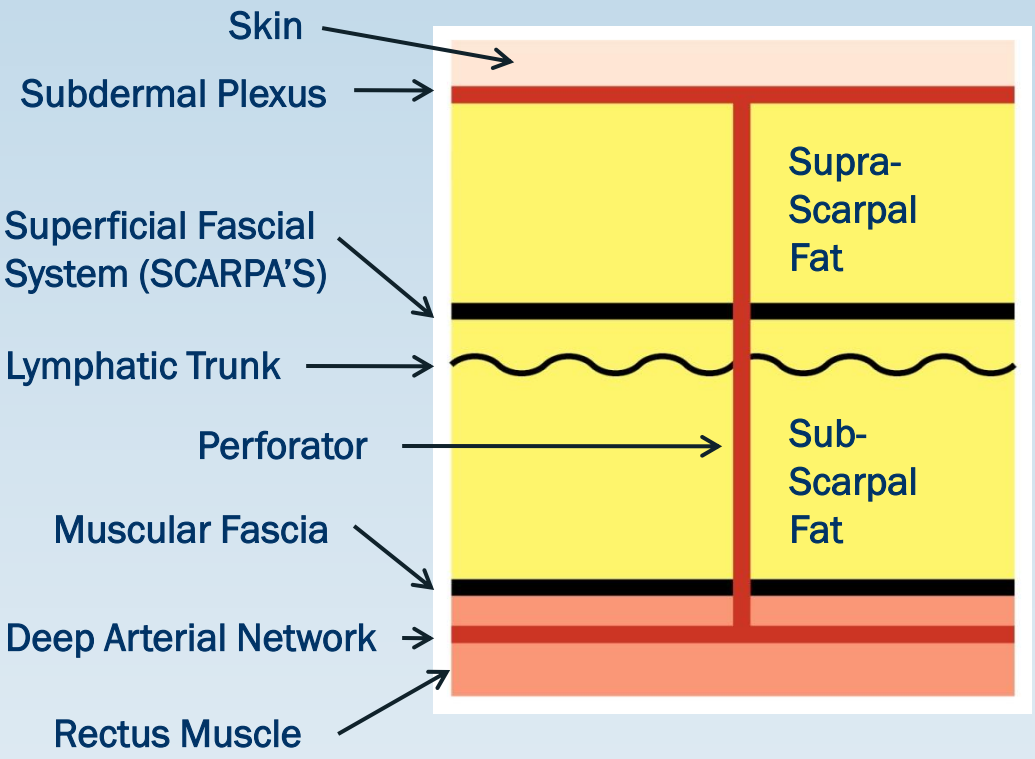
- Apyx Medical
- Solta Medical

Abdominoplasty

Introduction

- Anatomy and physiology
- History
- Clinical approach
  - Abdominoplasty
  - Massive weight loss considerations
- Traditional vs. Lipo Abdominoplasty
- Discussion

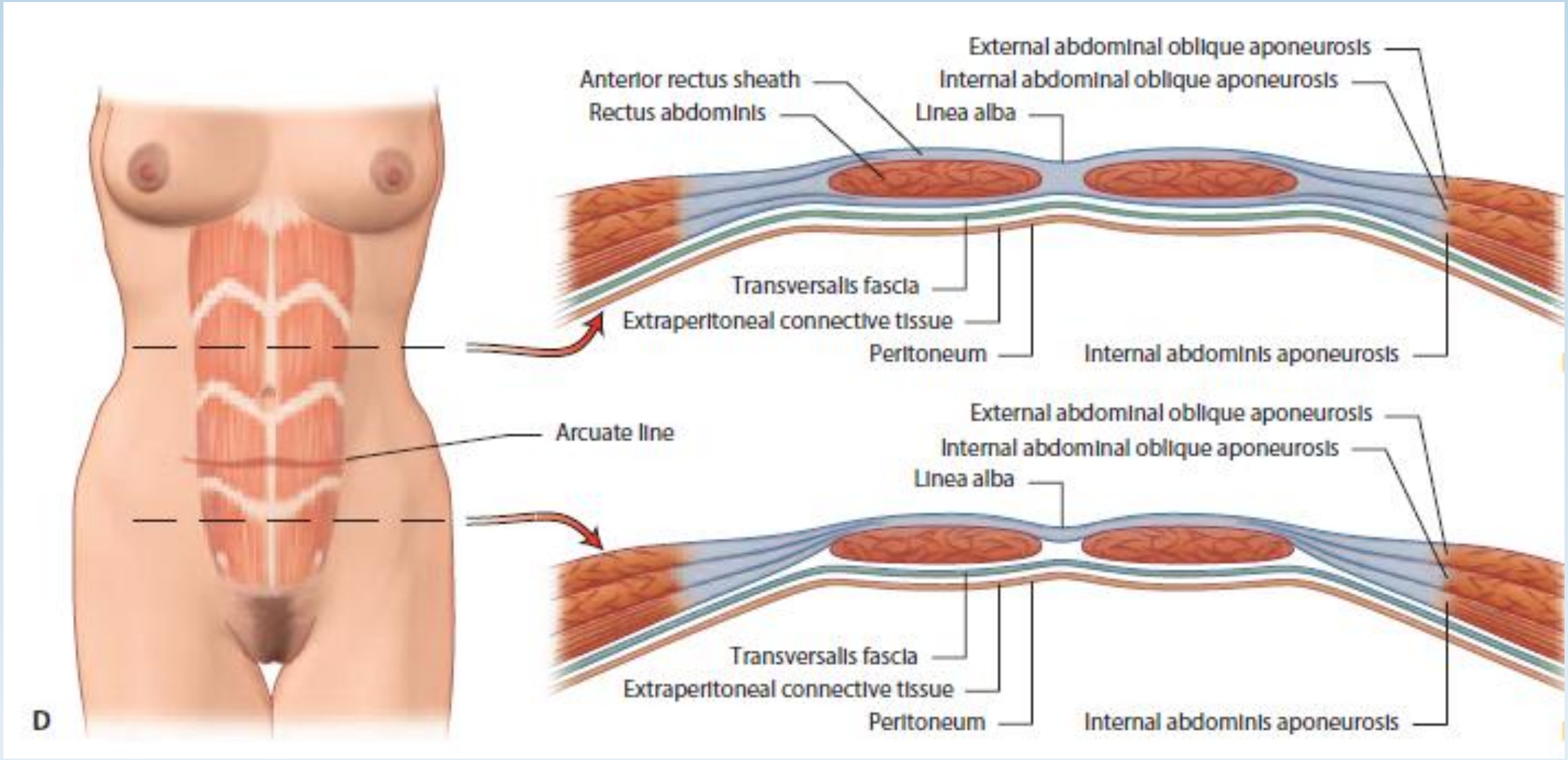
Anatomical Considerations



- **Supra-Scarpal Fat**
  - Dense
  - Robust blood supply (subdermal plexus & perforators)
  - **Preservation of adequate amounts of this fat is critical to maintaining blood supply to the overlying skin**
- **Scarpa**
  - **Tough, can be used to secure flap approximation & internal thigh lifts**
  - **Preservation decrease the risk for seromas** thought to be by **preservation of lymphatic trunk**
- **Sub-Scarpal Fat**
  - More likely to be rendered ischemic during abdominoplasty – can be removed by direct excision or liposuction

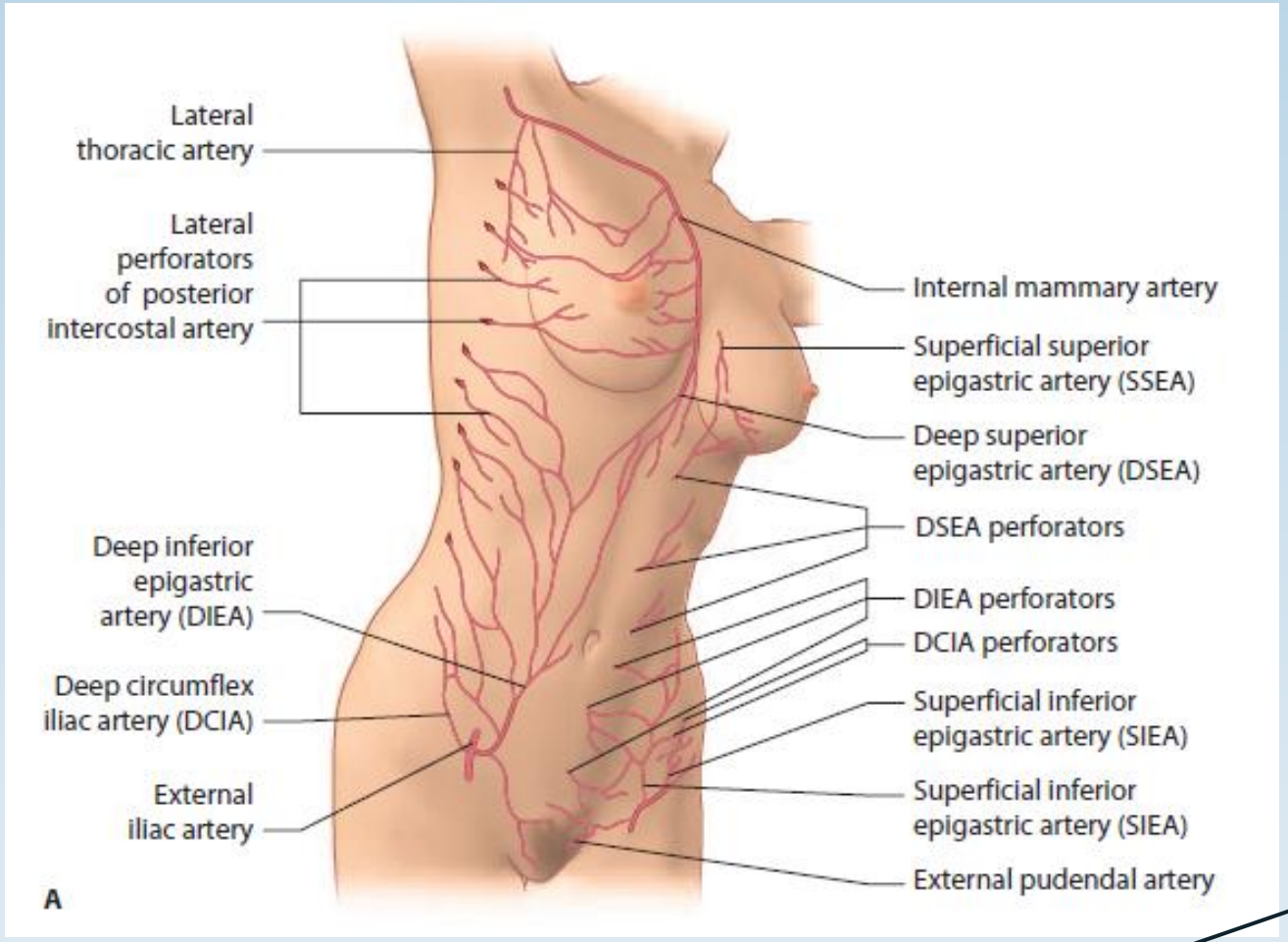
Abdominal Musculoaponeurotic System

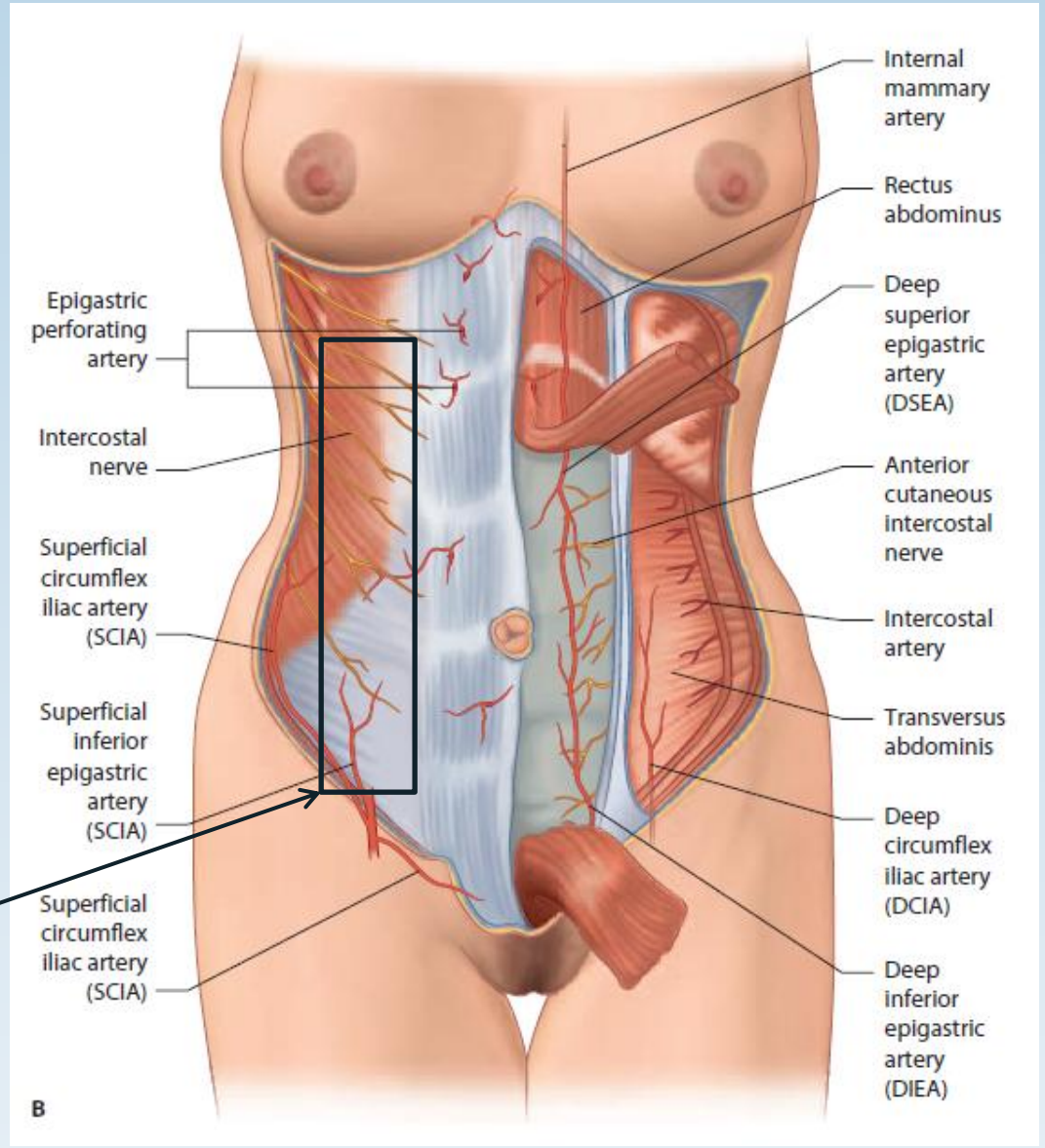
Soft tissue layers of the abdominal wall



Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. Pg. 8, Fig. 2.4 A; D-F

Abdominal Wall Blood Supply

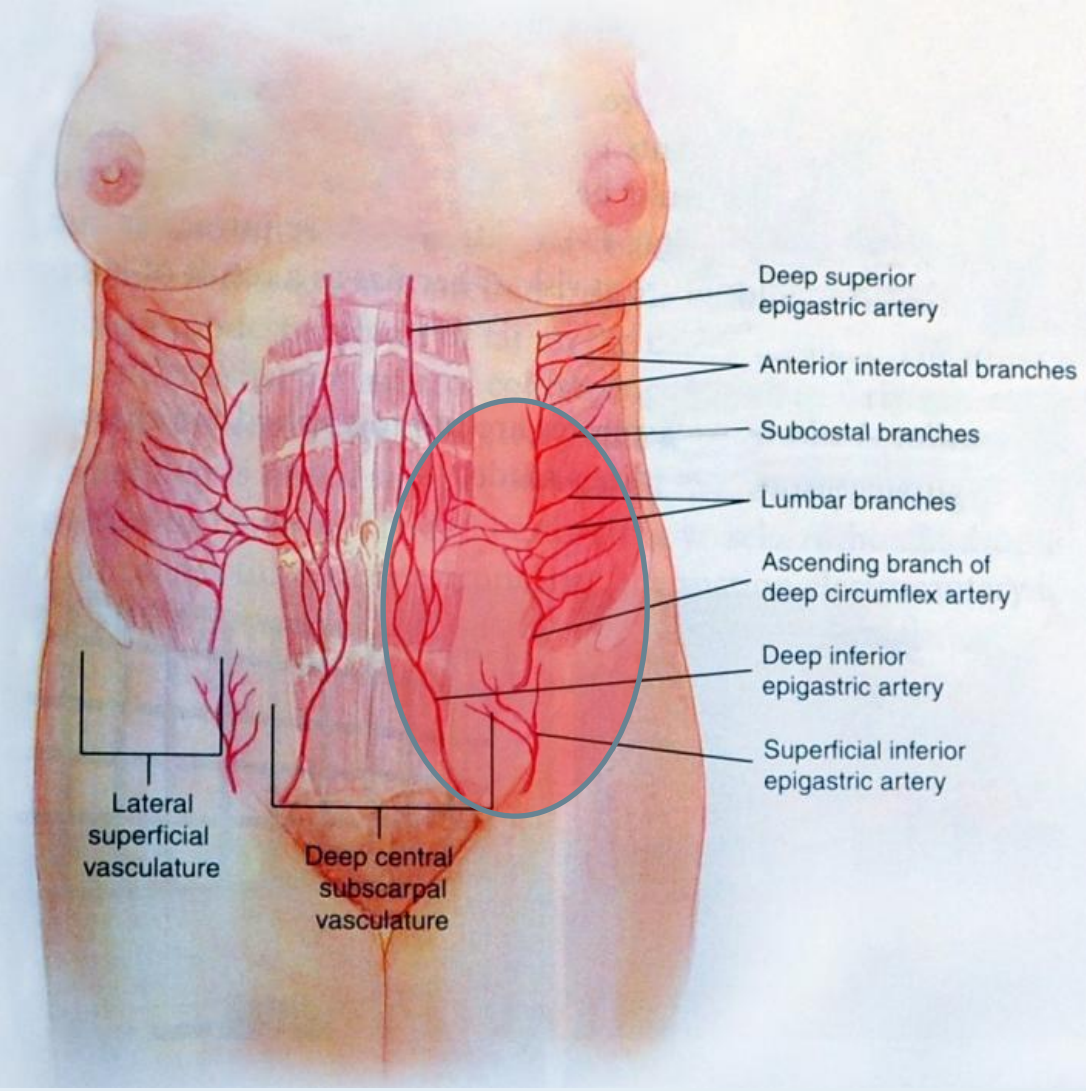




Five perforators to the skin on each side emerge through the anterior rectus sheath and receive the majority of their inflow from the deep inferior epigastric artery (DIEA).

Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. Pg. 10, Fig. 2.5 A, B

Abdominoplasty Flap Blood Supply



- **Before flap elevation** is from "deep central" fat supplied by rectus muscle perforators (deep superior and inferior epigastric arteries) to "lateral superficial" fat.
- **After flap elevation** this is reversed blood flows from lateral superficial fat (through intercostal subcostal and lumbar vessels towards the deep central fat).

Extensive undermining over anterior rectus sheath can threaten the blood supply to the abdominal flap.

Photo credit: The Art of Aesthetic Surgery, pg. 2696;
Body Contouring After Massive Weight Loss, pg. 197

Posterior Abdominal Wall Blood Supply

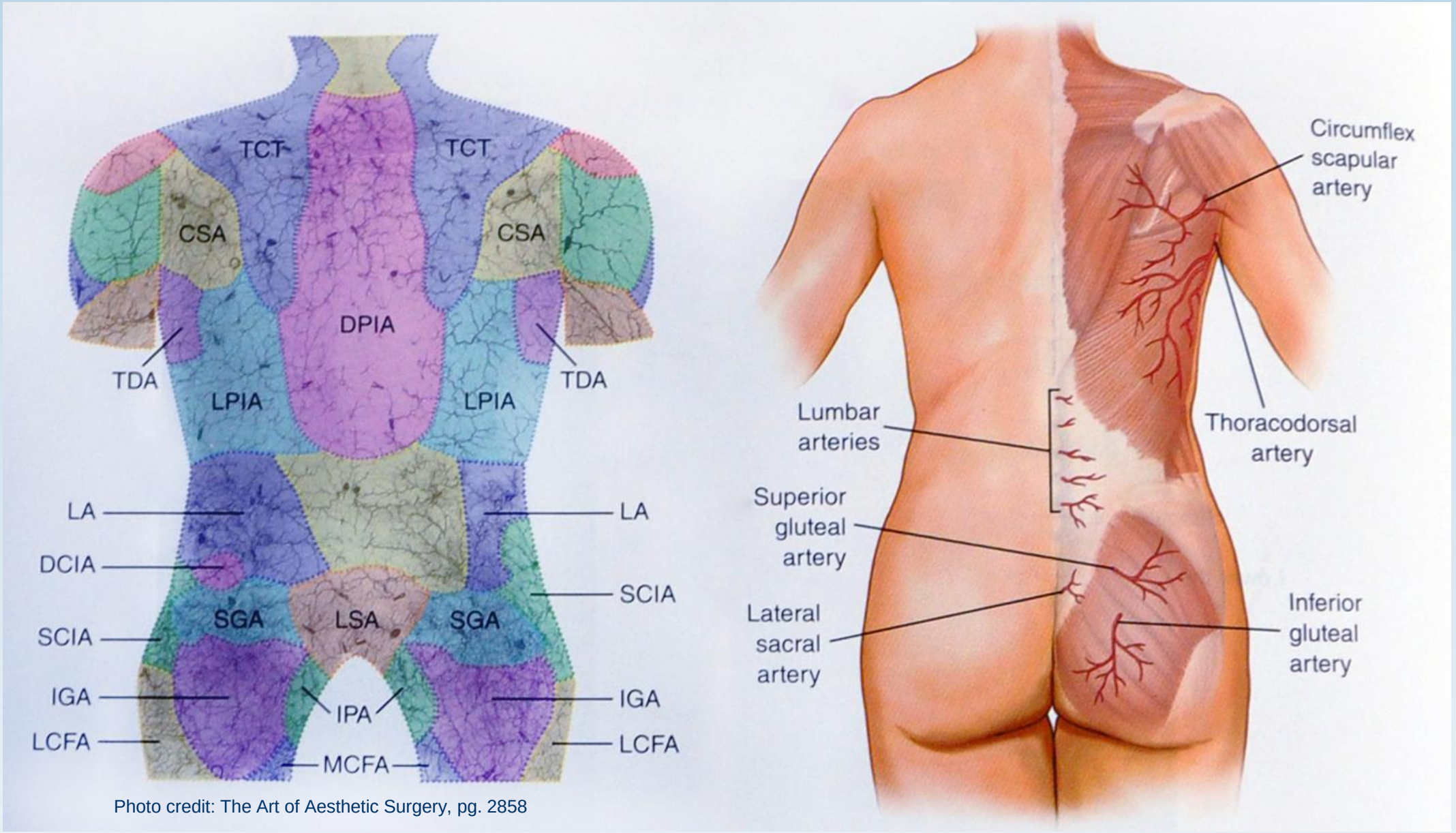


Photo credit: The Art of Aesthetic Surgery, pg. 2858

Umbilicus

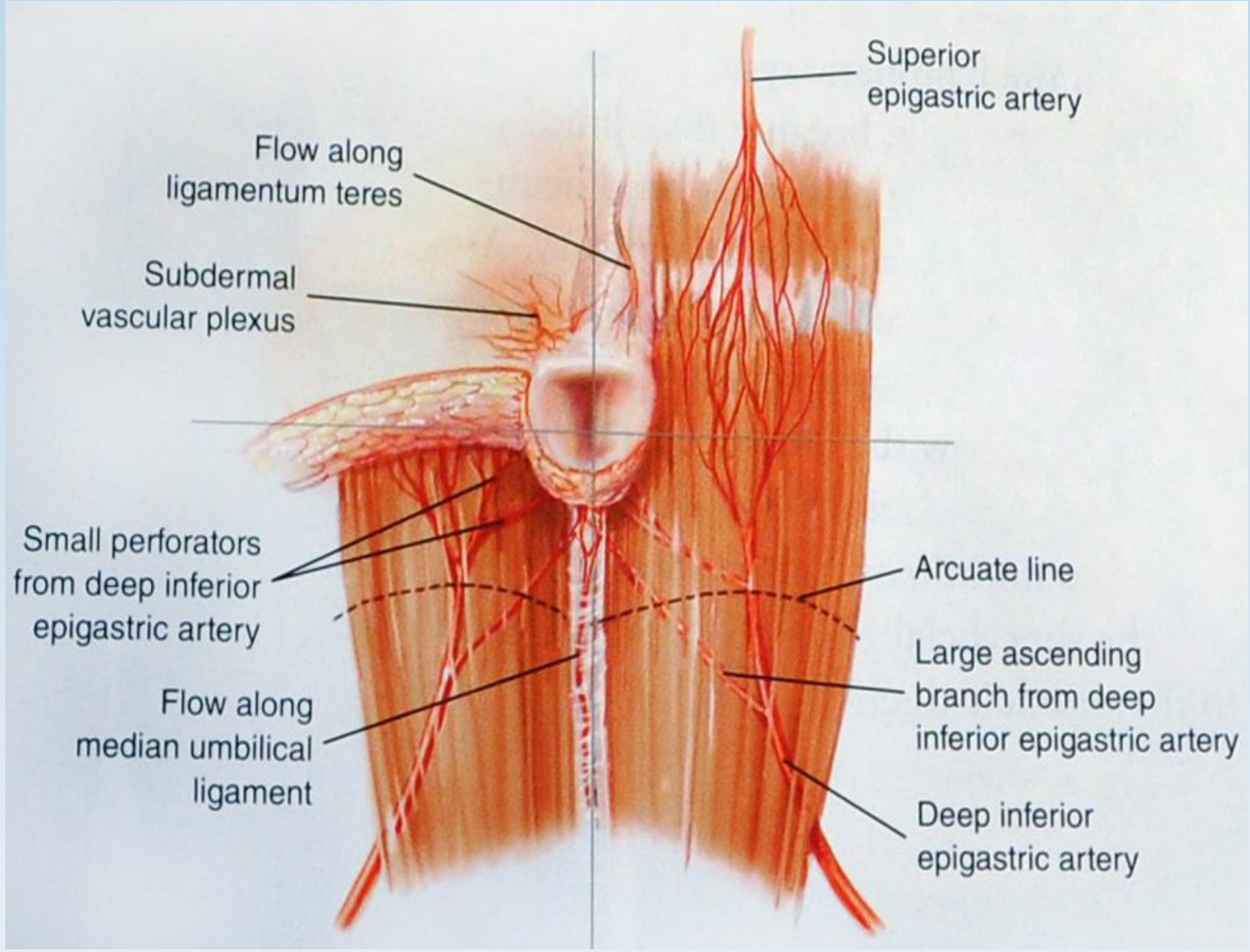
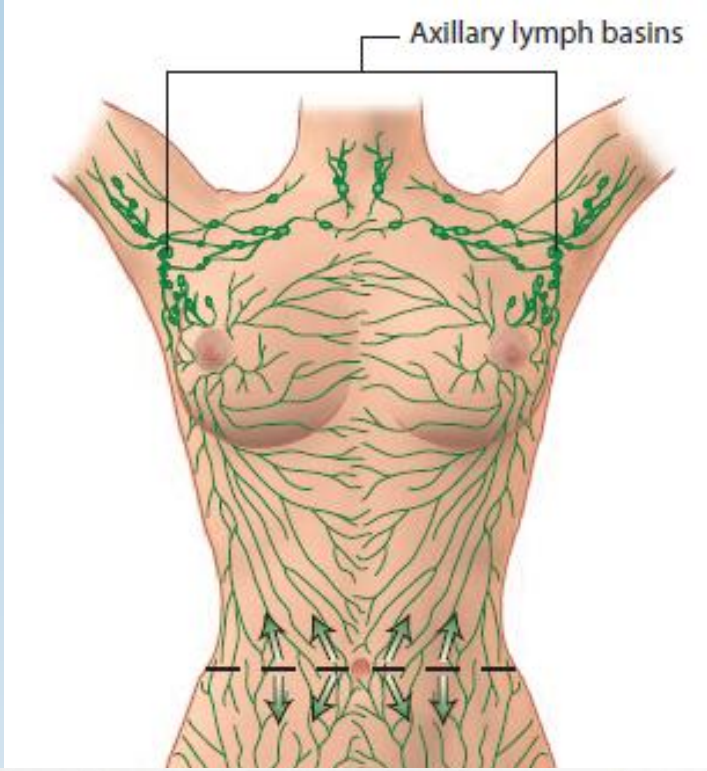


Photo credit: The Art of Aesthetic Surgery, pg. 2941

- 14 cm above pubic symphysis or 10 cm above the pubic hair (at the top of the iliac crest)
- Morbidly obese
  - Stretched, distorted, elongated
  - Weak periumblical fascia
  - **High risk for periumbilcal defects, hernias and bowel injury**

Lymphatics

- **Lymphatic plexus**
  - Sub-scarpal fat layer
- **Umbilicus is a natural watershed**
  - Drains to the superficial inguinal lymphnodes below the umbilicus and above the umbilicus to the pectoral axillary lymphnodes



Preservation of Scarpa's decreases the risk for seromas – esp. in the lower abdomen (Avelar Technique preserves this, hence the need for no drains)

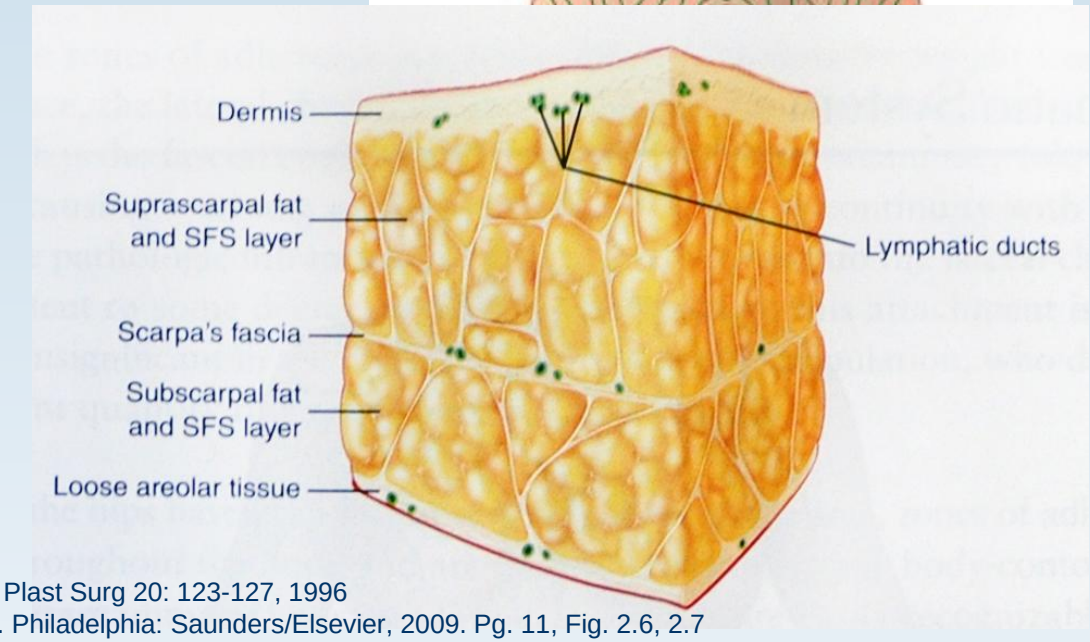


Photo credit: The Art of Aesthetic Surgery, pg. 2687-8

Ref – Le Lourarn C, Partial subfascial abdominoplasty. Aesthetic Plast Surg 20: 123-127, 1996

Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 11, Fig. 2.6, 2.7

Important Considerations in Massive Weight Loss

- **Background** – post pregnancy; post weight loss
- **Weight** – stability, BMI <30
- **Co-morbidities** – **Sleep Apnea**, diabetes, HTN, CAD, **Pulmonary Problems – COPD, h/o VTE**
- **Prior abdominal surgeries** – scars, location
- **Would healing problems** – e.g., keliods
- **Medications** –**blood thinners**
- **Chronic pain issues**
- **Immunodeficiency** – steroids, immunosuppresants
- **Lifestyle** – nutrition, activity, occupation, **NO smoking** or excessive alcohol use
- **Patient expectations** – motivated, realistic

Pre-Op Preparation

- Smoking cessation – 4-6 weeks prior
- D/C all blood thinners for 2 weeks (with PCP's concurance)
- D/C all herbal products & supplements not approved by the surgeon for 2 weeks prior (e.g. fish oil, omega-3, vitamin E, etc.)
- Medical clearance
- Wearing an abdominal binder for 2 weeks prior to surgery
- Antimicrobial soap/cloth (e.g., Chlorhexidine Gluconate 2%) night before and morning of surgery

Realistic Patient Expectations

- “I want a flat belly.”
- “I just want the lose skin to be gone.”
- “I want a slim waist.”
- “I want a 6-pack.”
- “I have ugly scars from previous surgery can you get rid of them?”
- “My tummy is just too poochy after I had my babies.”
- Does patient want to look great in her clothes or out of them?

Exam

- **Skin**
  - Elasticity
  - Areas of Redundancy
  - Striae – location, extent – is it above or below the umbilicus?
  - Inform the patient what is likely to be left behind and that tight skin will loosen with time.
- **Striae**
  - Attenuated/absent dermis, risk of wound separation
- **Fat Distribution** – Intra-Abdominal vs Subcutaneous
- **Zones of Adherence**
- **Muscle/Fascia** – Hernia, Diastasis
- **Scar**

Zones of Adherence

- Natural moorings of the subcutaneous tissues to the underlying fascia
- Inflation and deflation of skin and subcutaneous tissues happens between theses zones.
  - Midline
  - Transversely across the upper abdomen and both groins

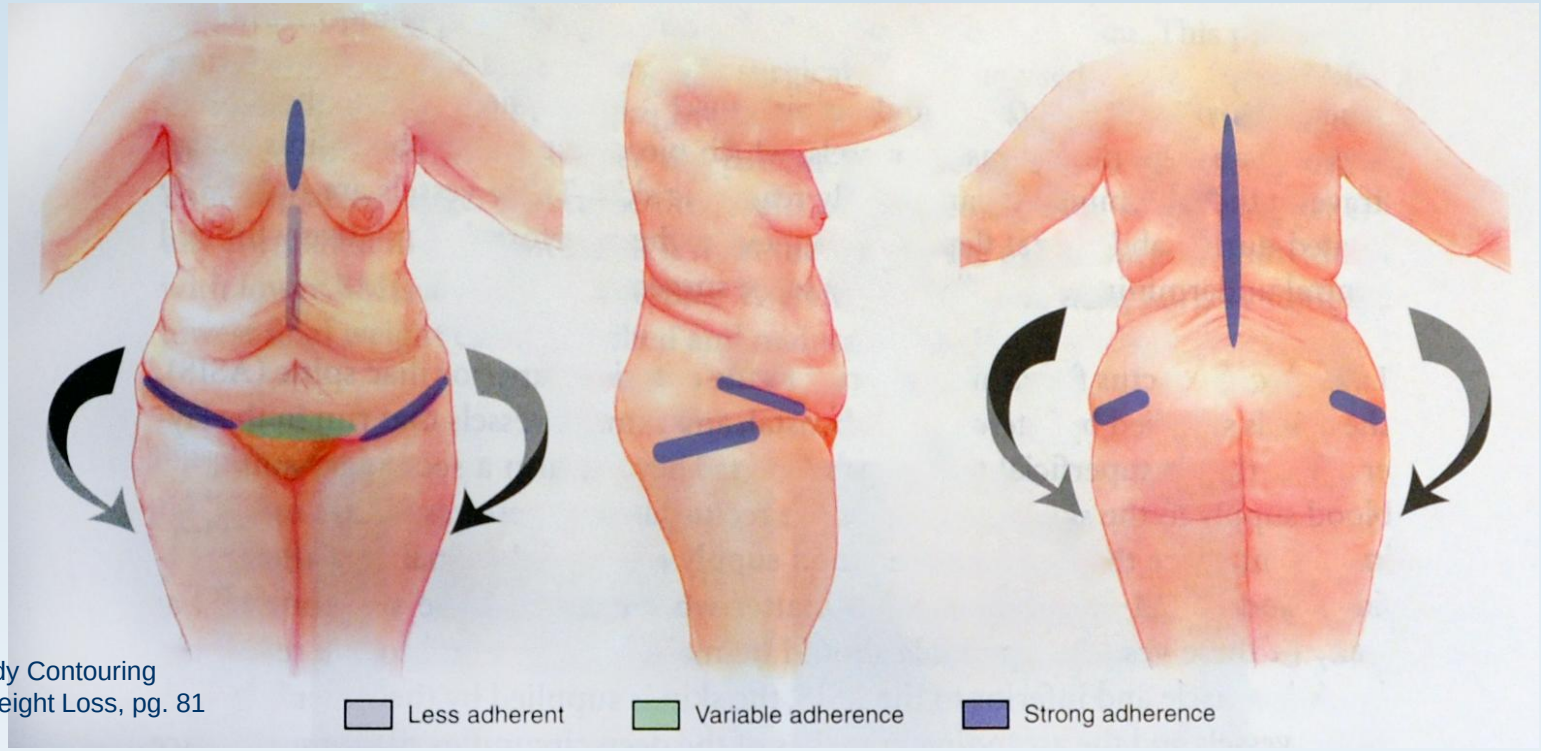


Photo credit: Body Contouring
After Massive Weight Loss, pg. 81

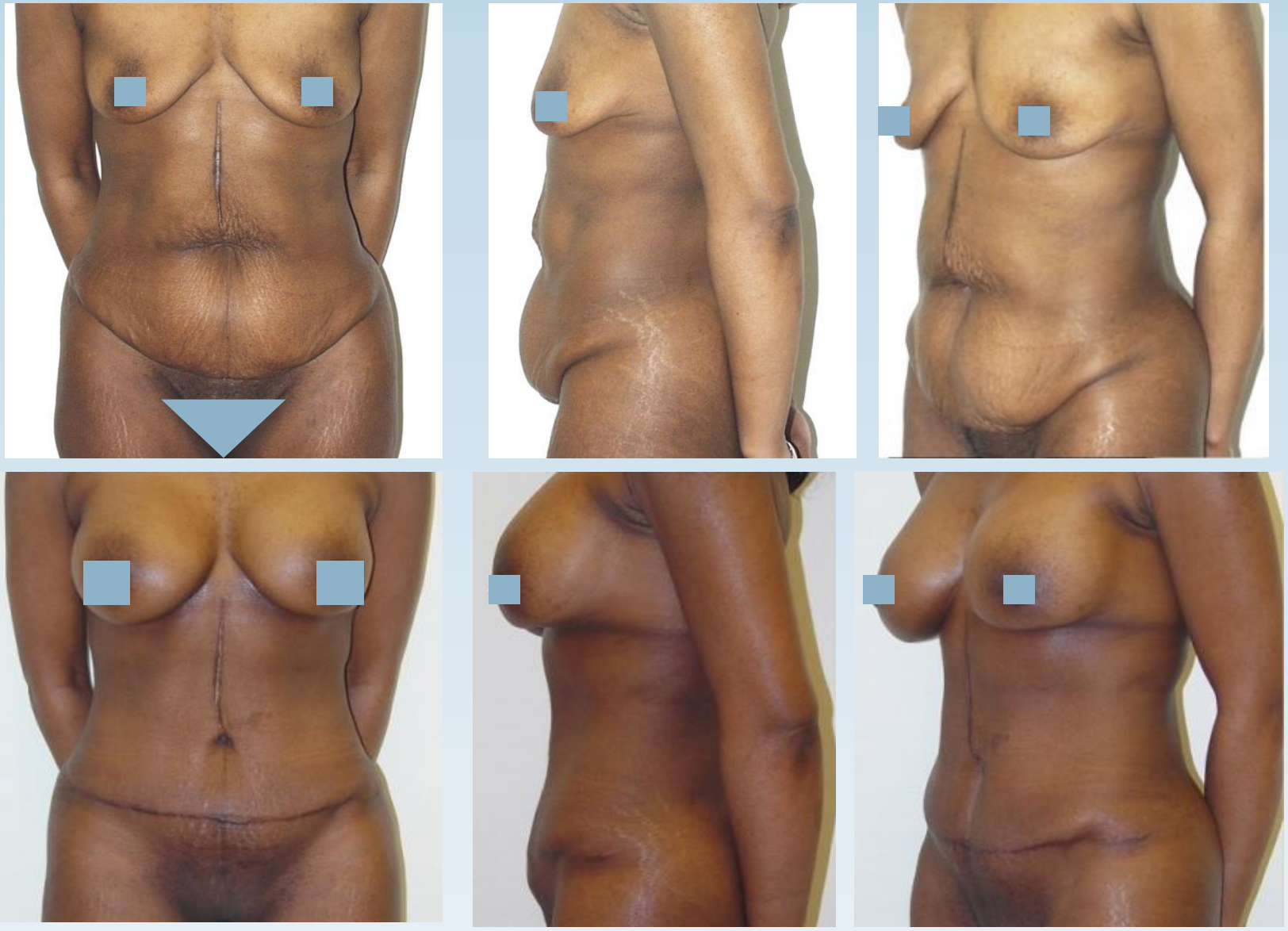
Abdominoplasty Assessment

Loose skin and lipodystrophy of the abdomen, waist, hips and back.

Lipo-abdominoplasty, Liposuction, waist & hips

Case Study

Upper midline scar, minimal lipodystrophy and significant loose skin,

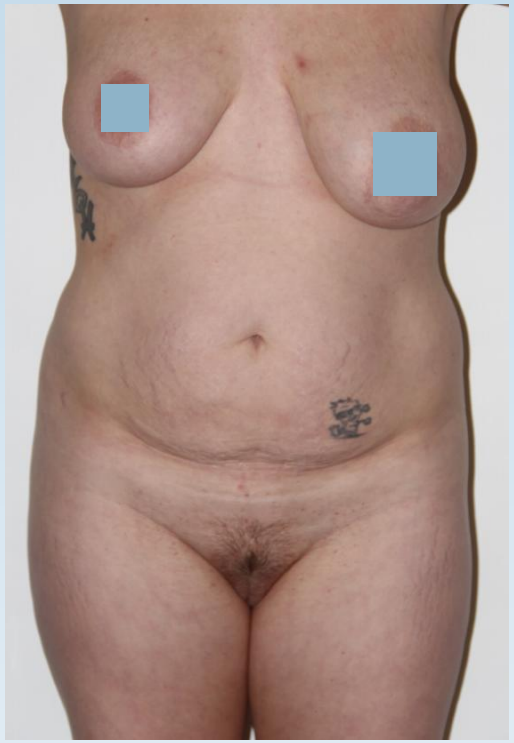


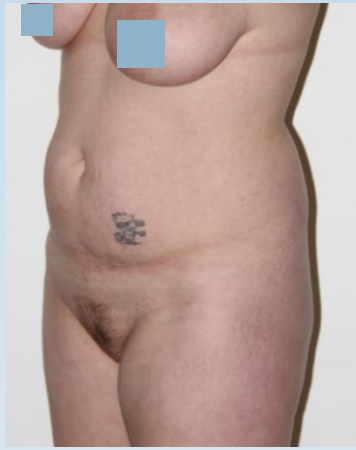
Traditional Abdominoplasty

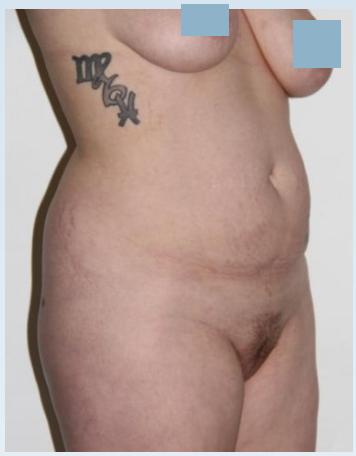
9 Months Post-Op

Abdominoplasty Assessment

No skin excess above the umbilicus, high riding umbilicus, some fatthe abdomen and moderate amount of loose skin below the umbilicus.





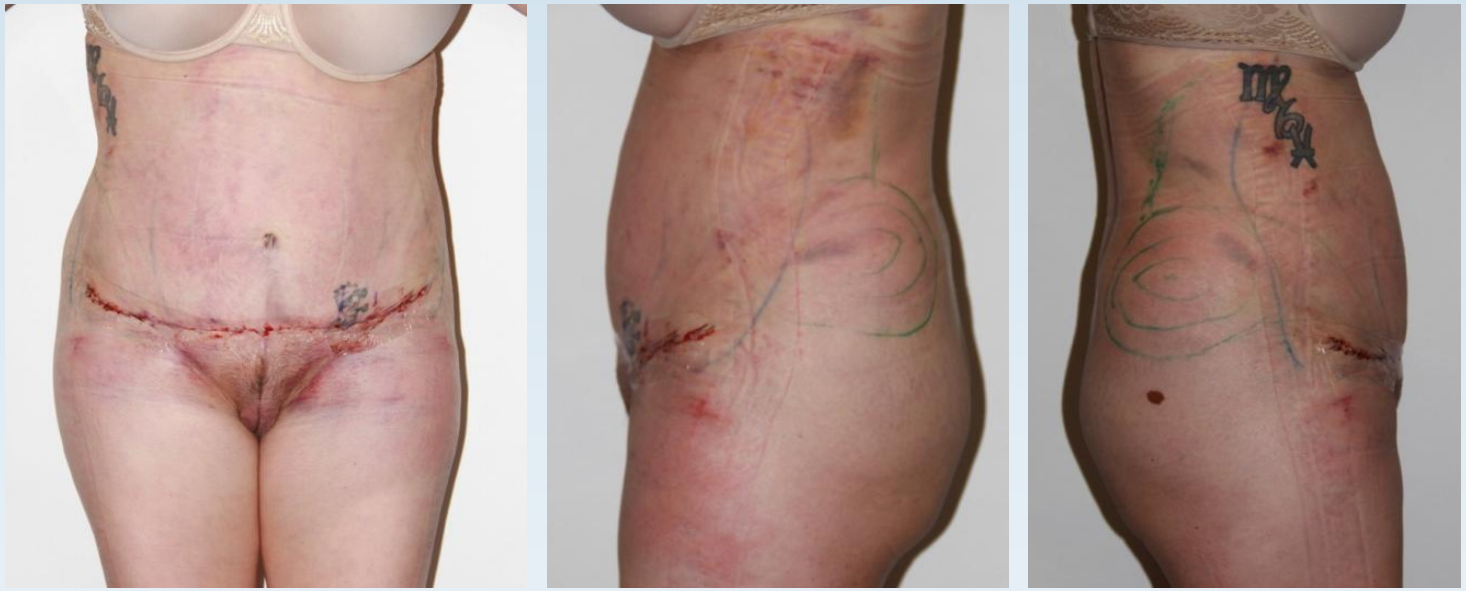


Plan: Liposuction and Mini-Abdominoplasty

Abdominoplasty Assessment

No skin excess above umbilicus, some lipodystrophy of the abdomen and moderate loose skin below the umbilicus.

Liposuction and
Mini-Abdominoplasty



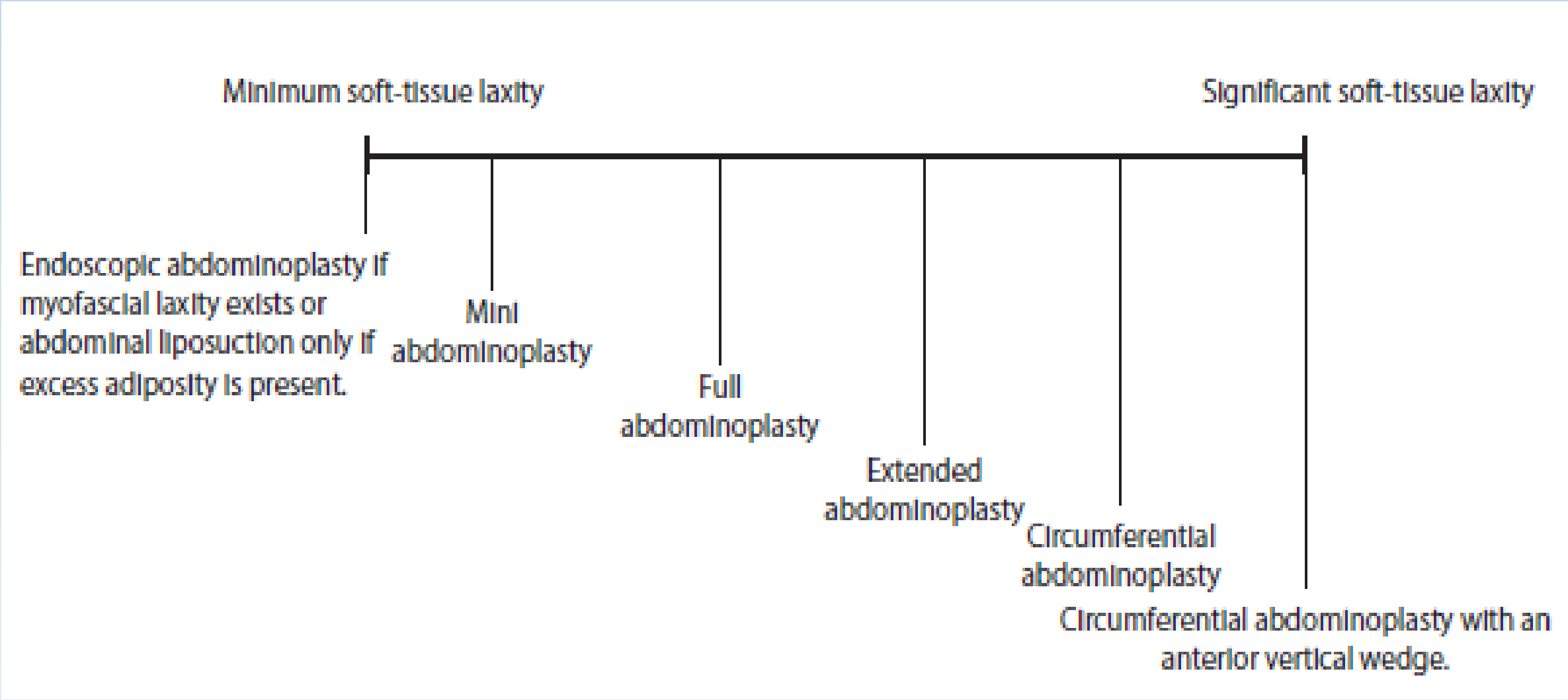
2 Days Post-Op

Patient Assessment: Severe Intra-Abdominal Adiposity w/ Redundant Pannus

Panniculectomy w/o Liposuction

67 F, 8 y s/p Adjustable Gastric Band; Total Weight Loss: 110 lbs. (BMI 44.2)

Surgical plan: Ideal Abdominoplasty Operation



Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 34, Fig. 5.1.

Areas of Redundancy

- **Lower abdomen pannus alone**
  - Standard Abdominoplasty
- **Upper abdominal deformity/waistline zone of adherence**
  - Fleur-de-Lis Abdominoplasty
- **Public ptosis**
  - May need direct excision/lower incision to lift this +/- Liposuction
- **Upper medial thigh**
  - May benefit from an “internal” Scarpa lift (applied anatomy – Scarpa is attached to the fascia lata below the inguinal ligament) in preparation for a later spiral/Medial Thigh Lift
- **Lateral thigh**
  - High Lateral Tension Abdominoplasty (longer incision laterally)
- **Gluteal ptosis**
  - Lower Body Lift with Lateral Thigh Lift (Belt Lipectomy); Circumferential Body Contouring.

Informed Consent

- **Loss of skin – lower area of the flap above the pubis**
- Distortion or malposition of the umbilicus
- Scar at the lower midline of the abdomen at the original site of the umbilicus
- Scar Asymmetry
- Failure to narrow waistline
- **Seroma**
- Abdominal/clitoral numbness
- Dog ears
- Bleeding
- Deep Vein Thrombosis and Pulmonary Embolism

DVT/PE Prevention

Intraoperative positioning	The knees are kept flexed using a pillow
Sequential compression device	The device is placed and activated prior to general anesthesia
Hydration	Intravenous fluids are administered and hydration is maintained by monitoring urine output
Perioperative medication	Lovenox is used
Postoperative activity	Ambulation several hours after the procedure and routinely thereafter is encouraged.

Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. Pg. 241, Fig. 15.1

Rare & Severe Complications

- Anesthesia
  - Excessive IV fluids
  - Hypothermia
    - Acidosis
    - Defective coagulation
  - Aspiration pneumonia
  - Severe hypoxia
  - Cardiac arrest
  - Allergies
  - Lidocaine loads in large patients
  - Malignant hyperthermia
- Intra-operative care
  - Excessive blood loss
  - Injury to the abdominal organs
- Post-operative care
  - Deep venous thrombosis
  - Pulmonary embolism
  - Infections
  - Necrotizing fasciitis

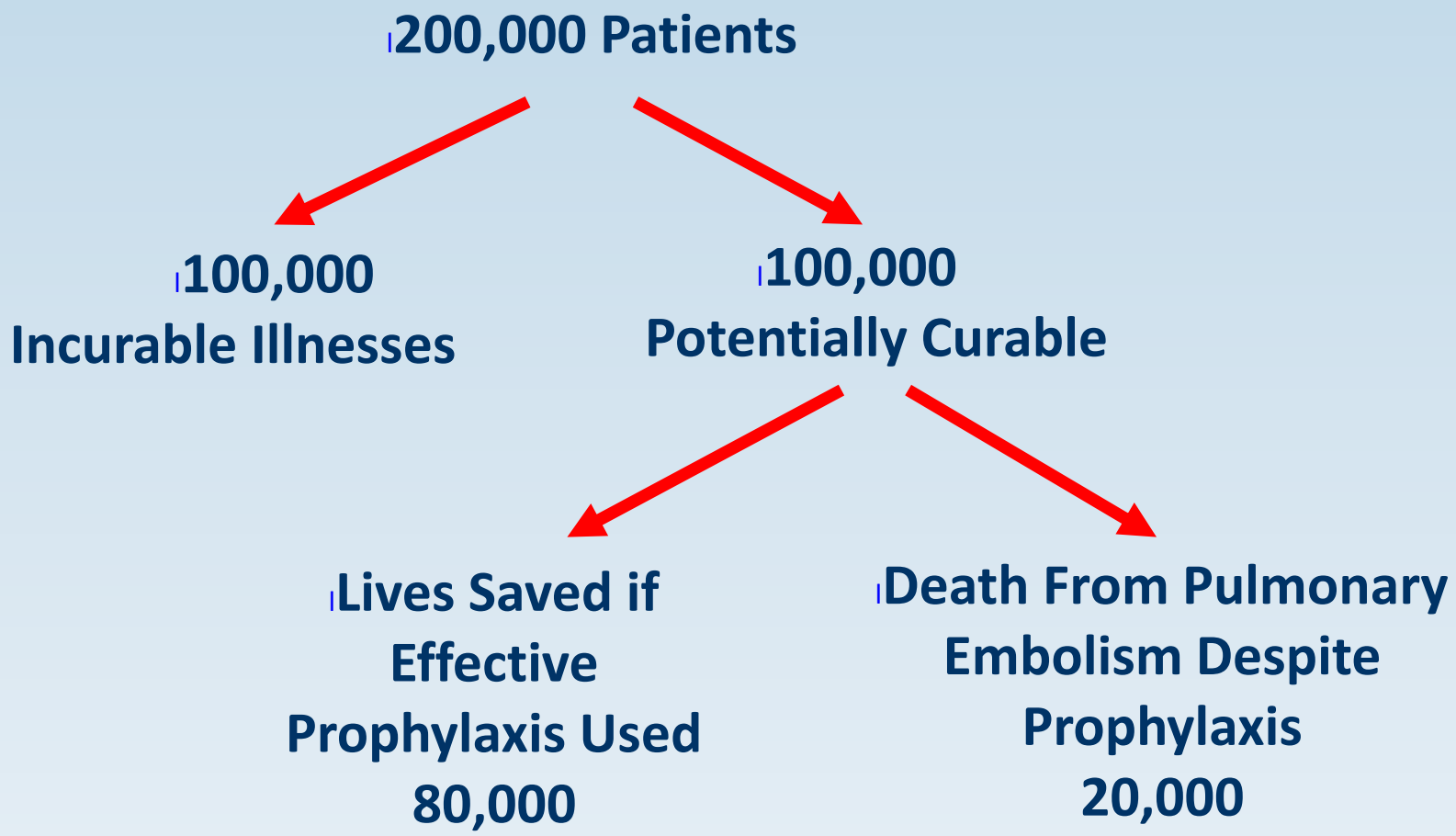
Recognize the Unhealthy Patient

- Medical history: allergies, cardiac, etc.
- Prior liposuction
  - Concrete interstitial scarring
  - Severe cannula resistance
  - Tumescent infusion cannulas are dangerous
  - Abdominal perforations
- Large patients = trouble. BMI>32 associated with increased incidence of all complications
  - Anesthesia management
  - DVT
  - Skin necrosis
  - Etc.
  - Require extensive experience

Deep Venous Thrombosis
Pulmonary Embolism

- Under recognized danger
- Deadly
- Not that uncommon

Annual Fatal Pulmonary Embolisms USA Data



ACCP 2001

Venous Thromboembolism
Virchow's Triad

- Stasis
- Vessel Damage
- Activation of Coagulation

Incidence of Postoperative DVT
Fibrinogen Data

Surgery	# Publications	Incidence
Hip	22	59%
General	28	29%
Neurosurgery	6	29%
Gynecologic	8	19%
Prostatic	13	11%
Liposuction	?	????

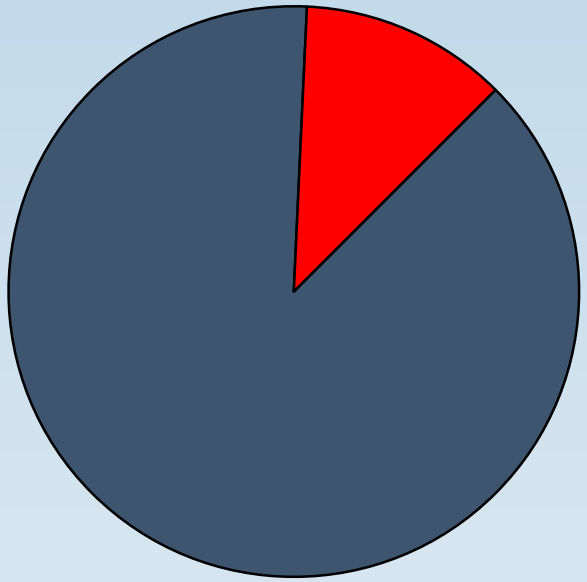
Bergqvist, Venous Thromboembolism, 1983

Venous Thromboembolism

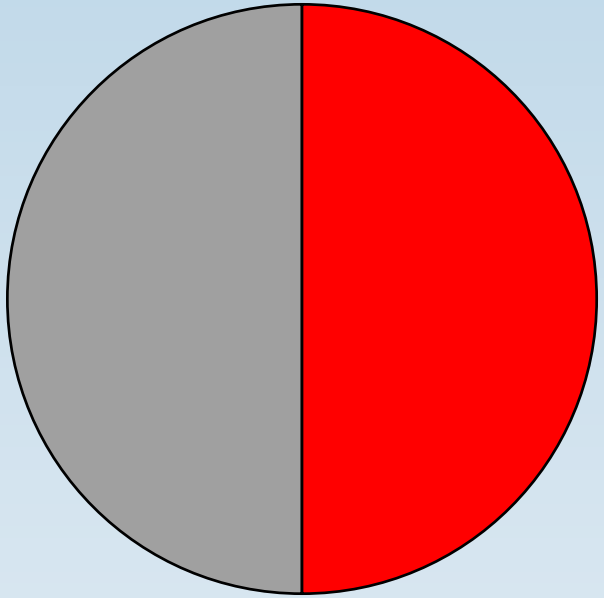
Symptoms

- Most common symptom?
- None
- Calf/Thigh Pain
- Leg Swelling
- Dyspnea, Chest Pain, Hemoptysis

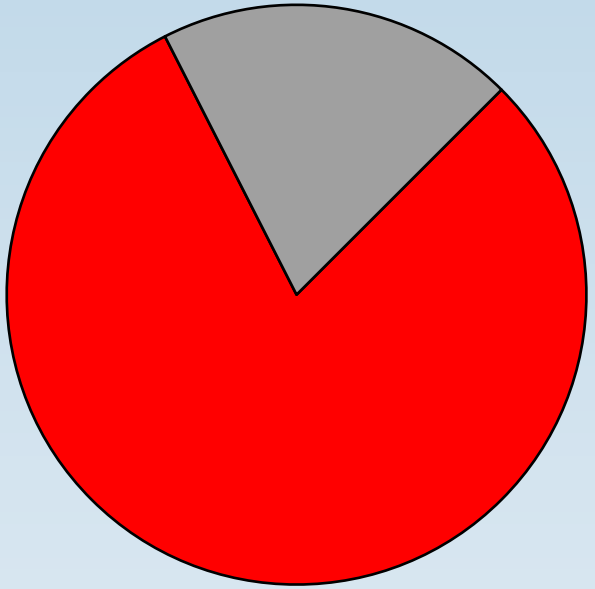
Mortality Reduction in Pulmonary Embolism



Treatment of Pulmonary Embolism



Treatment of Deep Vein Thrombosis



Prophylaxis

Prevention is the key to safety

DVT Prevention

General Surgery

RISK	RECOMMENDATION	LEVEL
Low risk	Early ambulation	1C
Moderate risk	➢Lo dose unfractionated heparin ➢Lo Mol Wt Heparin ➢Intermittent pneumatic compression ➢Elastic stockings	1A
High risk	LDUH or Higher dose LMWH (40mg/day) or IPC if high risk of bleeding	1A
Very high risk	LDUH or higher dose LMWH combined with IPC or warfarin (INR 2.0-3.0)	1B

- **ACCP Guidelines -2001**

Are Compression Stockings Effective in Preventing DVT?

- Air travel study: 200 patients randomized w/ & w/o stockings
- All had duplex ultrasonography before and after travel
- 12 pts detected w/ symptomless DVT NOT using stockings
- No DVT in the volunteers using stockings.
- Blood tests
  - 11 heterozygous for factor V mutation
  - 4 prothrombin gene mutation.
  - 2 DVT volunteers were positive for factor V Leiden.
  - Full blood count, platelet, and other assays were not predictive of DVT.
- 10% of air travelers > 50 years develop symptomless DVT
- elastic compression stockings are effective DVT prophylaxis.

Scurr JH, et al. *Frequency and prevention of symptomless deep venous thrombosis in long-haul flights: a randomised trial.* Lancet May 12, 2001;357:1485-9.

Venous Thromboembolism
Cost of Prevention

Method	Relative
Elastic Stockings	1
Low-Dose Heparin	10
Warfarin	15
Pneumatic Compression	20
Low-Molecular-Weight Heparin	30
IVC Filter	400
Diagnosis And Treatment of PE	800

Abdominoplasty History

- **1890** – Demars & Marx (France)
- **1899/1910** – Kelly HA (Johns Hopkins, USA) – Abdominal Lipectomy (no - 16 .39 Pounds – 90cmx 31 cmx7cm
- **1957** – Gillies & Millard (USA) – “Jack-Knife” position, Post-op Knee Flexion to reduce tension on transverse closure.
- **1960** – Gonzalez-Ulloa – “Belt Lipectomy”
- **1967** – Pitanguy – 300 Transverse Abdominoplasties (lateral edges curved down)
- **1972** – Kamper – Circumferential Resection After Massive Weight Loss
- **1972** – Reginault (Montreal, Canada) – “W” technique

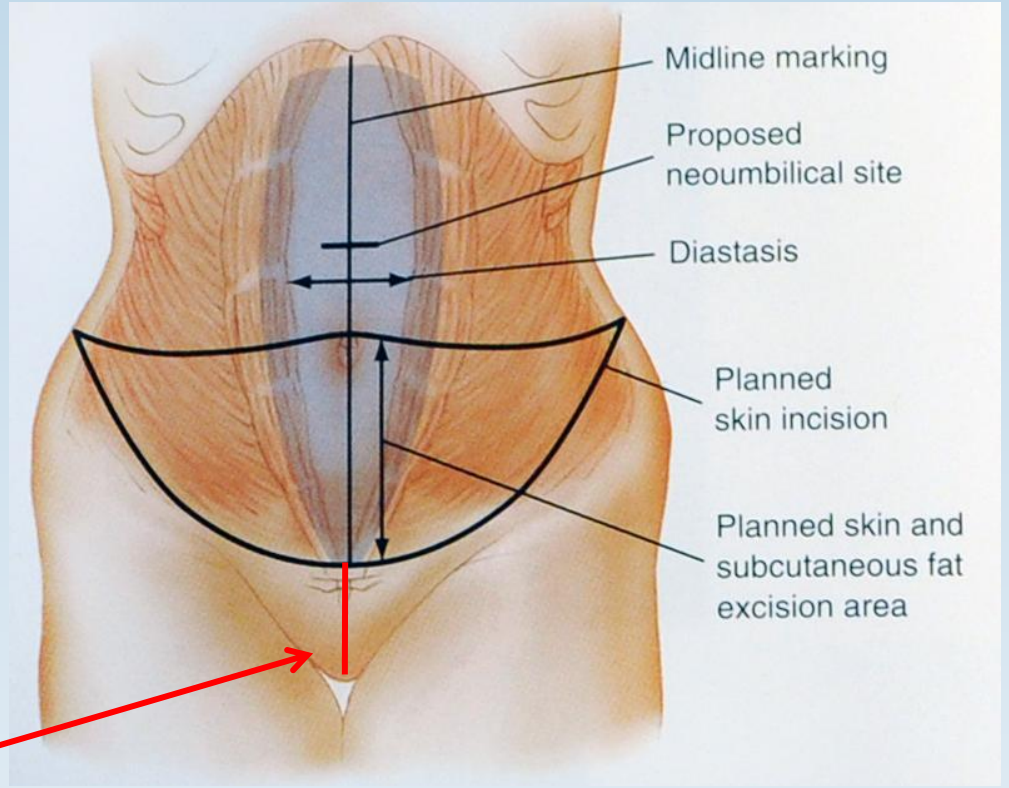
Abdominoplasty History (cont'd)

- **1973** – Grazer (California, USA)/ Pitanguy – Rectus Plication; Body Contouring for the massive weight loss patient.
- **1974** – Baroudi – "Quilting" techniques to decrease seroma
- **1977** – Illouz – Blunt-tipped Liposuction Cannula
- **1985** – Dellon – "Fleur-de-lis" Abdominoplasty
- **1987** – Klein – "Tumescent" Technique for Liposuction Surgery.
- **1984-1990** – Converse, Illouz, Hetter – "Hydrodissection"
- **1988** – Toranto - Wide Rectus Abdominal Plication
- **1991** – Lockwood – Superficial Fascial System (SFS); High Lateral Tension Abdominoplasty

Standard Abdominoplasty (Tummy Tuck)

- **Panniculectomy:** Removal of excess skin and fat of the lower anterior abdomen
- **Rectus Abdominis Plication:** Tightening of the abdominal muscles *(Abdominal Wall Reconstruction)*

6.5 – 7.5 cm above the vaginal commissure (with the skin stretched)

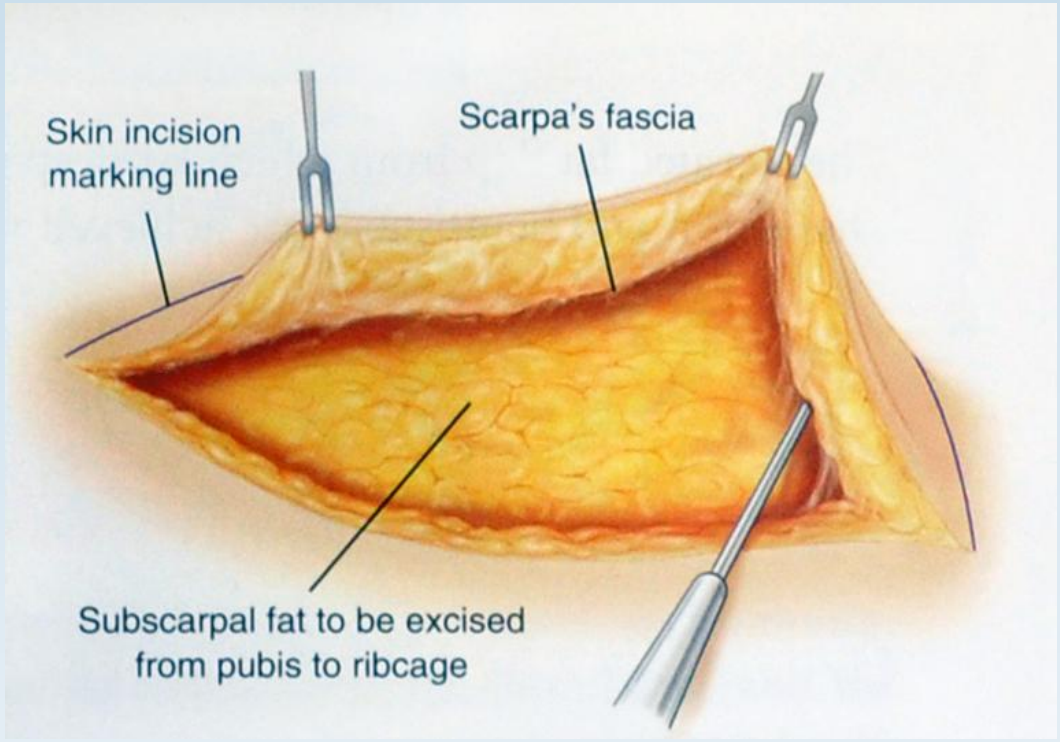


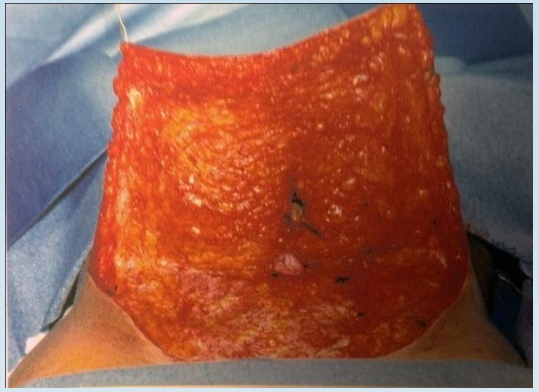
Works well for people who only have small amounts of fat or loose skin, but often fails to adequately correct the complex contour deformities of the massive weight loss patient.

Photo credit: The Art of Aesthetic Surgery, pg. 2954

Skin Flap

- Inferior incision
- Flap elevation superiorly (up to xiphoid)





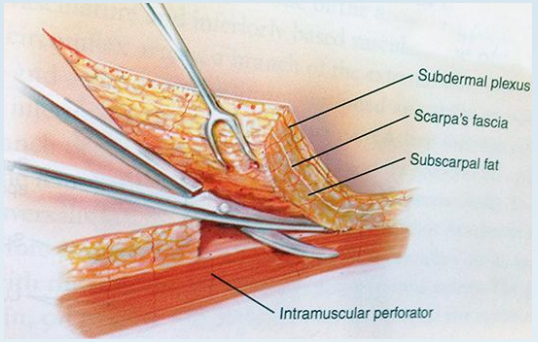
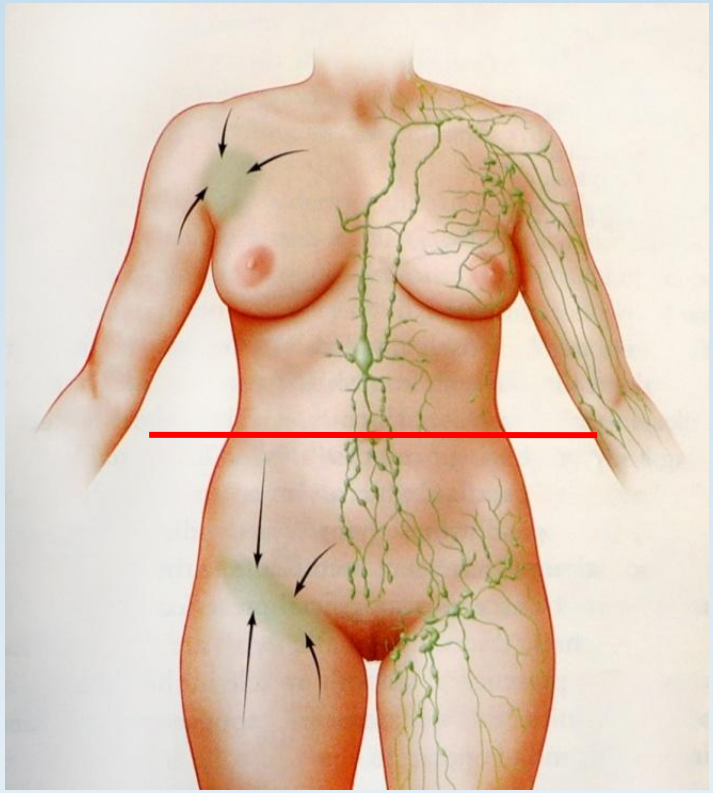


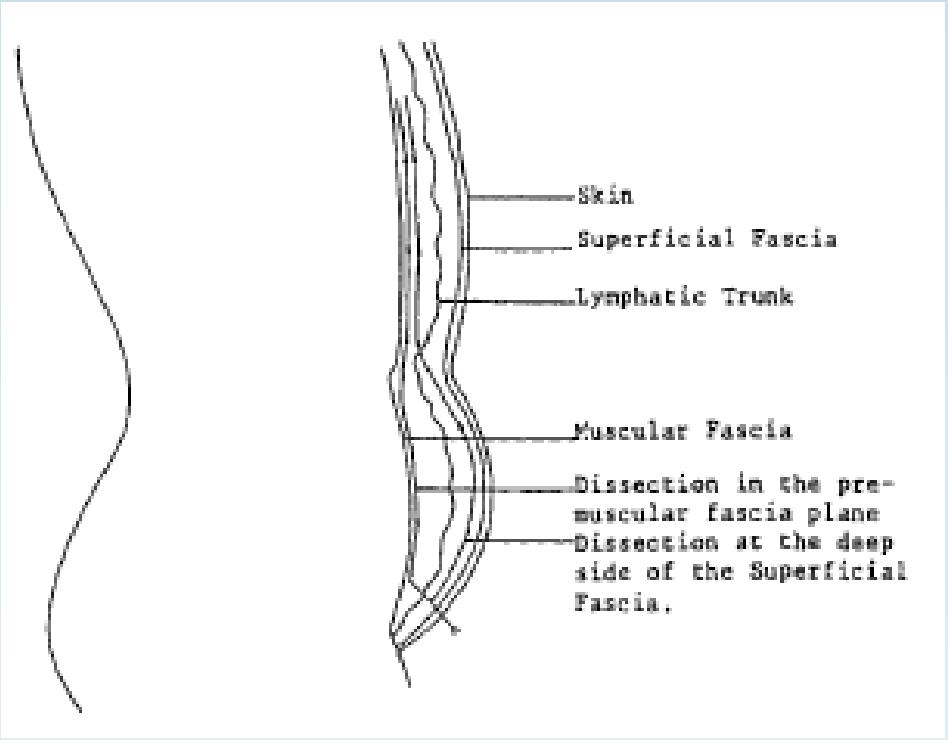
Photo credit: The Art of Aesthetic Surgery, pg. 2939; 2956-2957

Subfascial Abdominoplasty

The umbilicus is a natural watershed between the lymphatics of the upper abdomen and the lower abdomen.



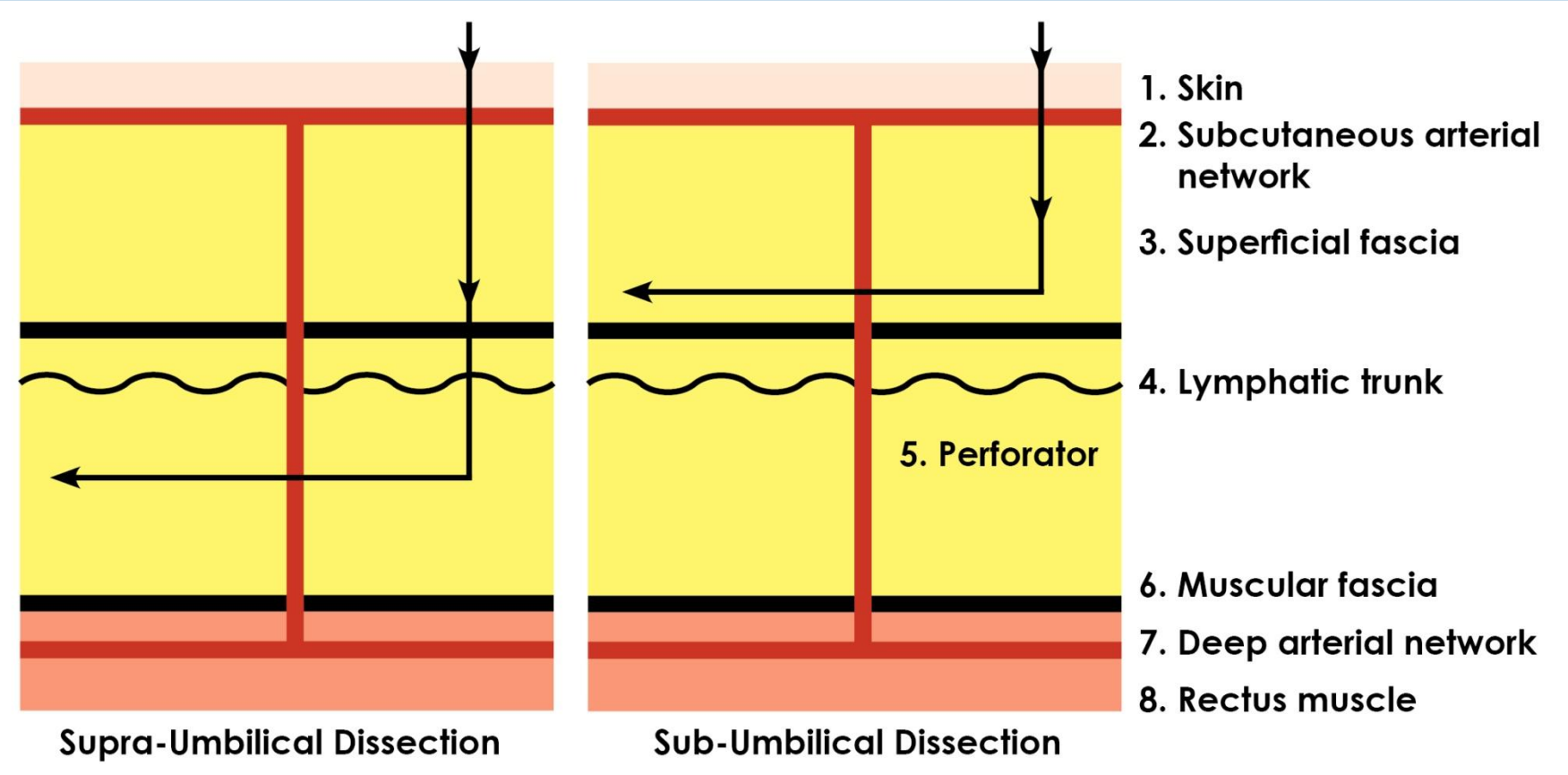
Staying just superficial to the Scarpa's below the umbilicus avoids transecting the lymphatics, decreasing the risk for seromas.



Le Lourarn C, Partial subfascial abdominoplasty. Aesthetic Plast Surg 20: 123-127, 1996

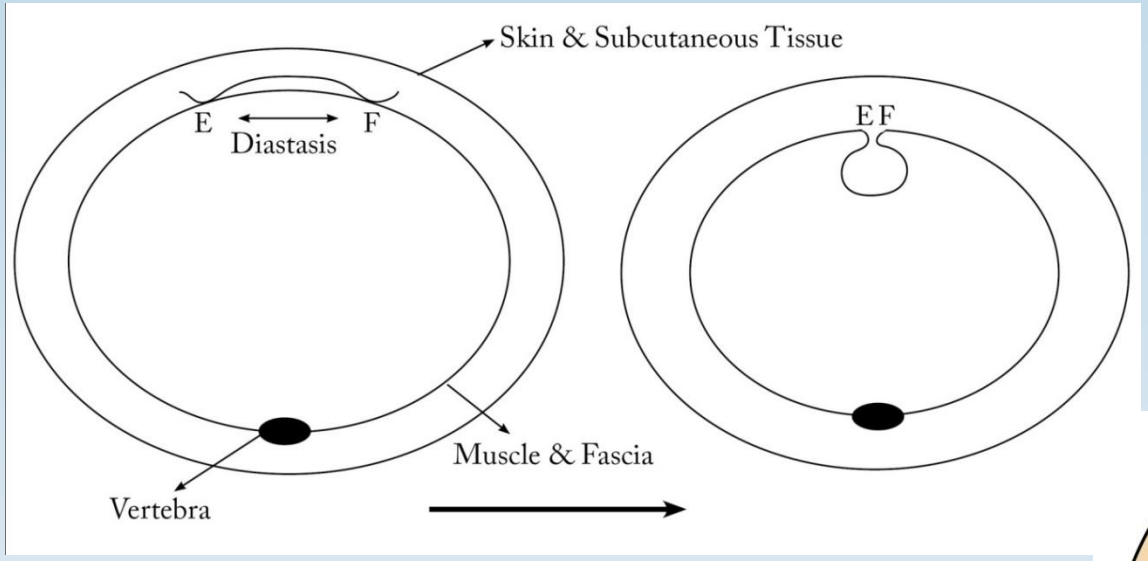
Subfascial Abdominoplasty

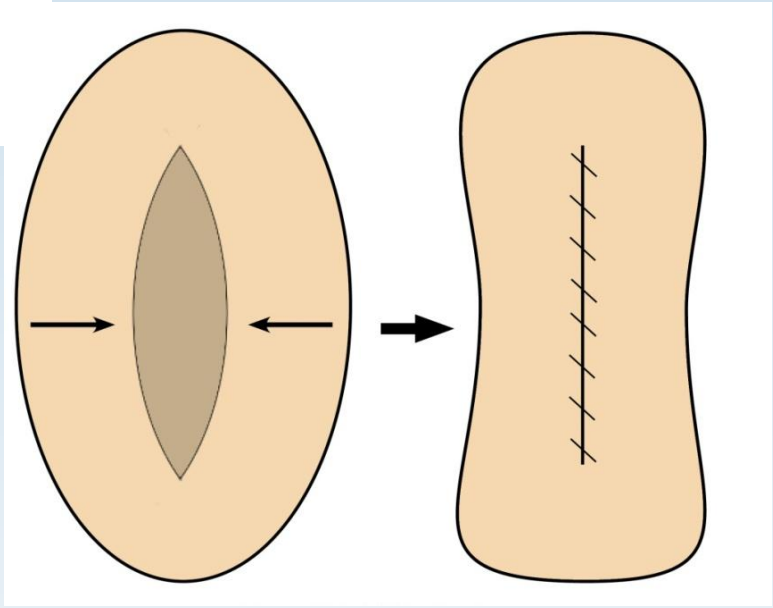
Staying just superficial to the Scarpa's below the umbilicus avoids transecting the lymphatics, decreasing the risk for seromas.



Le Lourarn C, Partial subfascial abdominoplasty. Aesthetic Plast Surg 20: 123-127, 1996

Standard Rectus Plication

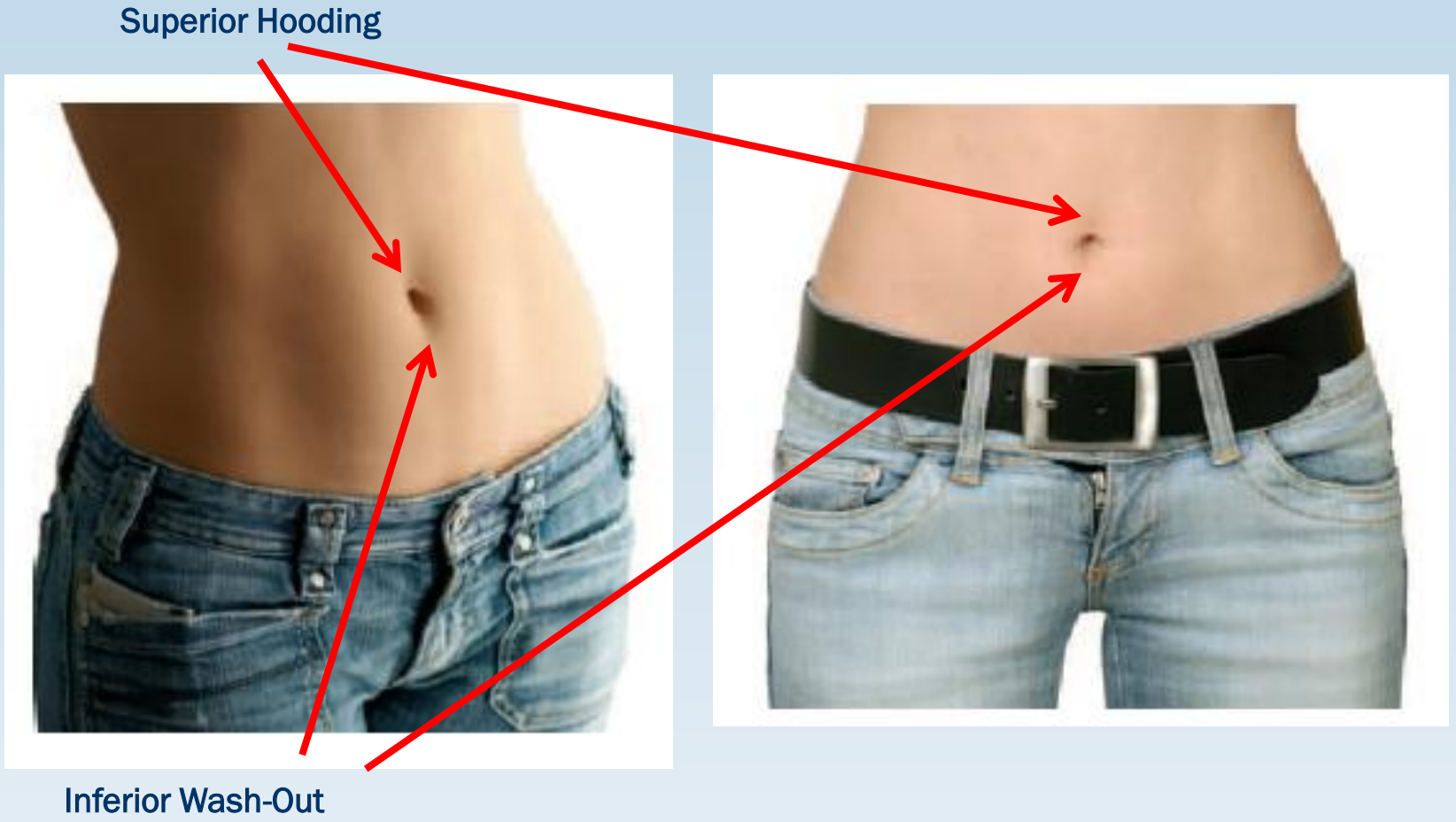




- Realign rectus muscles
- Narrow the abdominal circumference
- Exaggerate the waist line.

++Nemerofsky, Oliak, Capella. PRS 117 (2): 414-430. Body Lift: An Account of 200 Consecutive Cases in the Massive Weight Loss Patient.

Ideal Umbilicus

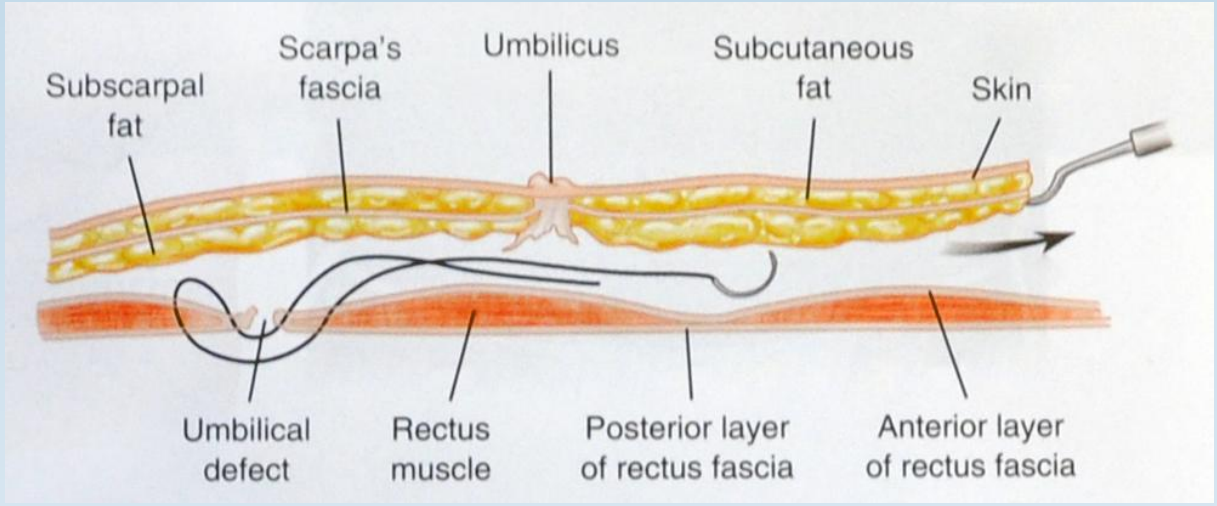


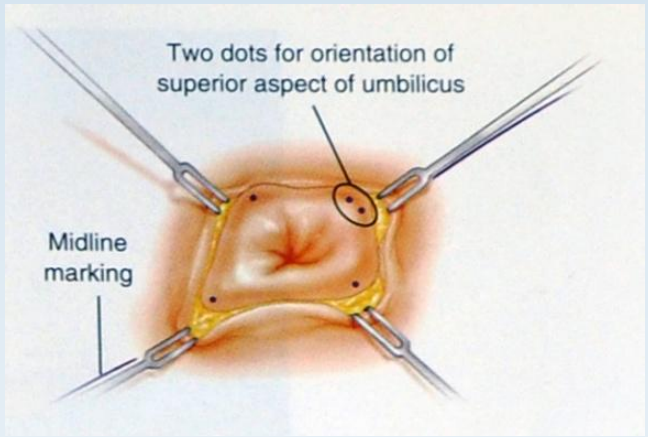
Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 142, Fig. 12.2

Umbilical Decisions

- **No skin excess above, mild below**
  - Leave intact (e.g. Mini-Abdominoplasty)
- **No skin excess above, moderate below, high riding umbilicus**
  - Can “float” with release of stalk (<2 cm from origin)
- **Large excess above and below**
  - Circumscribe and translocate
- **Scarred/prior surgery/herniorrhaphy**
  - Excise plus “neo-umbilicus” options

Options for Umbilical Reimplantation





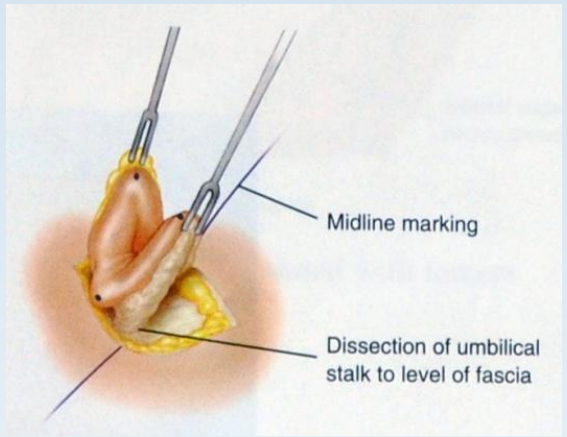
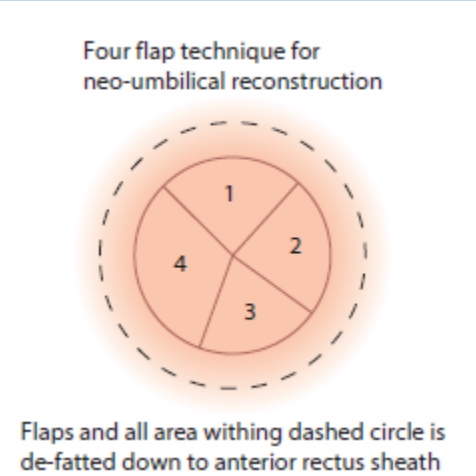
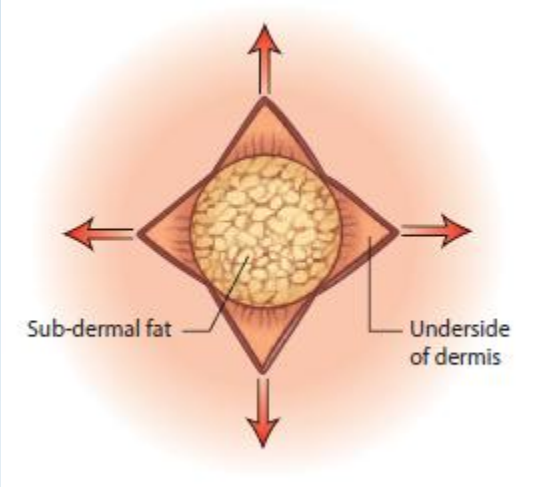
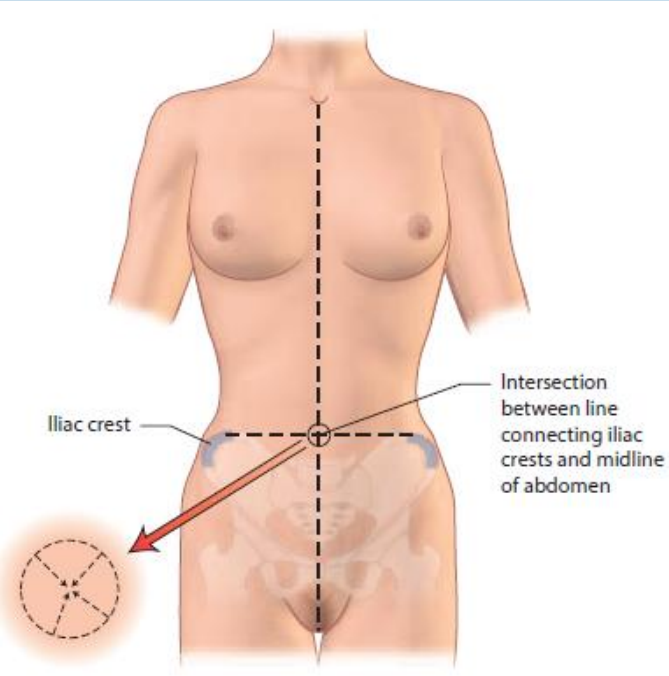


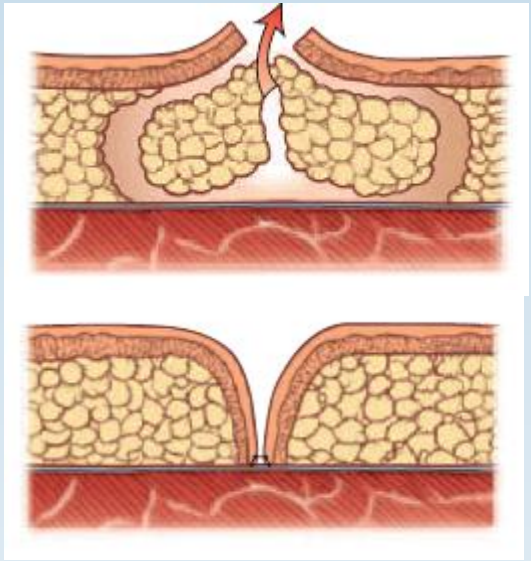
Photo credit: The Art of Aesthetic Surgery, pg. 2956; 2964

Neoumbilicoplasty



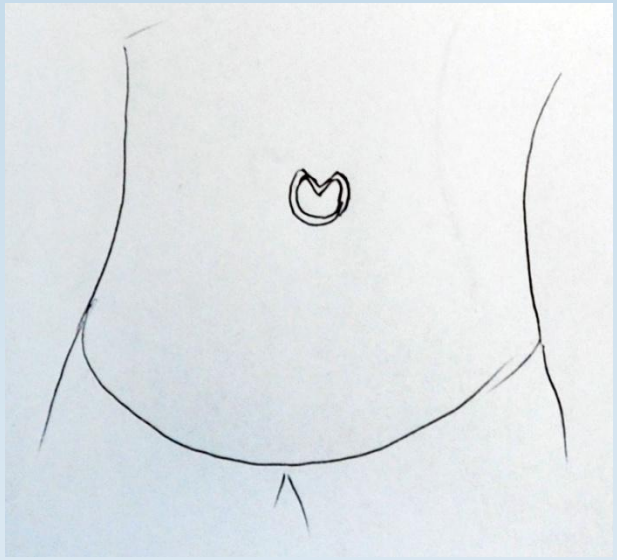


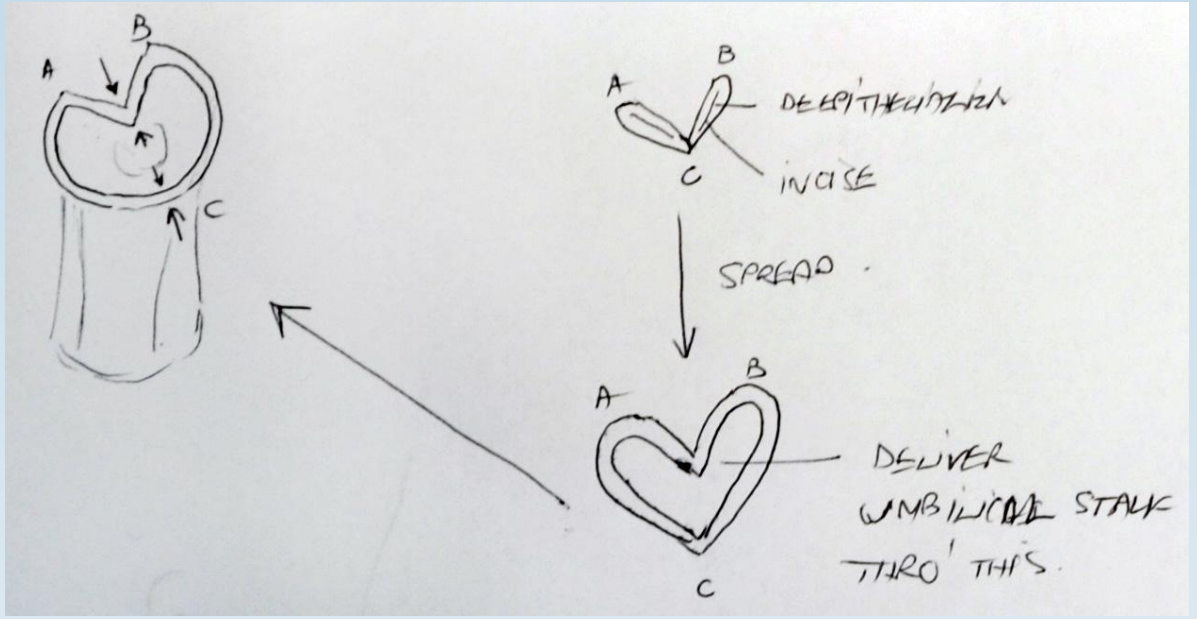




Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. Pg. 151, Fig. 12.26 - 12.30

Umbilical Reimplantation





Liposuction in Standard Abdominoplasty

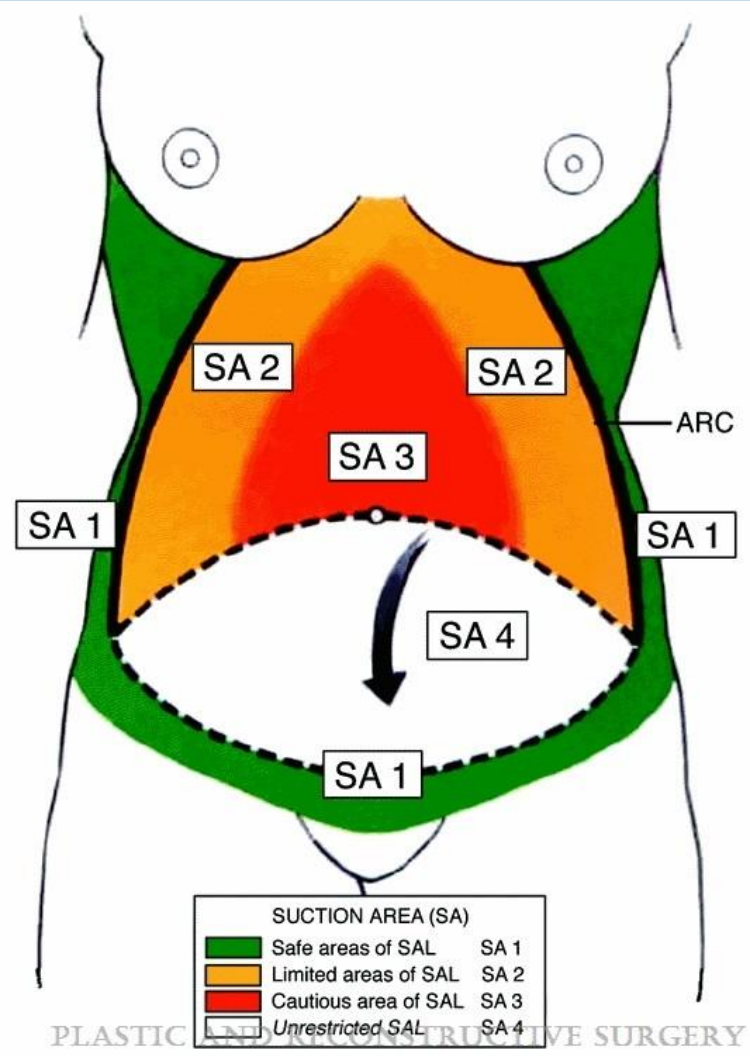


Fig. 3. Anatomical areas for suction in combined abdominoplasty-liposuction. SA 1, safe; SA 2, limited; SA 3, cautious; SA 4, unrestricted. (Reprinted from Matarasso, A. Liposuction as an adjunct to a full abdominoplasty. Plast. Reconstr. Surg. 95: 829, 1995.)

Friedland, Jack A.; Maffi, Terry R. Plastic and Reconstructive Surgery. 121(4):1-11, April 2008. doi: 10.1097/01.prs.0000305954.35080.8f

Progressive Tension Sutures:

Decrease Seroma Risk Following Abdominoplasty

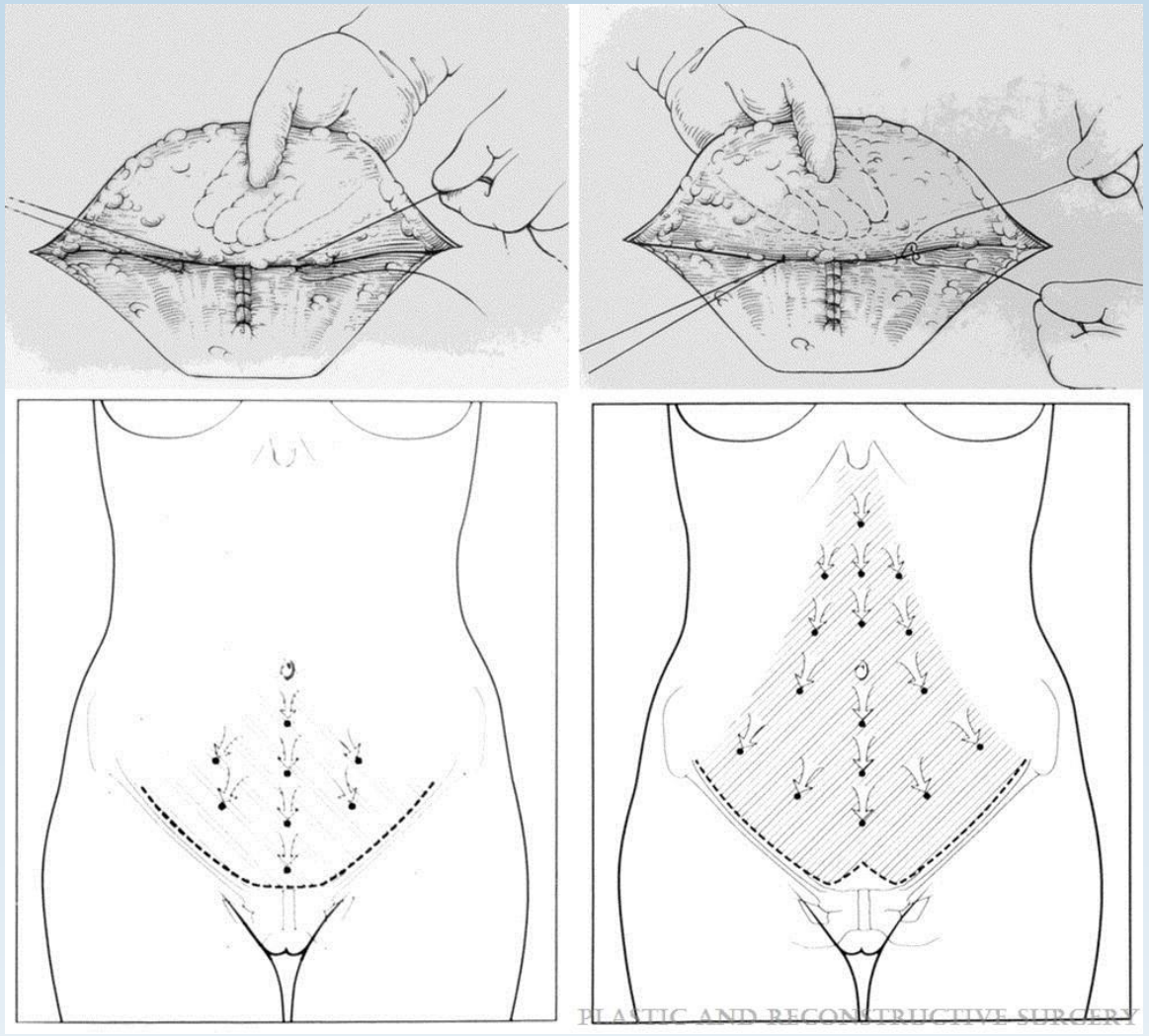
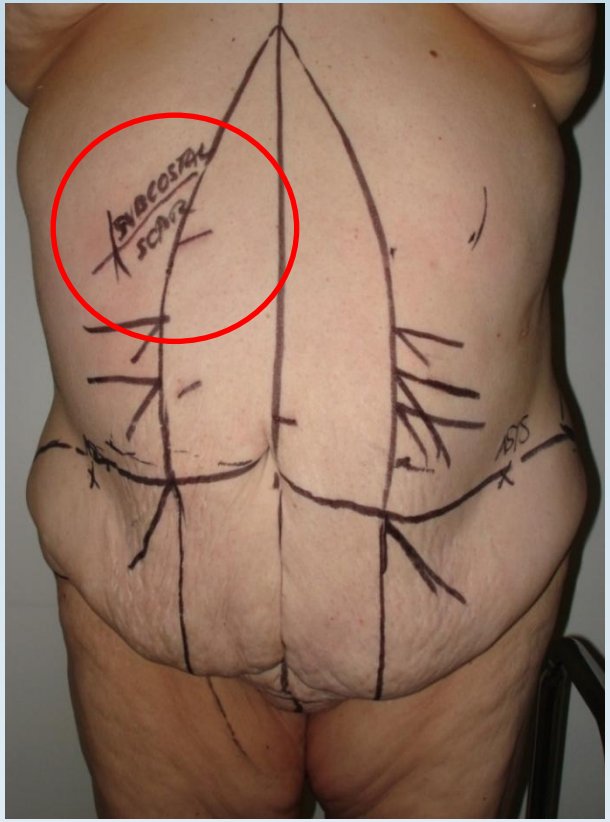
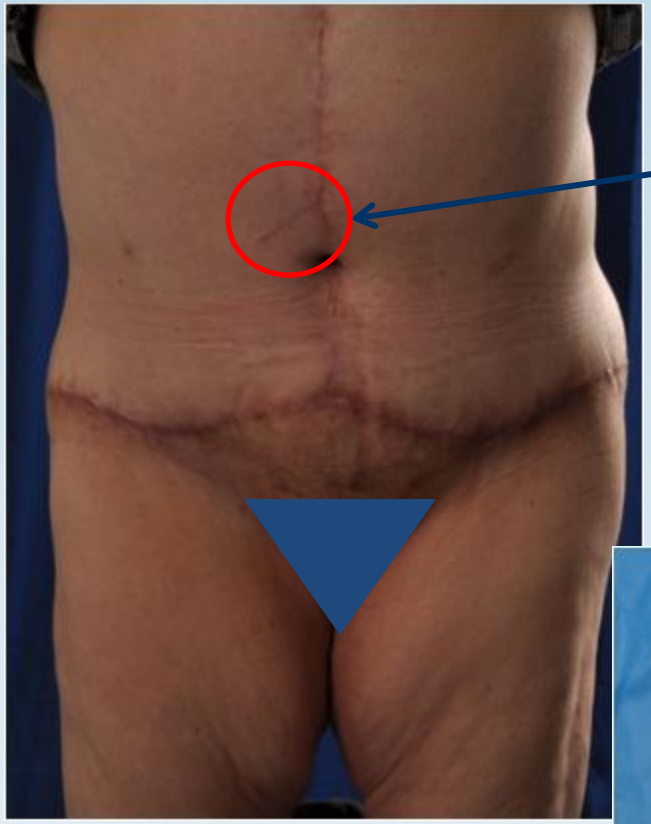


Fig. 4. Progressive tension sutures from the superficial to the deep fascia while the flap is advanced anteriorly. Crosshatching shows the extent of flap elevation. Arrows show the vector of flap advancement and the location of sutures. (Reprinted from Pollock, H., and Pollock, T. Progressive tension sutures: A technique to reduce local complications in abdominoplasty. Plast. Reconstr. Surg. 105: 2583, 2000.)

Friedland, Jack A.; Maffi, Terry R. Plastic and Reconstructive Surgery. 121(4):1-11, April 2008. doi: 10.1097/01.prs.0000305954.35080.8f

Fleur-de-Lis Abdominoplasty to Address Sub-Costal Scars





Subcostal scar from prior Cholecystectomy vastly improved with Fleur-de-Lis Abdominoplasty

Skin removed: 24 inches wide, 7 lbs. 0.34 oz.

Courtesy of Center for Weight Loss Surgery. 57 F; 14 months s/p Proximal Gastric Bypass; Total Weight Loss: 90.2 lbs.

Matarasso Abdominoplasty Classification System

- Based on traditional Abdominoplasty
- Avelar technique significantly alters classification

Type I	Minimal Laxity	Variable	Minimal Flaccidity	Liopsuction or Ultrasonic Liposuction
Type II	Mild Laxity	Variable	Mild Lower Abdominal Flaccidity	Liopsuction plus Mini-Abdominoplasty
Type III	Mod. Laxity	Variable	Moderate Abdominal Flaccidity	Modified Abdominoplasty with Rectus Plication Possible Liposuction
Type IV	Severe Laxity	Variable	Significant Abdominal Flaccidity	Standard Abdominoplasty

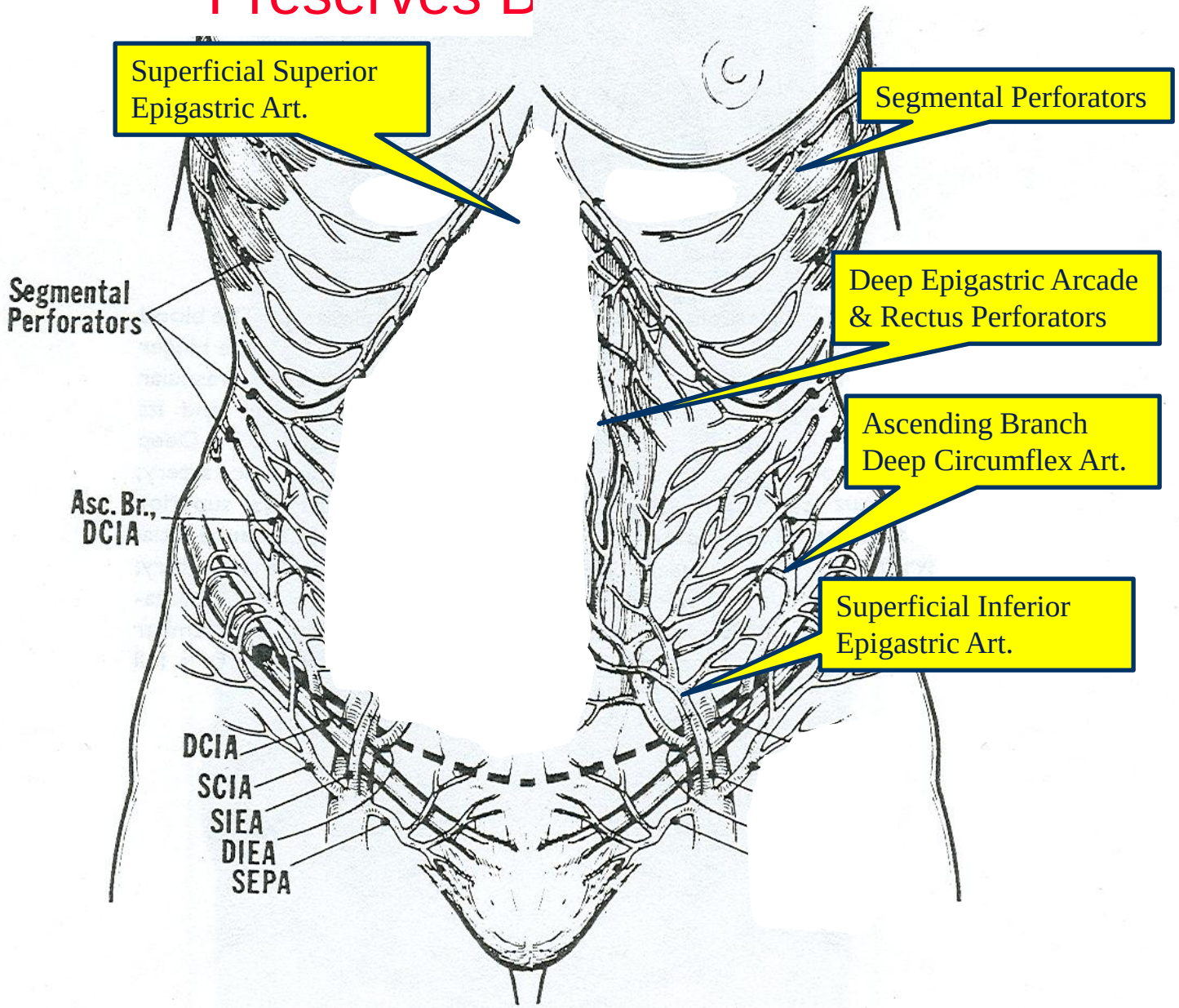
After Traditional Abdominoplasty

- Only lateral segmental perforators remain
- Minor retrograde flow from the posterior deep circumflex iliac
- The ascending branch of the superficial circumflex iliac

Lose Most Major Arteries.

Before Abdominoplasty

Preserves B



Case Study

Lipo-Abdominoplasty:
Advantages & Disadvantages

- **First described by Avelar 1999**
- **Advantages**
  - Skin excision similar to traditional TT
  - Existing neurovascular supply preserved
    - Flap remains axial
  - No drains and considerably less pain
  - Faster recovery
    - Tradition TT = 2 weeks
    - Lipo TT = 1 week
- **Disadvantages**
  - ? Less skin mobility

Tumescent Technique

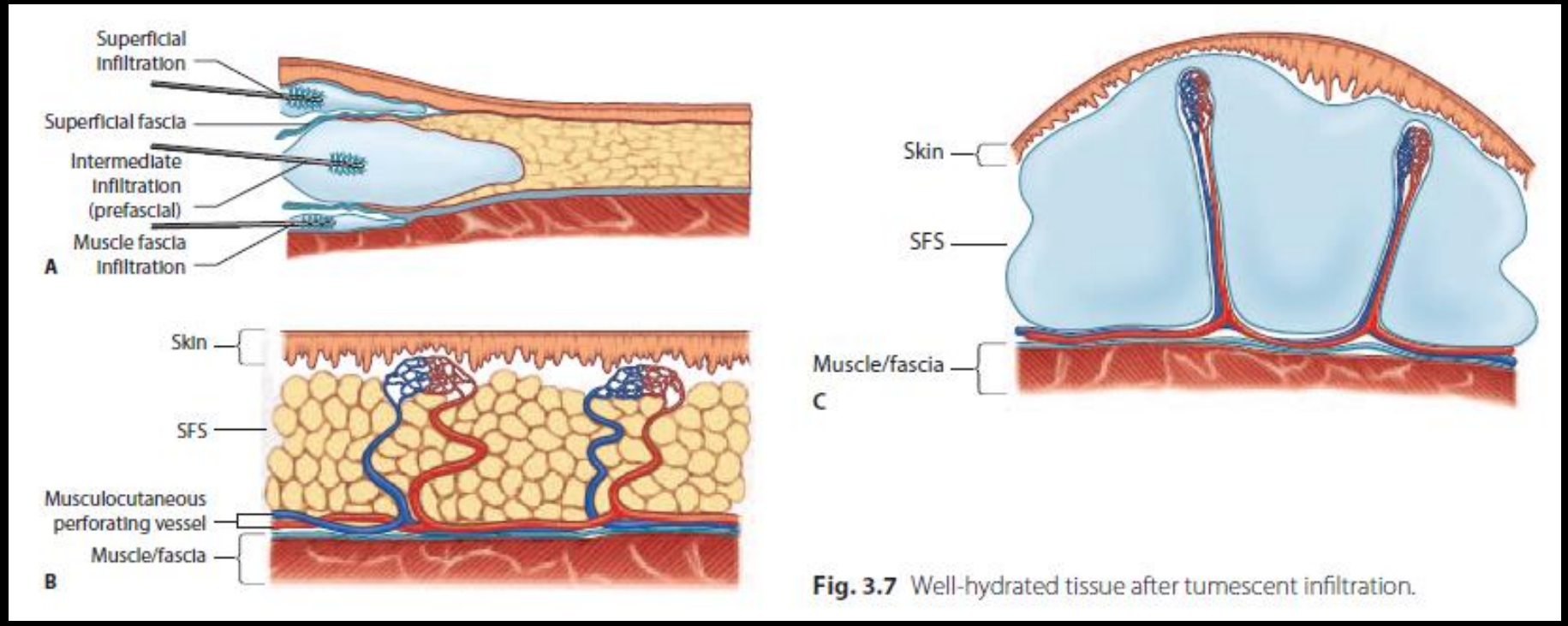
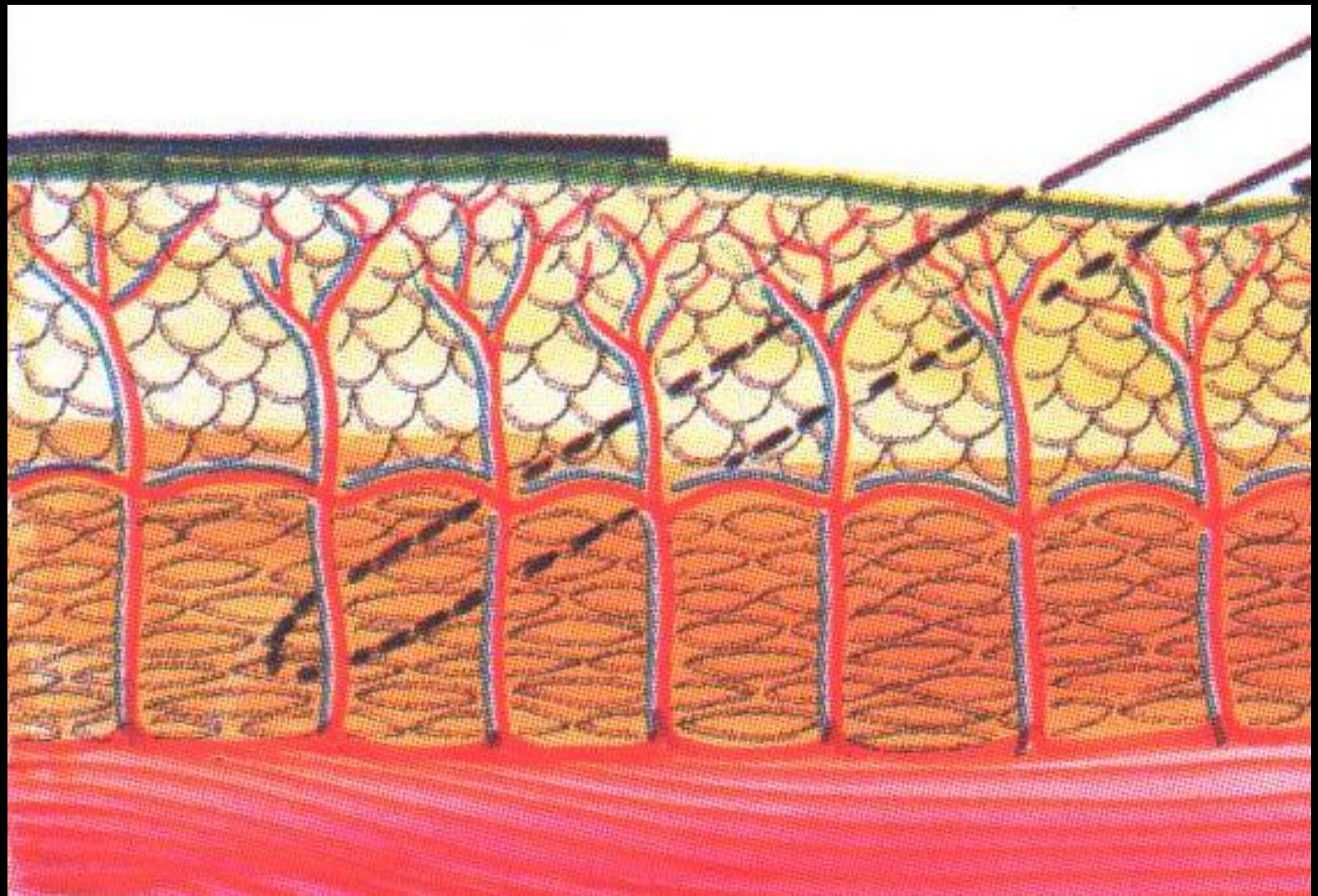
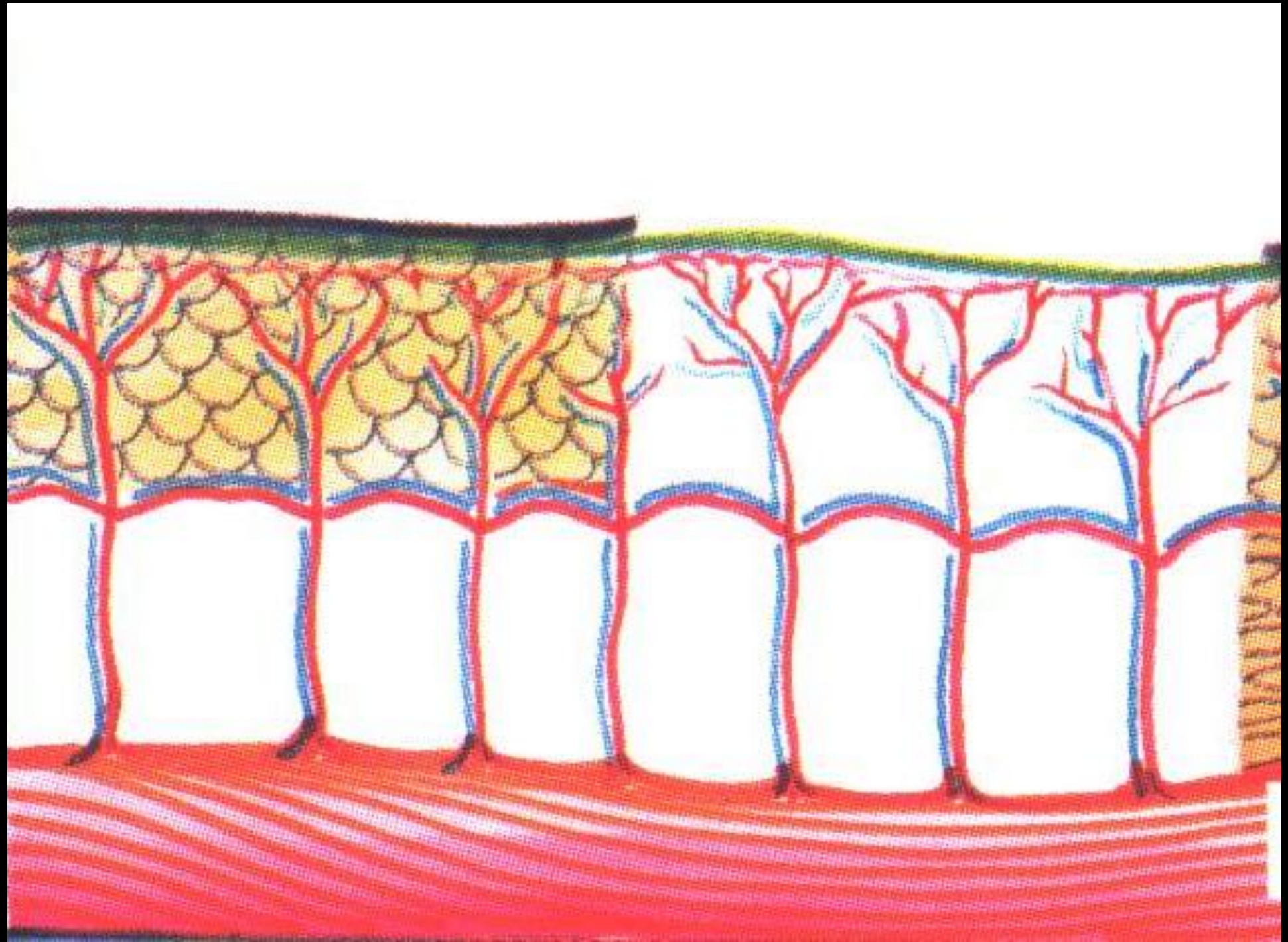
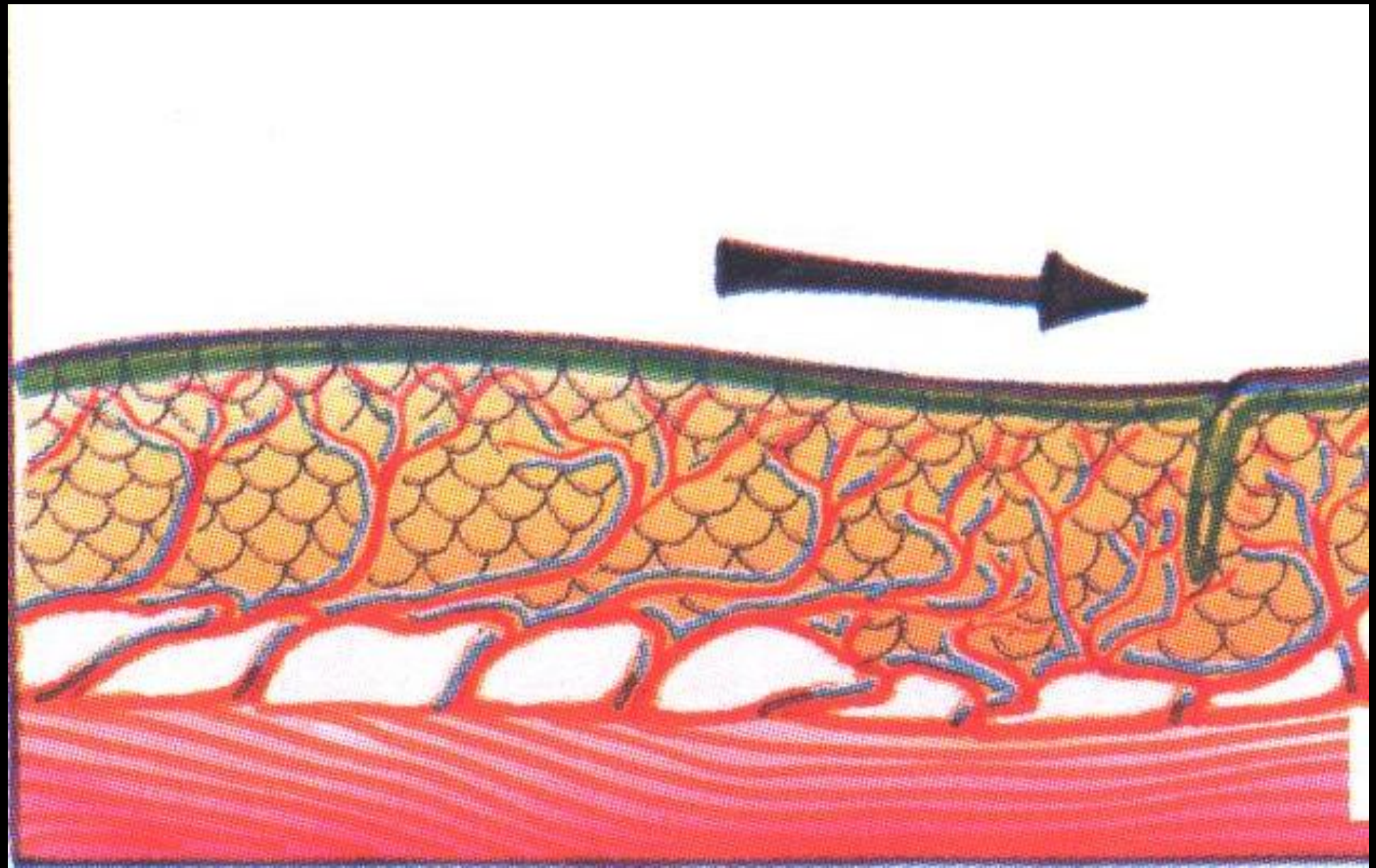


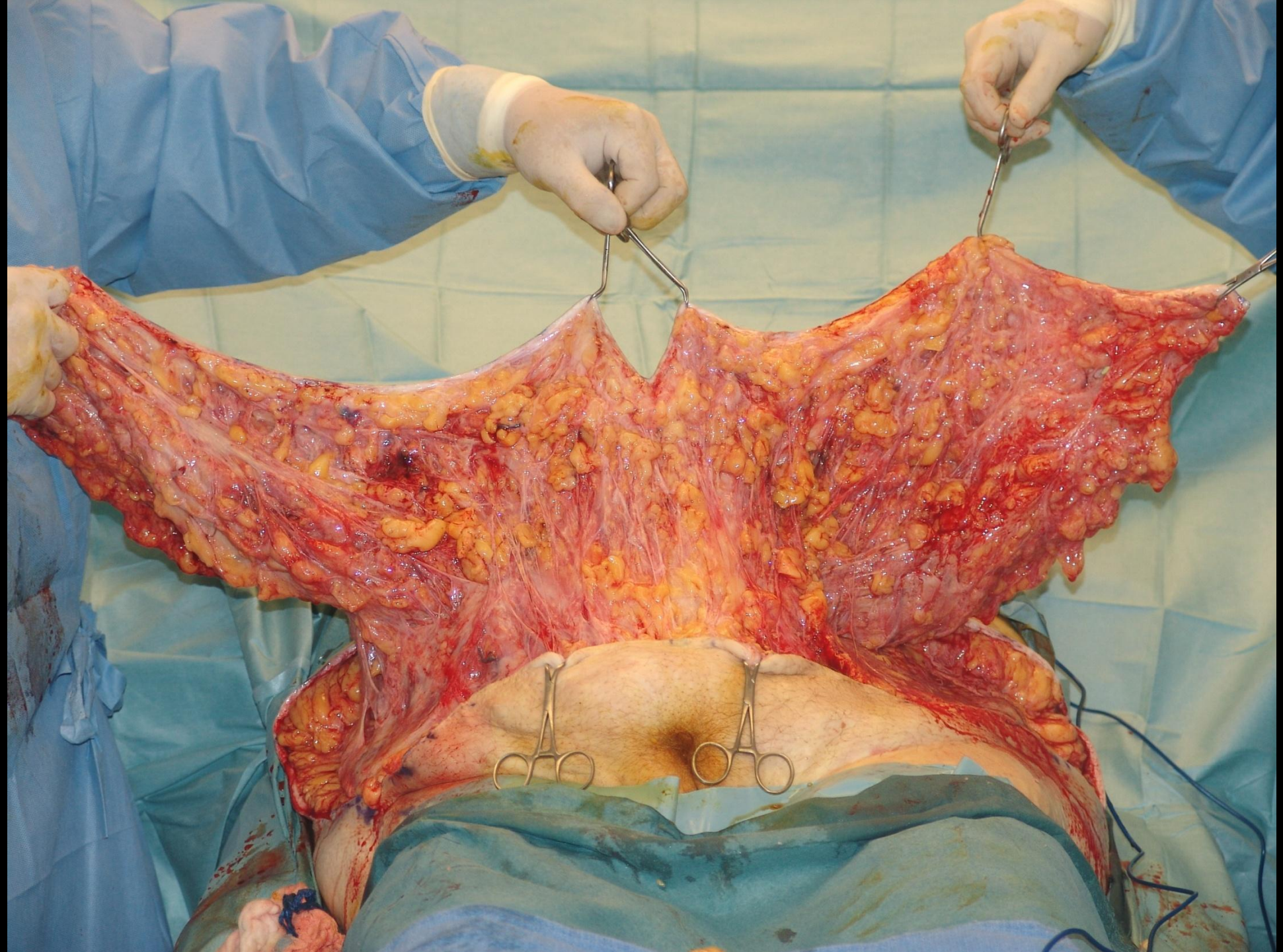
Fig. 3.7 Well-hydrated tissue after tumescent infiltration.

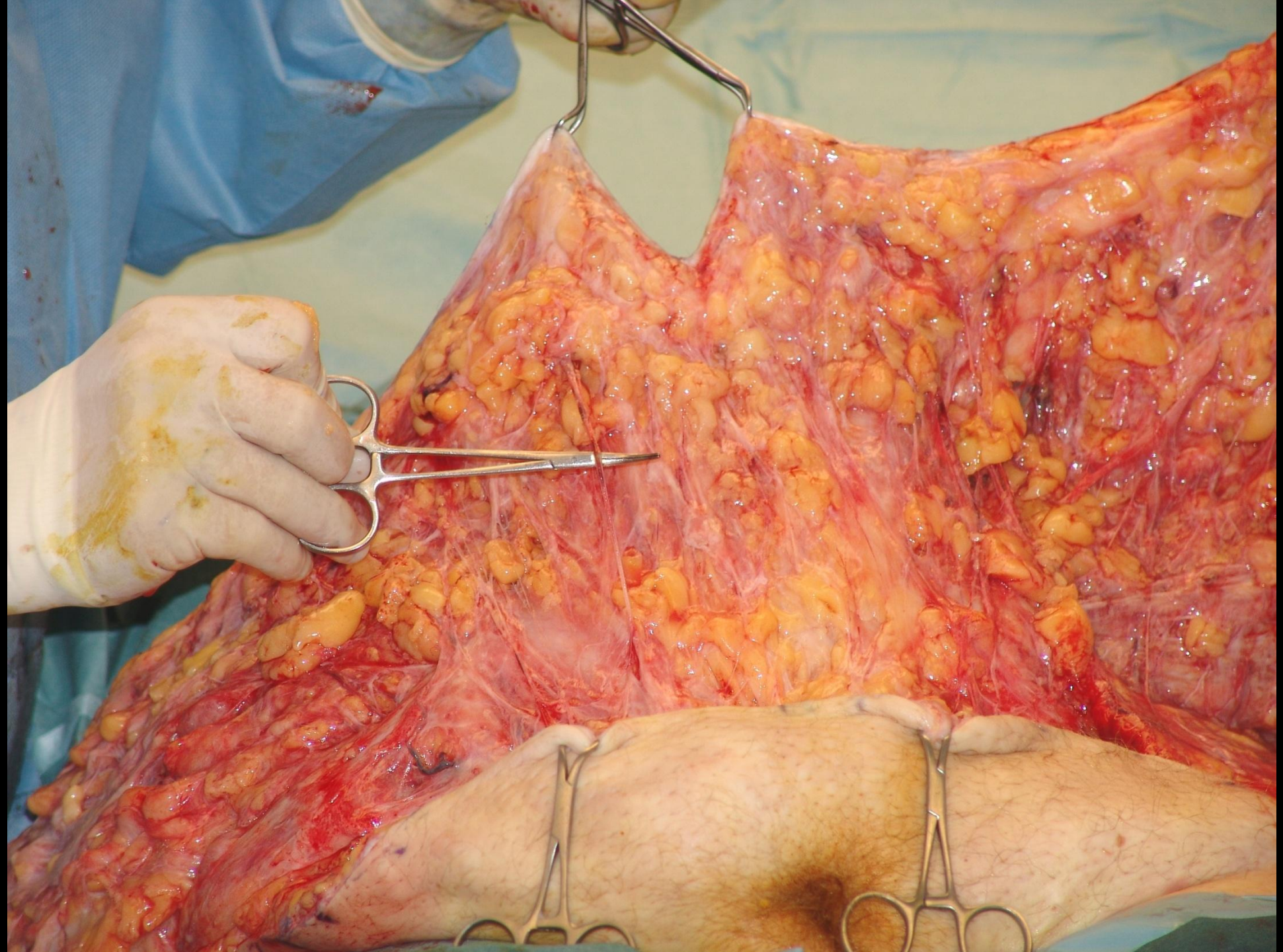
Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 19, Fig. 3.7

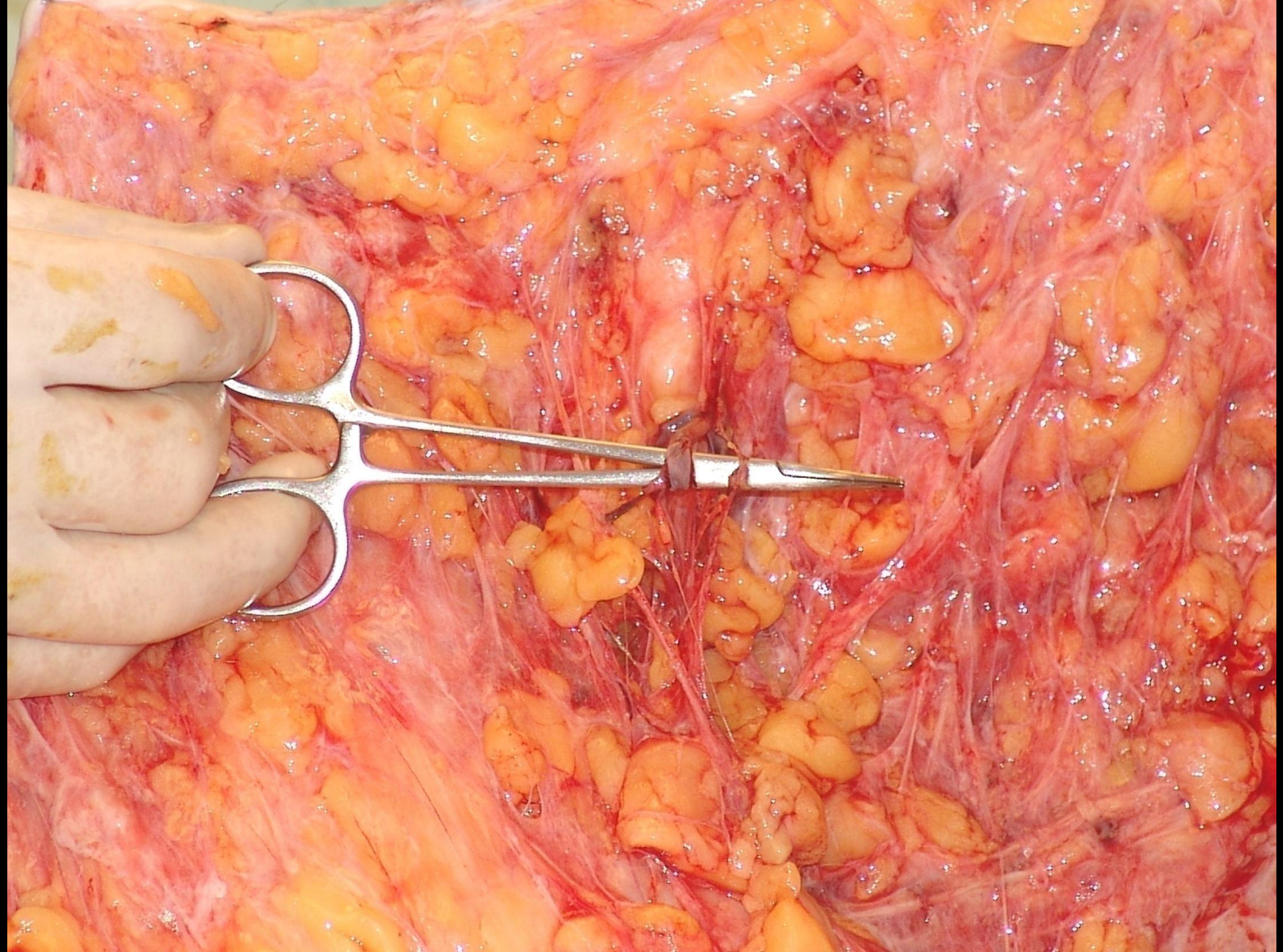










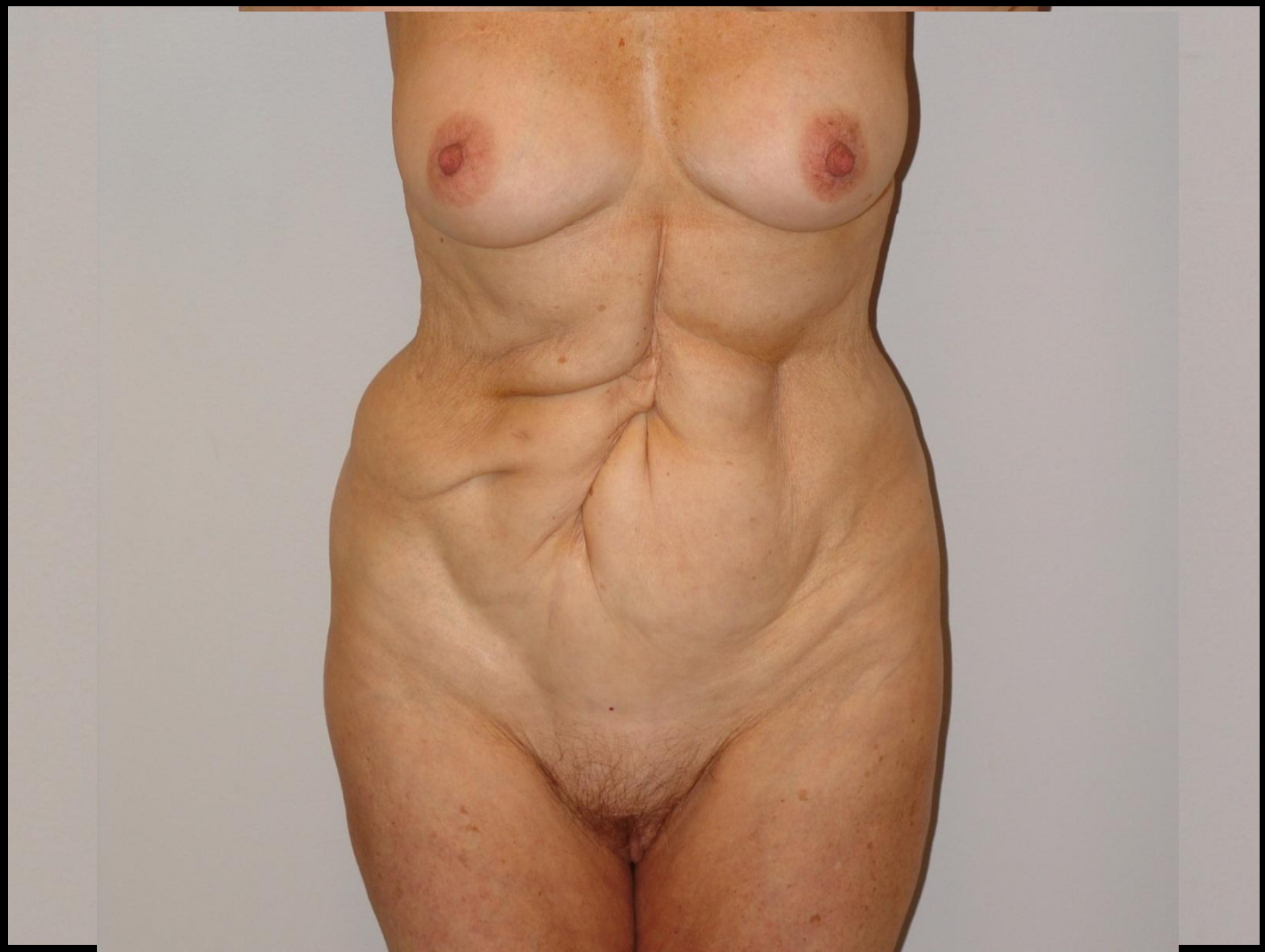


Liposuction Technique

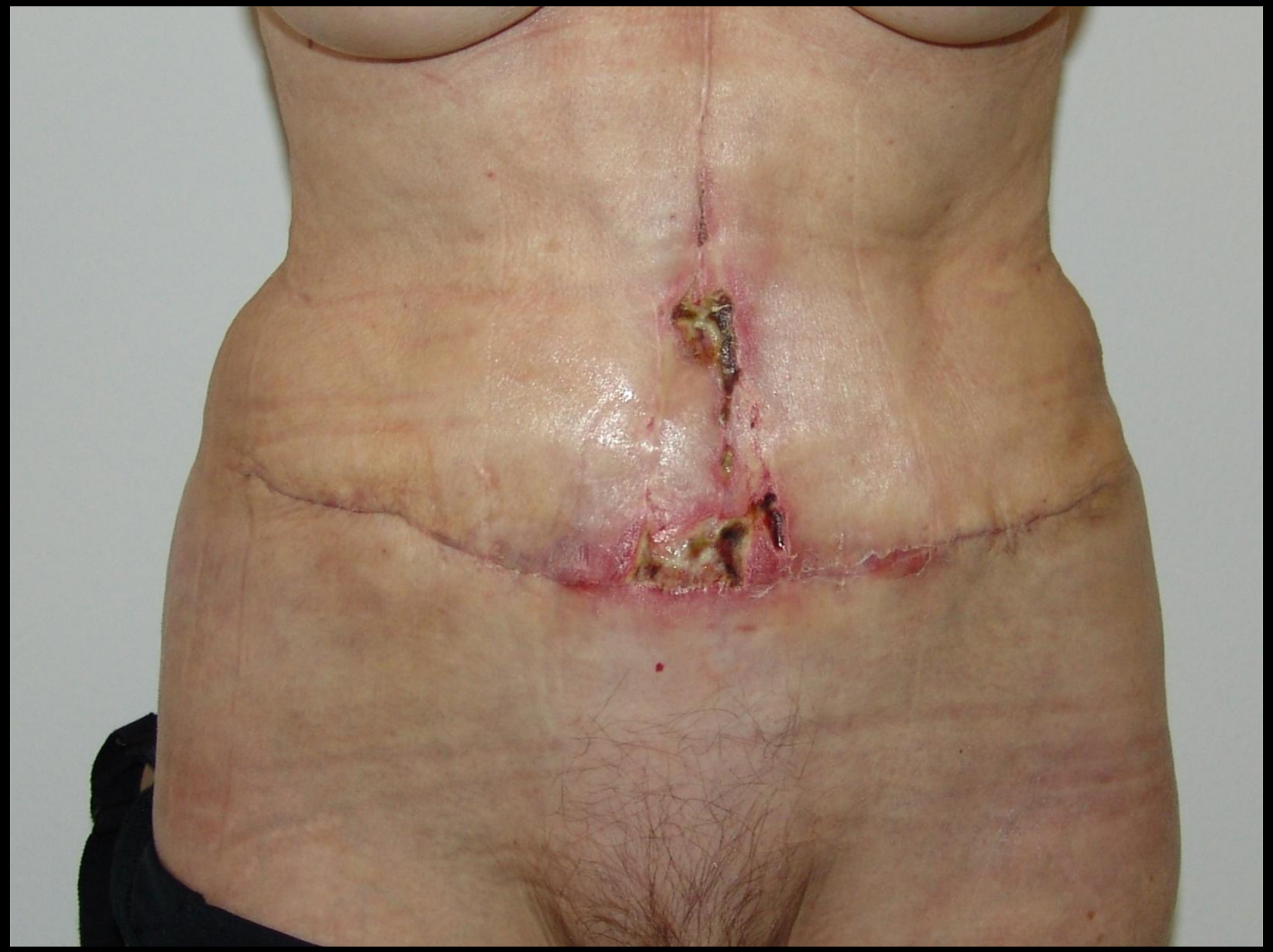
- **Standard tumescence**
  - Stay within 35-50 mg/kg lidocaine limit
  - Virtually bloodless
- **Fat disruption technique for speed**
  - Vasoconstriction last only ~90min
  - Speed critical for larger volumes
  - Smoother results

Case Study

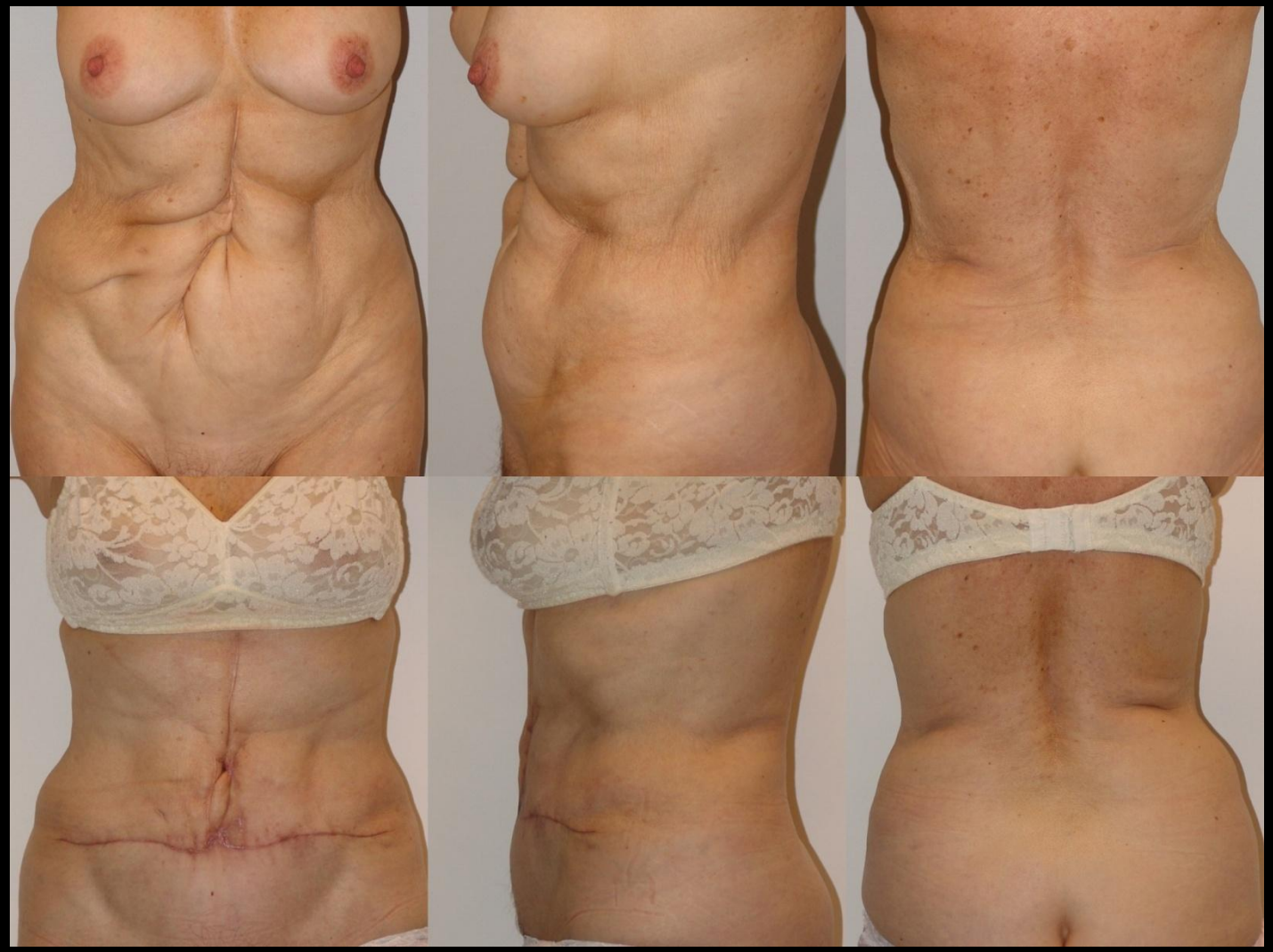
Not a traditional Abdominoplasty candidate.



Case Study

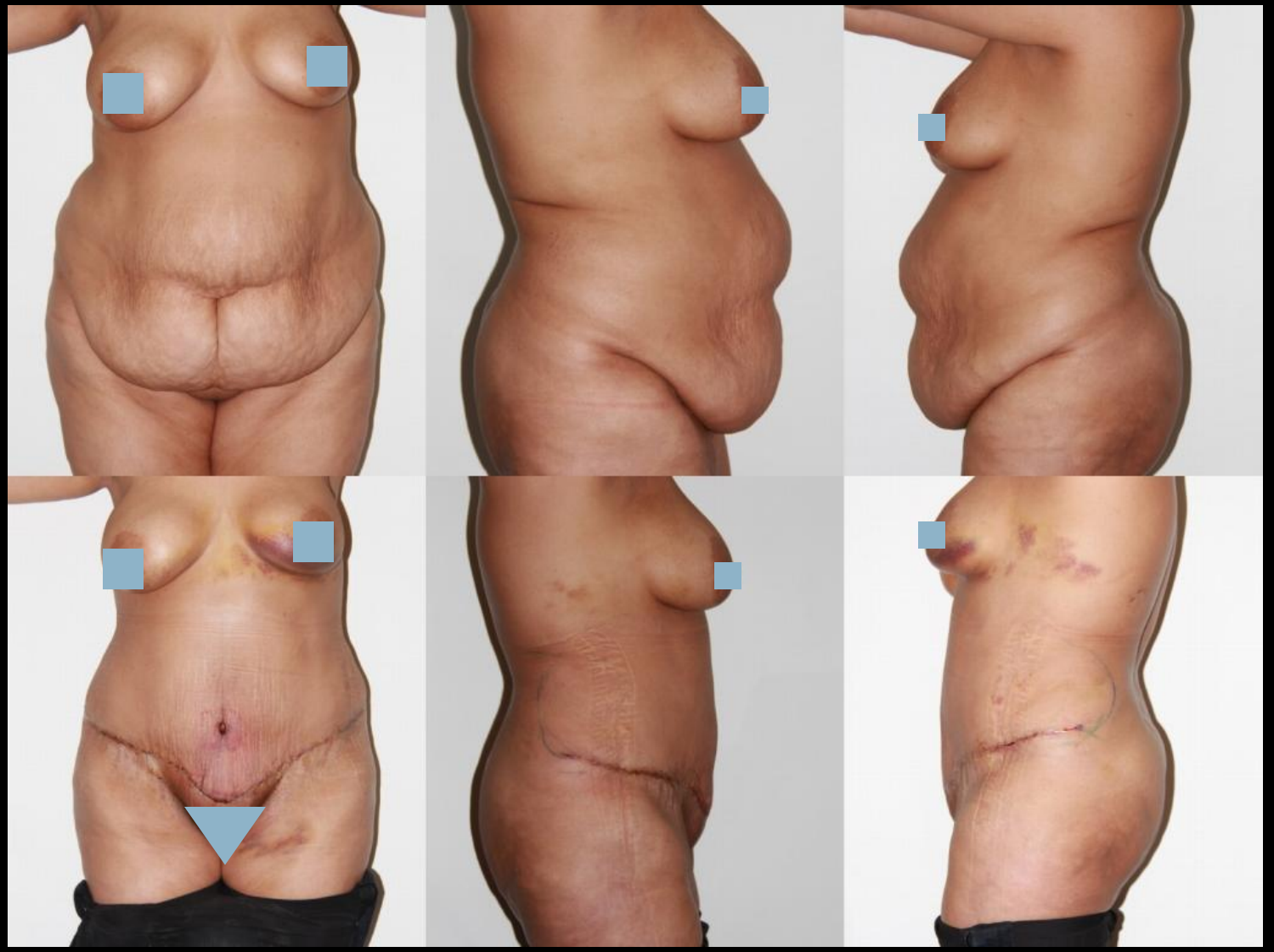


Case Study



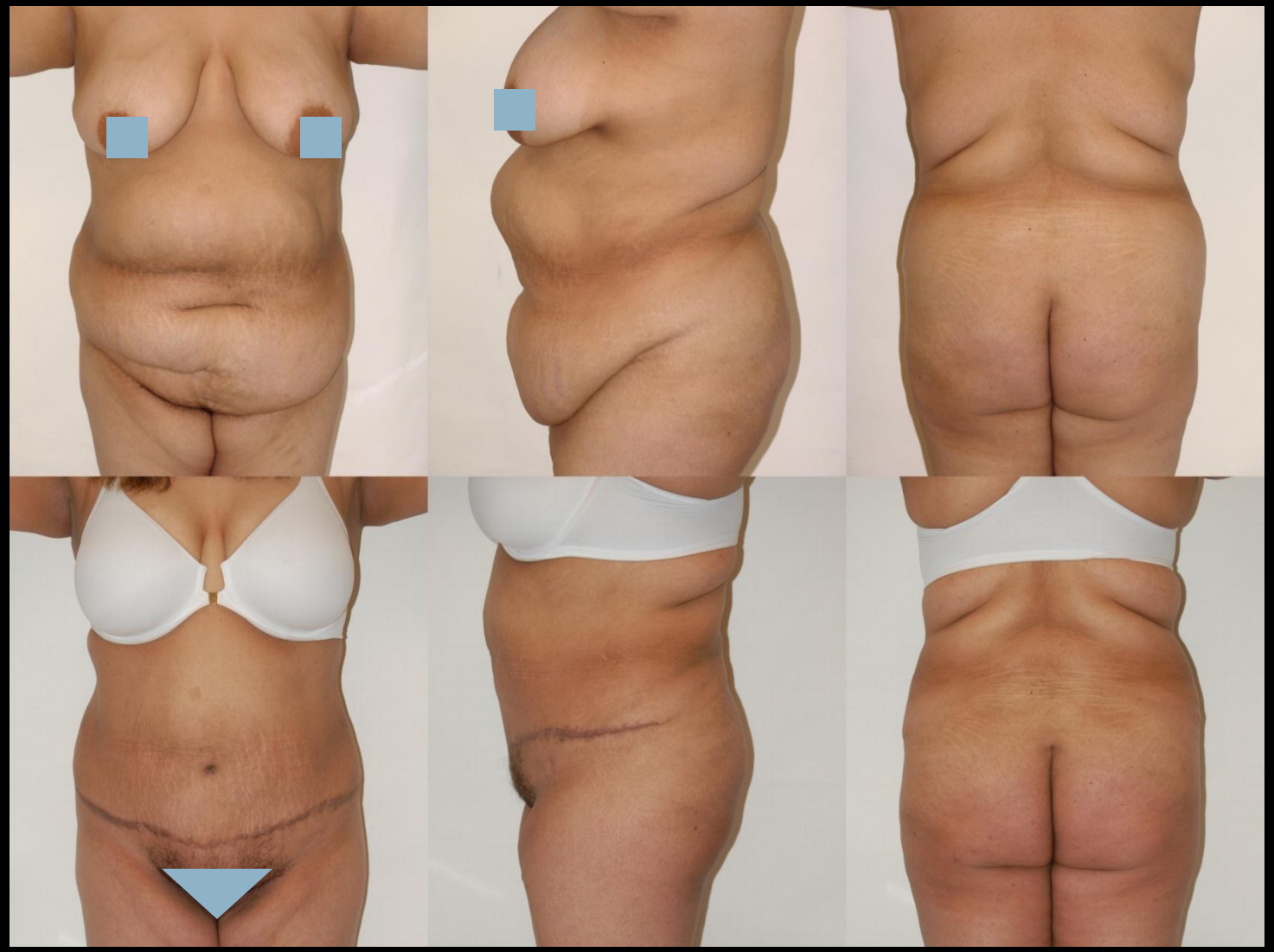
Case Study

BMI =34 (230#)



3 Weeks
Post-Op

Case Study

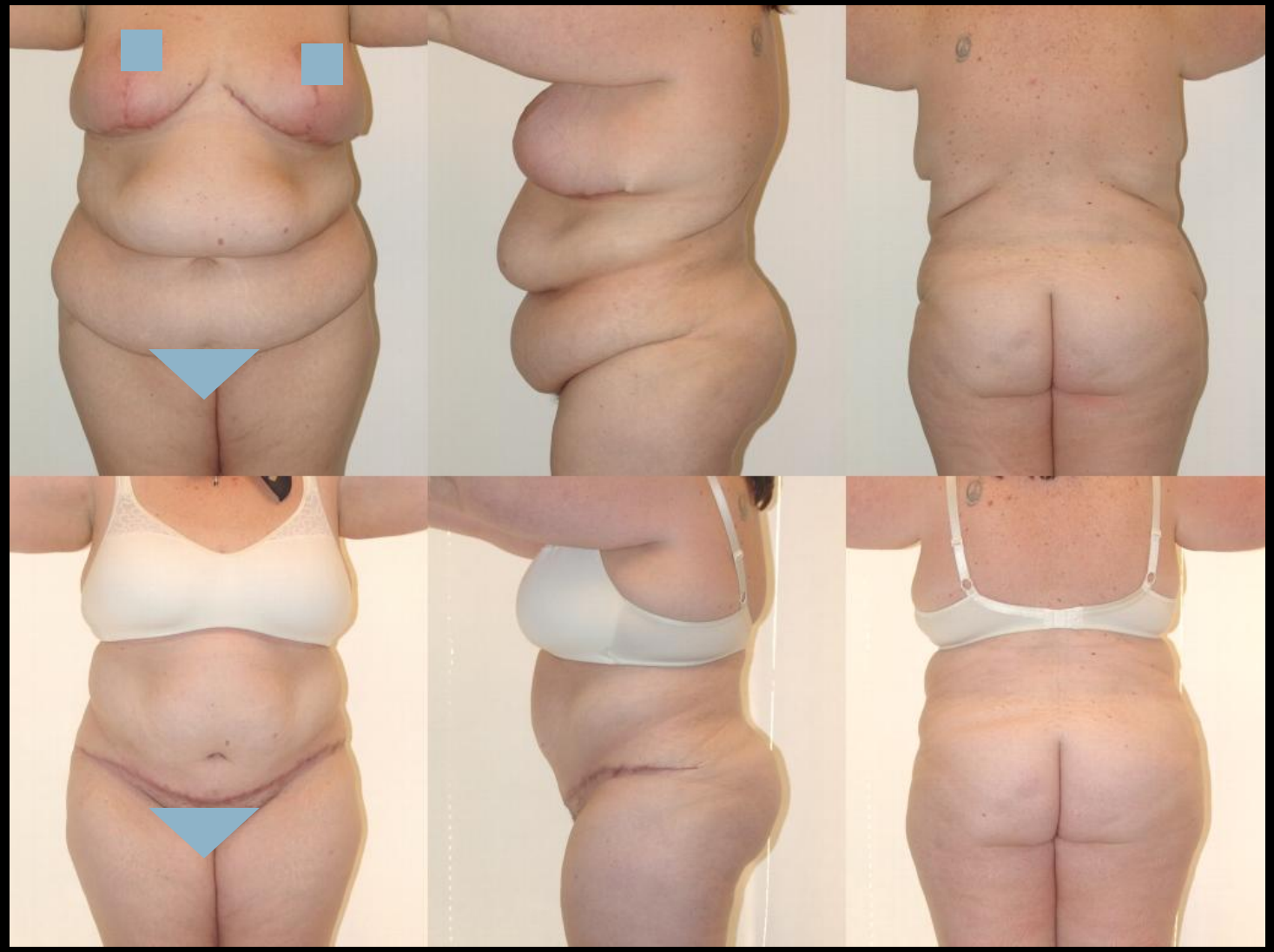


Case Study

Case Study

Case Study

Good candidate for…



Lipo-Bodylift

- Extension of lipo-abdominoplasty (Avelar)
- Circumferential skin excision
- Massive weight loss
- Challenging procedure
  - Prolonged operative time
  - Blood loss
  - Potential complications increased

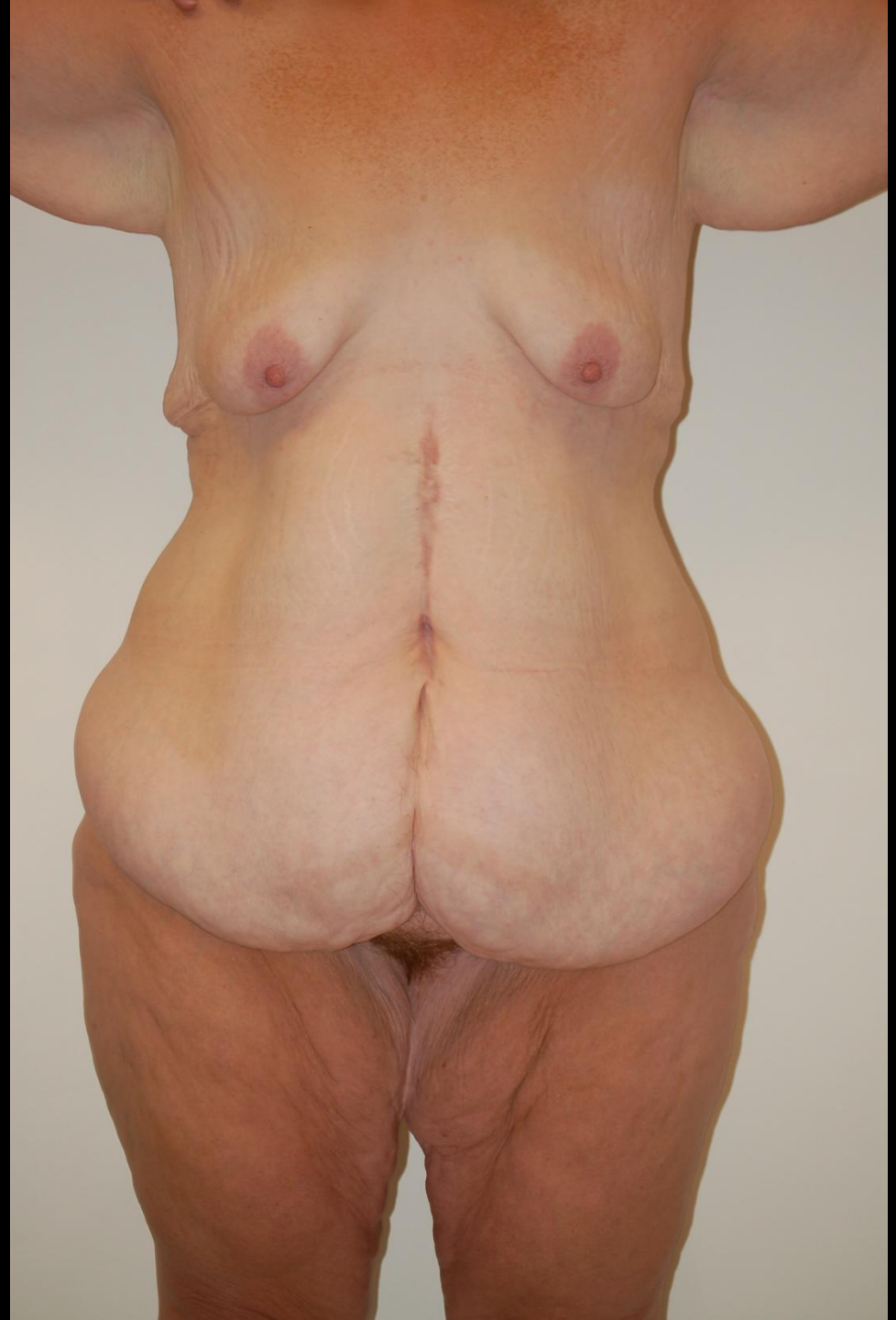
Courtesy of Le Belle Vie Surgery Centers.

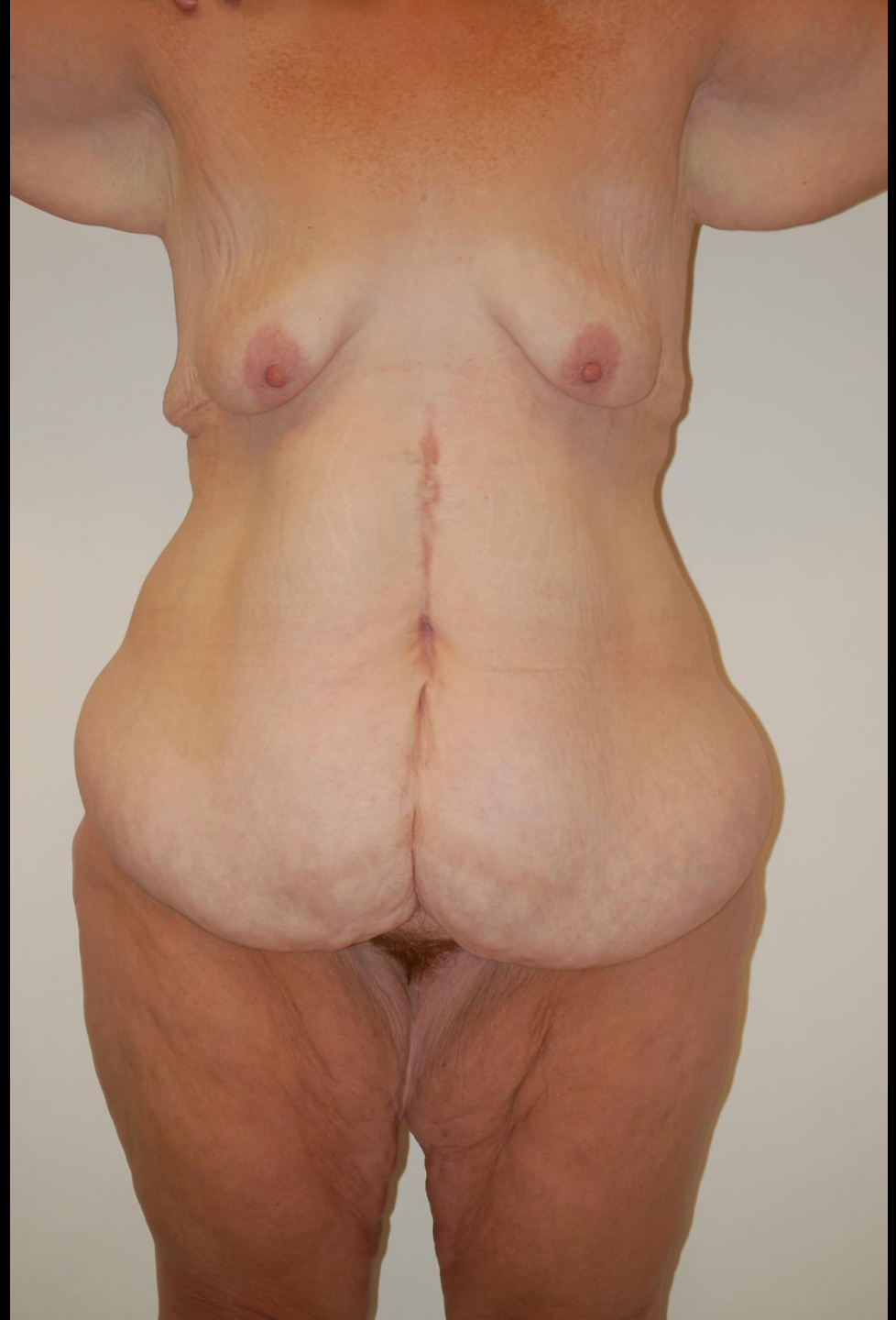
Patient Evaluation
Risk factors

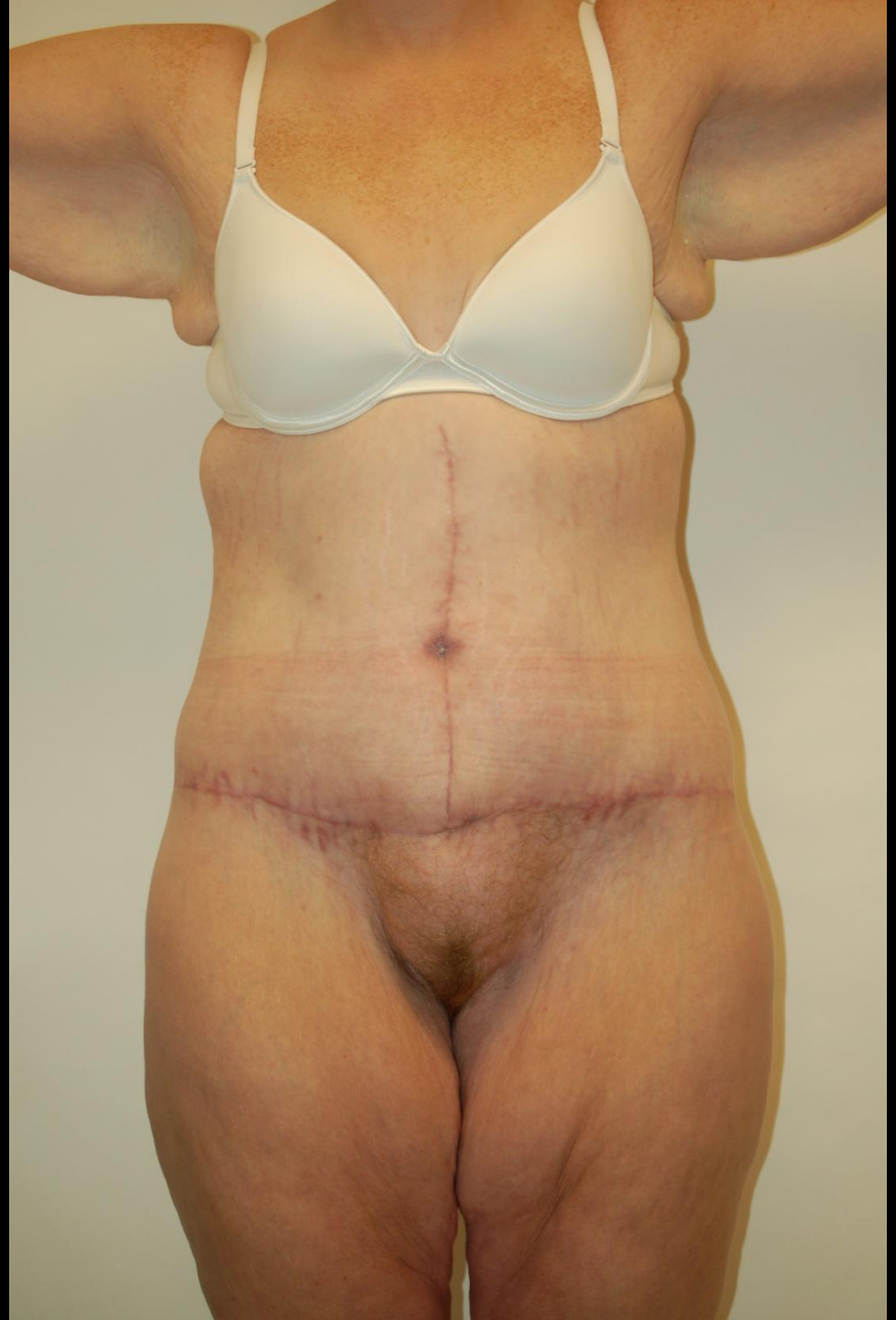
- Obesity
- Underlying disease
- Smoking
- Prior surgery
- Hernias
- Anesthesia risk
- BODY LIFT VIDEO (You Tube link 1)

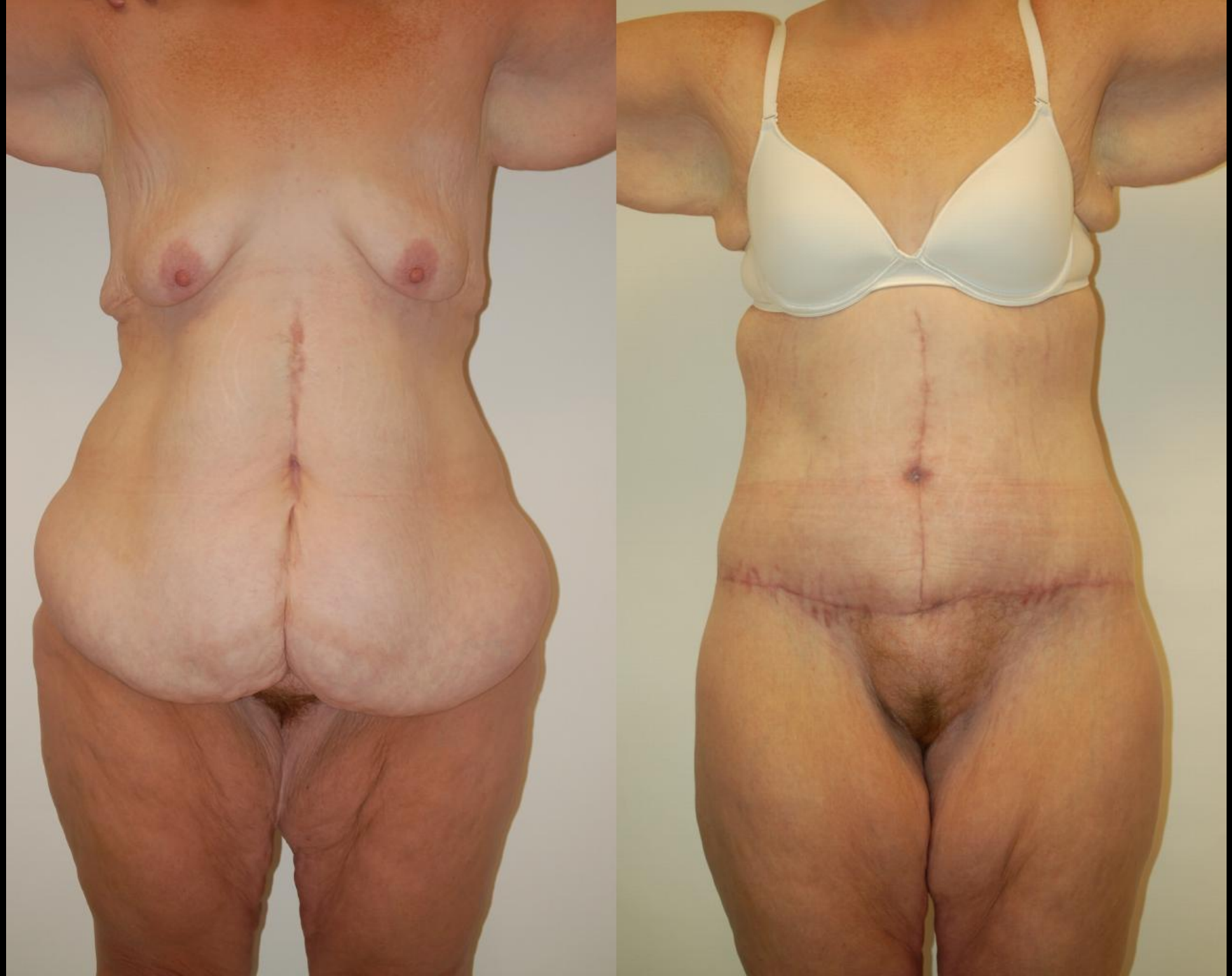
Courtesy of Le Belle Vie Surgery Centers.

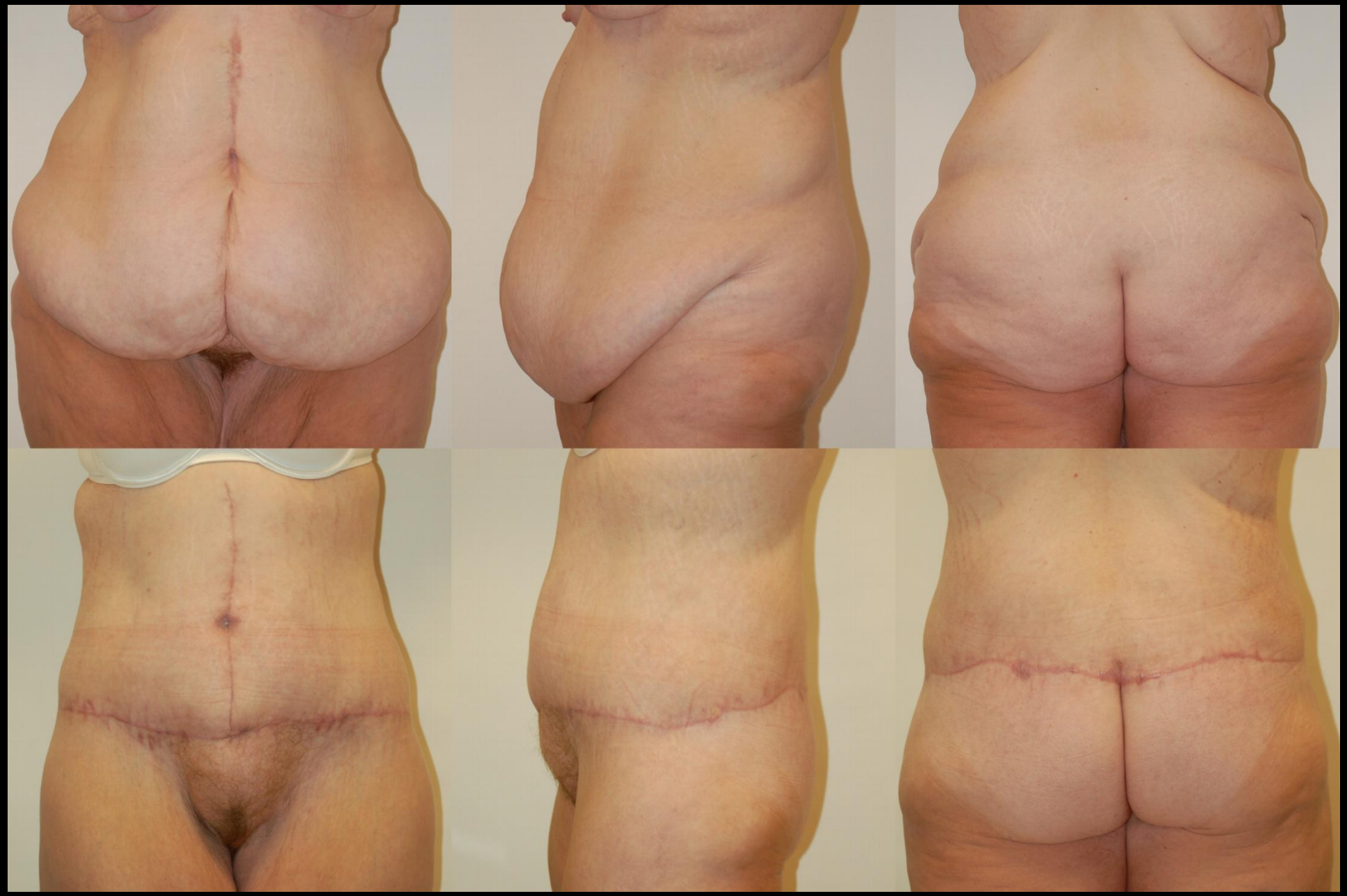
Full Body Lift using the Avelar Concept



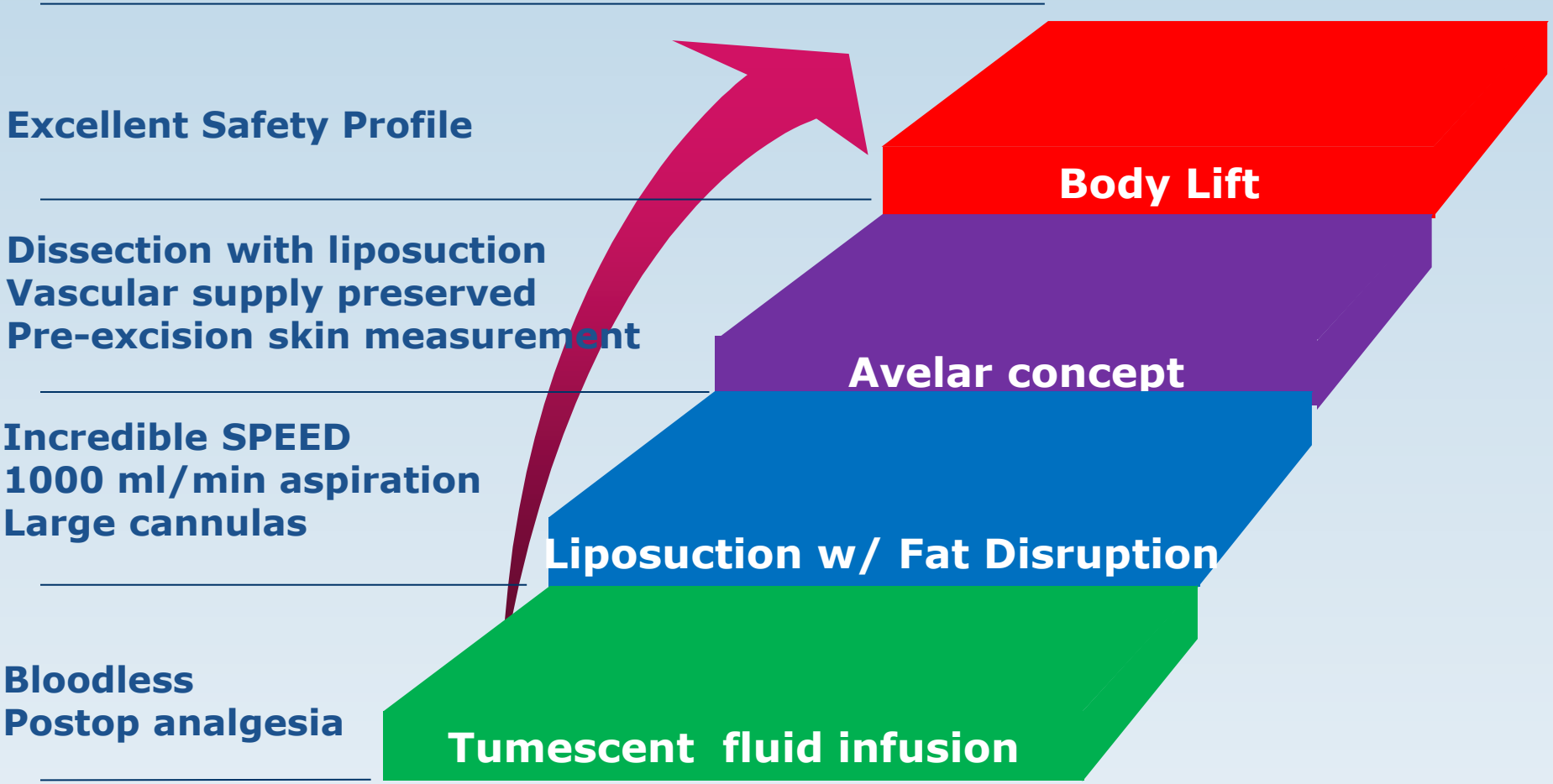








Lipo-BodyLift: Critical Elements



Courtesy of Le Belle Vie Surgery Centers.

Traditional vs. Lipo-Bodylift

- **Bodylift N=200 ++**
  - Hospital Stay = 3days
  - Drains = 25 days
  - Rtn to work = 6 wks
  - Operative time = 6 hrs (range 4-12)
  - Complications:
    - PE 1%
    - Transfusion 15%
- **Lipo-Bodylift N=24**
  - Outpatient
  - No drains
  - Rtn to work = 2 wks
  - Operative time = 4.5 hrs (range 3-6)
  - Complications:
    - PE = 0
    - Transfusion = 0

++Nemerofsky, Oliak, Capella. PRS 117 (2): 414-430. Body Lift: An Account of 200 Consecutive Cases in the Massive Weight Loss Patient.

Courtesy of Le Belle Vie Surgery Centers.

Lipo-Bodylift

What Makes Speed Possible?

- Tumescent fluid infusion
  - Bloodless
  - Postop analgesia
- Liposuction with Fat Disruption
  - Introduced in 2004
  - Incredible SPEED
  - 1000 ml/min aspiration
  - Large cannulas with smooth results
- Avelar concept
  - Dissection performed with liposuction
  - Vascular supply preserved
  - Pre-excision skin measurement

Courtesy of Le Belle Vie Surgery Centers.

Lipo-Bodylift
Highlights

- Liposuction integral to technique
  - Extensive liposuction is expected & safe
  - Greater body sculpting possible
  - Circumferential liposuction standard
- Existing blood supply preserved
- No drains
- Faster recovery
- SPEED

Courtesy of Le Belle Vie Surgery Centers.

Tools of the Trade

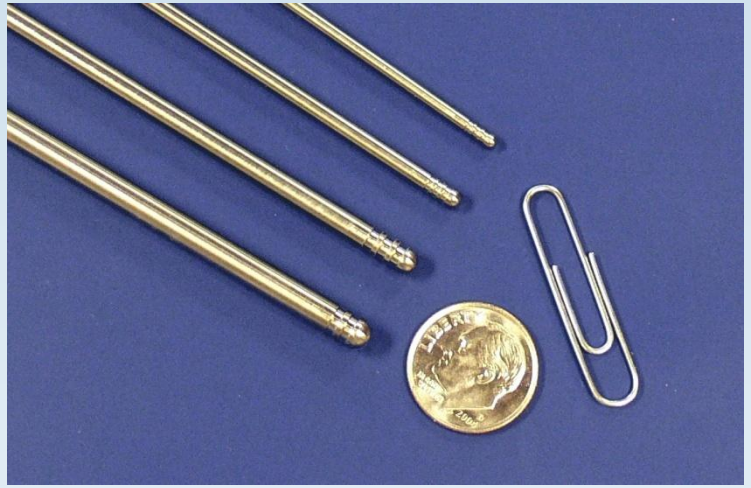
- Advanced ultrasound for superficial work
- Macro fat disrutpors for large volume lipo
- Small VentX cannula for refined work

VASER Ultrasonic Liposuction

- Complete system optimized **for harvesting fat for subsequent grafting**
- Energy specifically tuned to preserve connective tissue and **maintain fat cell & ADRC (Stem Cell) viability**
- Atraumatic cannulas and precise suction pressure control to **minimize fat cell trauma**

Proprietary Probe Design

- VASER® probes are small diameter (2.2 – 4.5mm)
- Probe vibrates very short distance 36,000 times/second
- No sharp edges or cutting
- Designed to significantly increase efficiency



Liposuction Technique

- Fat disruption critical for SPEED
  - Vasoconstriction = almost bloodless
  - Speed critical for larger volumes
  - Smoother results
- Standard tumescence
  - Stay within 35-50 mg/kg lidocaine limit
  - Virtually bloodless

Courtesy of Le Belle Vie Surgery Centers.

Fat Disruption Concept

- Not a new idea
- Chopped up fat is easier to aspirate
- VASER (Ultrasonic Liposuction)
  - Fat disruption before liposuction
  - Great in tough areas (scar, gynecomastia)
  - Made aspiration easier

Courtesy of Le Belle Vie Surgery Centers.

Fat Disruption Concept

- Blugerman liposhifting instrument
  - Introduced in 2002 Liposuction World Congress
  - Designed to create mini fat grafts internally
  - *in vivo* fat grafts manually shifted to fill defect
  - Solid core cannula 3-4mm diameter
- Current concept conceived in 2003
  - Mechanical disruption of fat infrastructure
  - Goal is to DESTROY FAT with large cannulas
  - Detach the fat from its stroma before suction
  - Uses much larger cannulas: 5-6mm typical

Courtesy of Le Belle Vie Surgery Centers.

Fat Disruption
Critical Advantages

- SPEED
  - Rapid volume reduction
  - Aspiration speeds up to 1500ml/min
  - Large cannulas without irregularities
  - Critical factor to safety
- Smooth results regardless of cannula size
  - No suction applied during disruption
  - Even superficial passes do not leave divots
- Especially useful for:
  - Large volume reduction
  - Beginning liposuction surgeons

Courtesy of Le Belle Vie Surgery Centers.

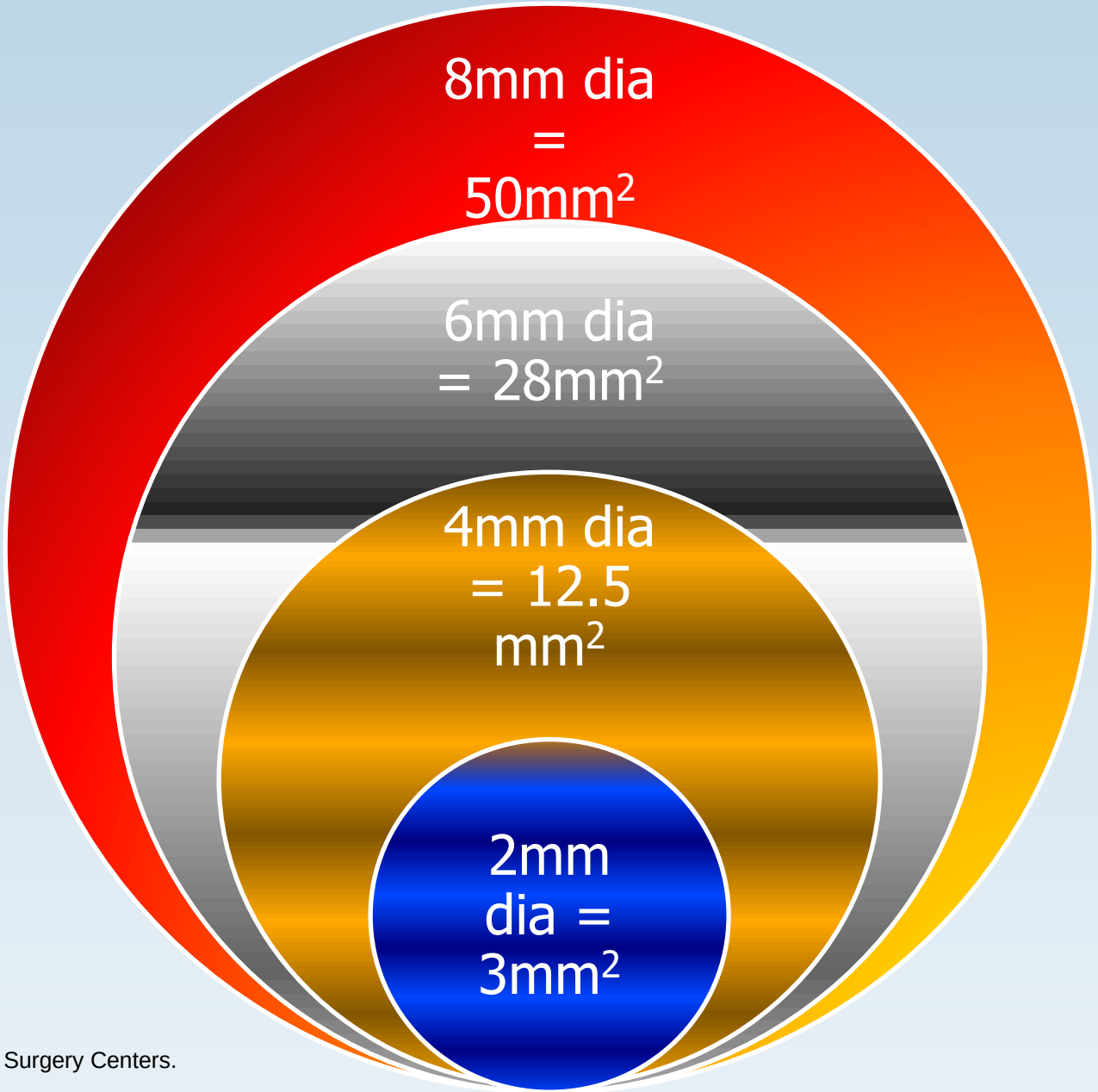
Rapid Volume Reduction
How is it possible?

- Flow is function radius of cannula^2
- Large cannulas

$$FLOW = \pi r^2 \times Velocity$$

Courtesy of Le Belle Vie Surgery Centers.

Effect of Cannula Diameter on Flow



Courtesy of Le Belle Vie Surgery Centers.

Fat Disruption
Instrumentation and Technique

- Large 5 & 6mm cannulas work best
- Use similar size aspiration cannulas
- Fat disruption
  - Not designed for fat grafting
  - Pulls fat off stroma WITHOUT SUCTION
  - Fast resistance free flow with suction
  - Smooth results

Courtesy of Le Belle Vie Surgery Centers.

- Large fat disruption surface
- Standard tumescence
- Increased tissue turgor
- No suction applied yet
- Start deep next to muscle
- 5-6 minutes, loss of resistance

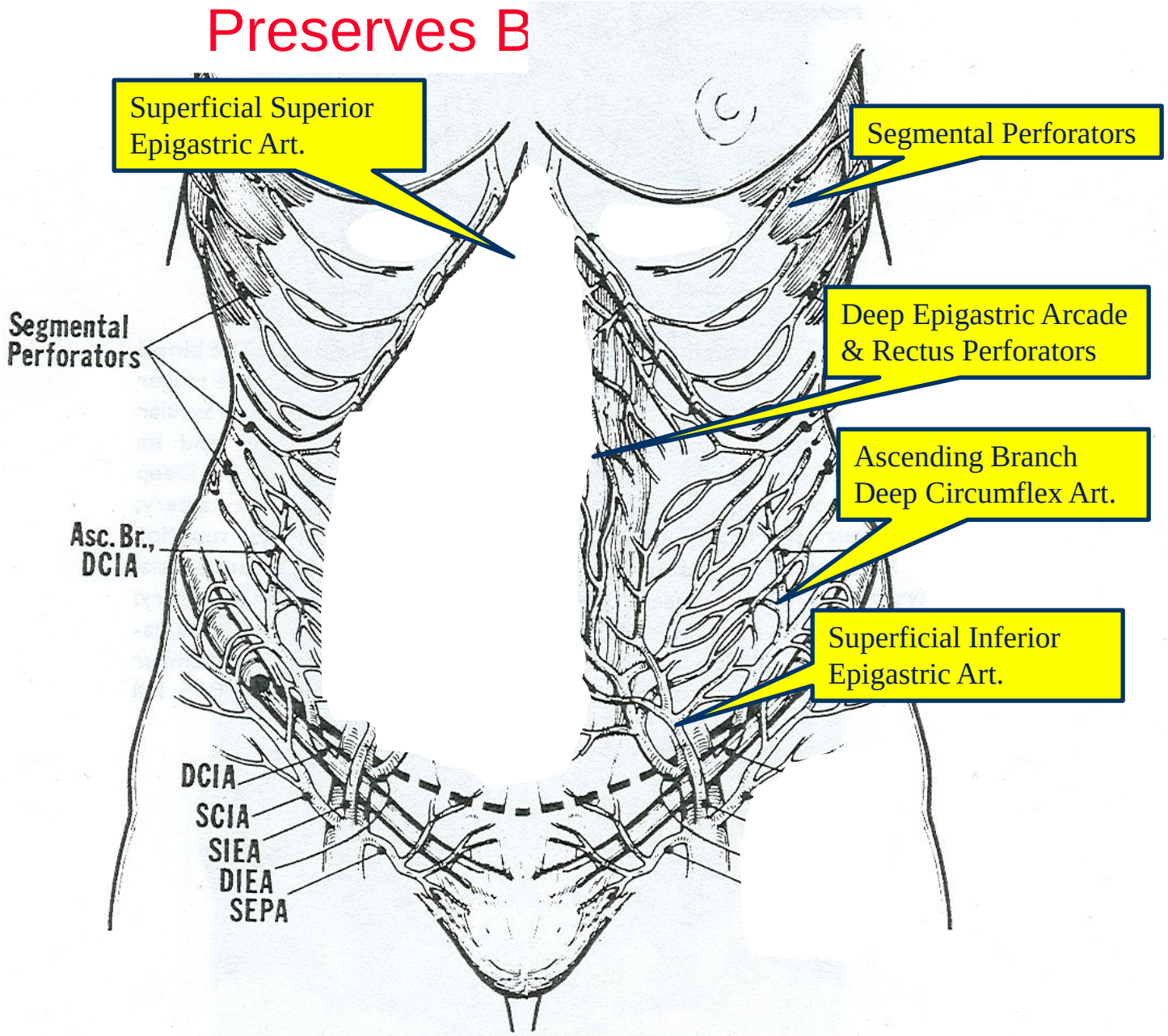
- Able to get close to surface
- No surface defects
- Begin 60 secs of suction

- Large 6mm cannula
- Note free flow of aspirate
- *1000ml in 60 seconds!*


after disruptor

Before Bodylift

Preserves B

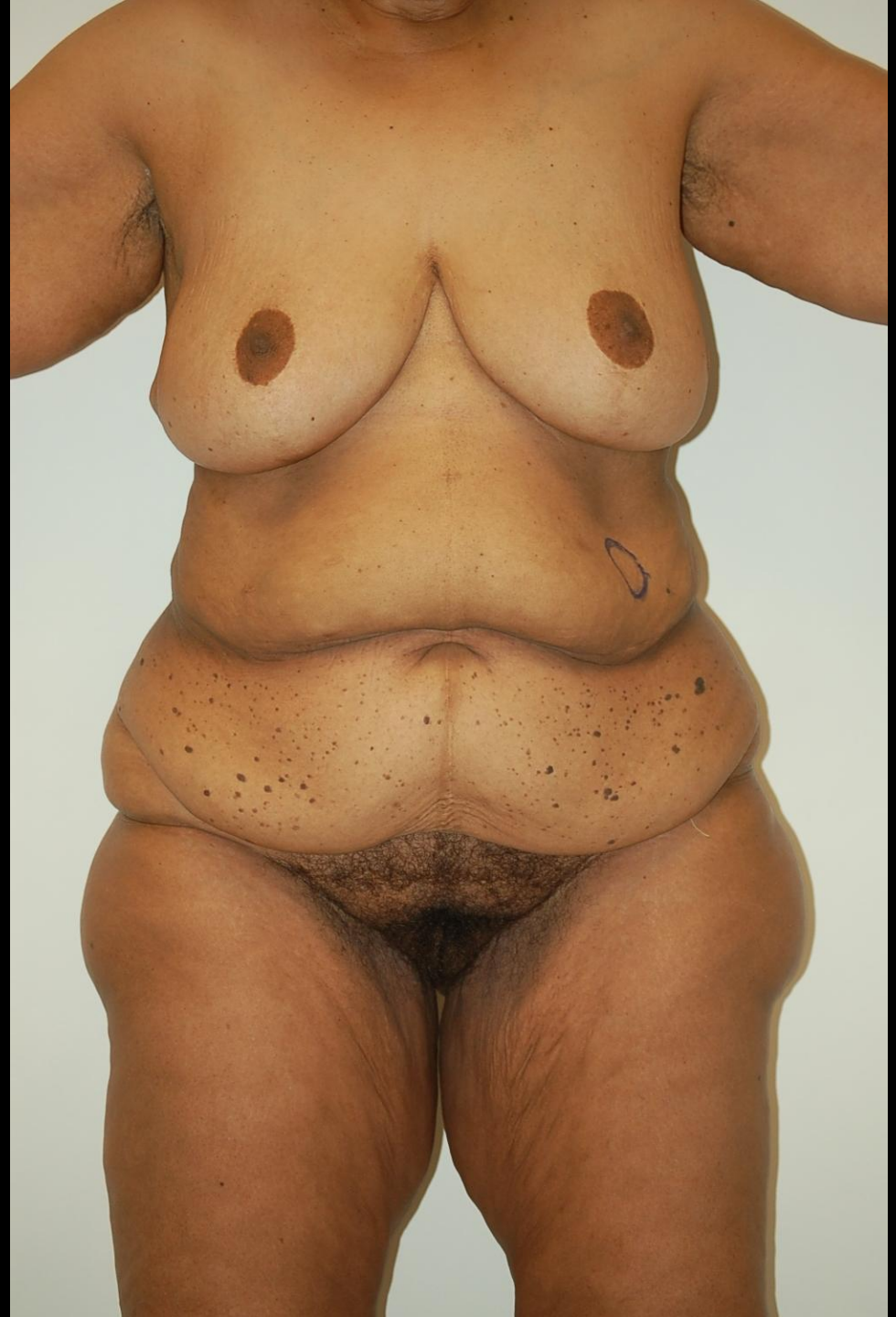


++Nemerofsky, Oliak, Capella. PRS 117 (2): 414-430. Body Lift: An Account of 200 Consecutive Cases in the Massive Weight Loss Patient.

- Midline
- Mark ideal incision line
- Estimated skin excision
- Tumescent infusion
- Fat disruption and liposuction
- Tailor tack-precise excision & location

- Excise skin, blunt avulsion
- 2 layers skin closure
- Turn supine for abdominoplasty

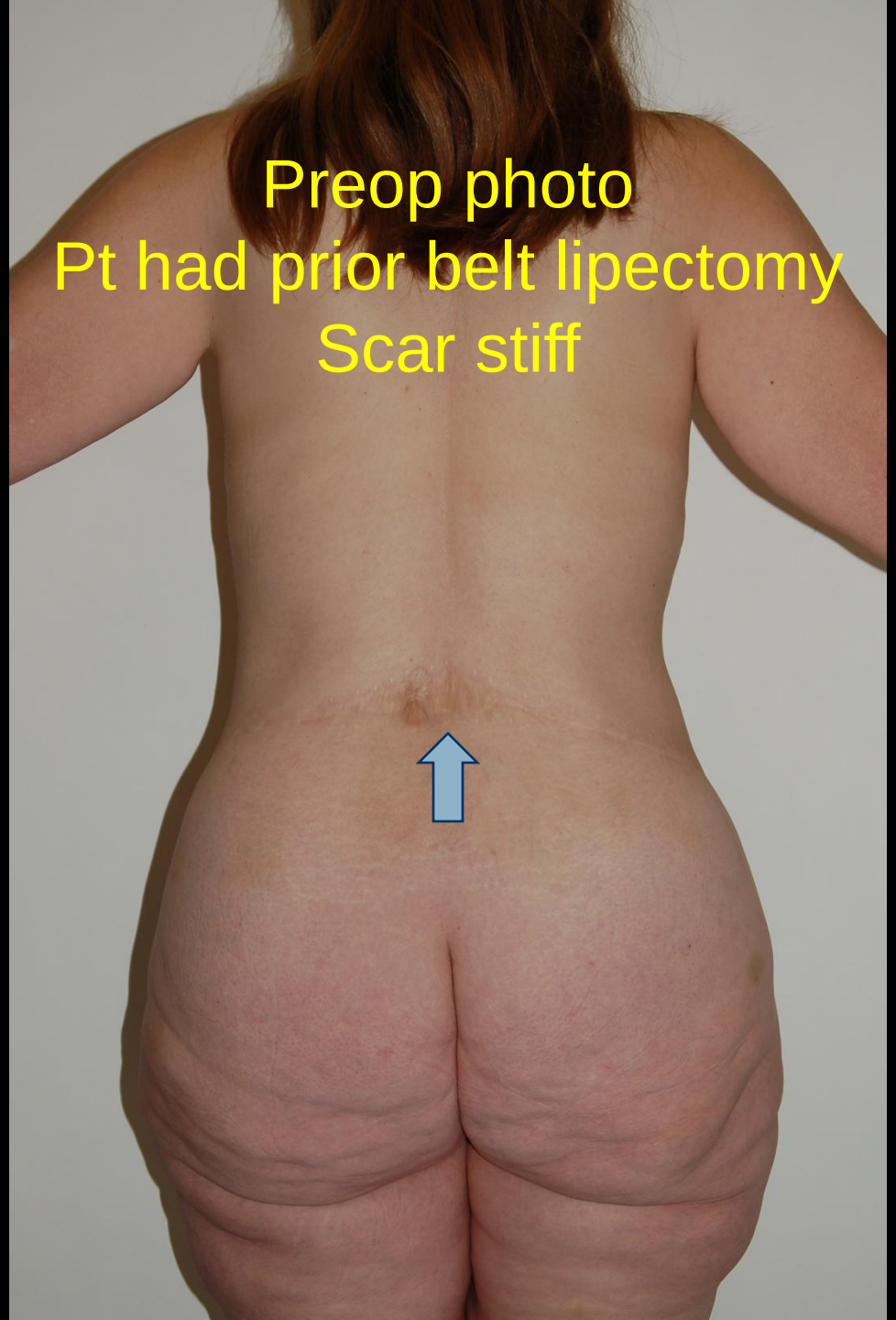
- Tumescent infusion and liposuction
- Tailor tack and skin excision
- Complete Closure



Complications

- Infection 2
- Seroma 2
- Partial necrosis umbilicus
- Dehiscence 7 minor, 1 major
  - Gastric bypass patient
  - Revision belt lipectomy 8 yrs ago
  - Only one to return to OR

Courtesy of Le Belle Vie Surgery Centers.


Preop photo
Pt had prior belt lipectomy
Scar stiff


3 Days Postop
Scar stiff
Major dehiscence

Lipo-Bodylift Summary

- SPEED
  - Tumescent infiltration
  - Fat disruption: 1000 ml/min aspiration
  - Bloodless, liposuction does undermining
  - Precise pre-determined skin excision
- SAFETY
  - Preserves neurovascular supply
  - Extensive liposuction safe with lipo-bodylift
  - Far fewer morbities than traditional bodylift
- FASTER RECOVERY
  - Outpatient procedure
  - No drains
- SIGNIFICANT CONTRIBUTION

Courtesy of Le Belle Vie Surgery Centers.

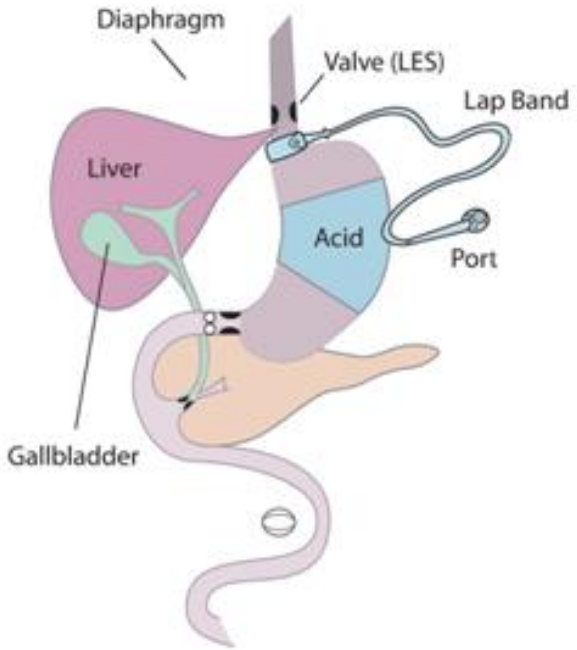
Weight Loss Surgery

Courtesy of Le Belle Vie Surgery Centers.

Stomach Restrictive Operations

ADJUSTABLE GASTRIC BAND (AGB)

No malabsorption

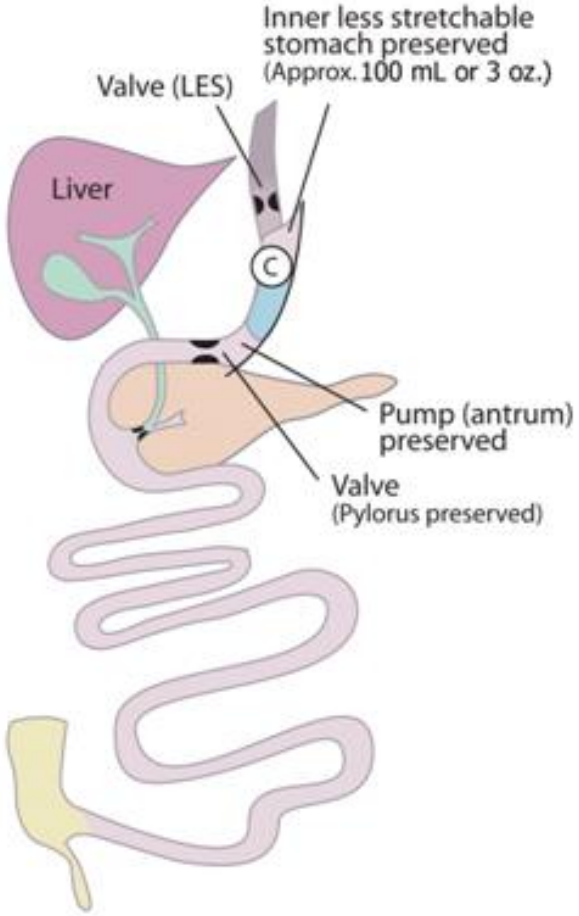


Approx. 50-60% EWL

Variability in results

SLEEVE GASTRECTOMY

No malabsorption

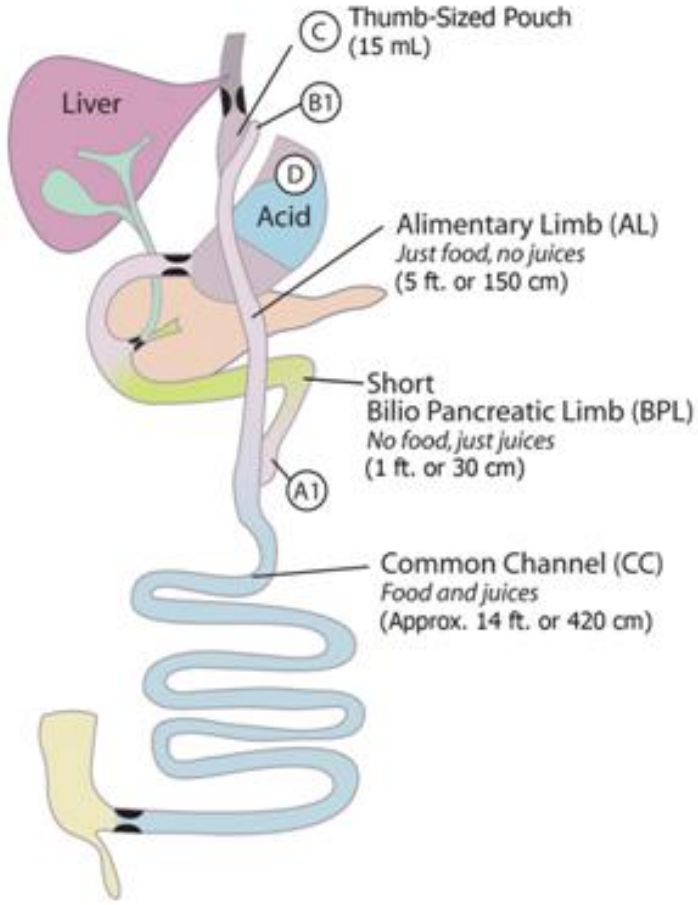


Approx. 70% EWL

Very predictable weight loss expected

PROXIMAL - ROUX-EN-Y GASTRIC BYPASS

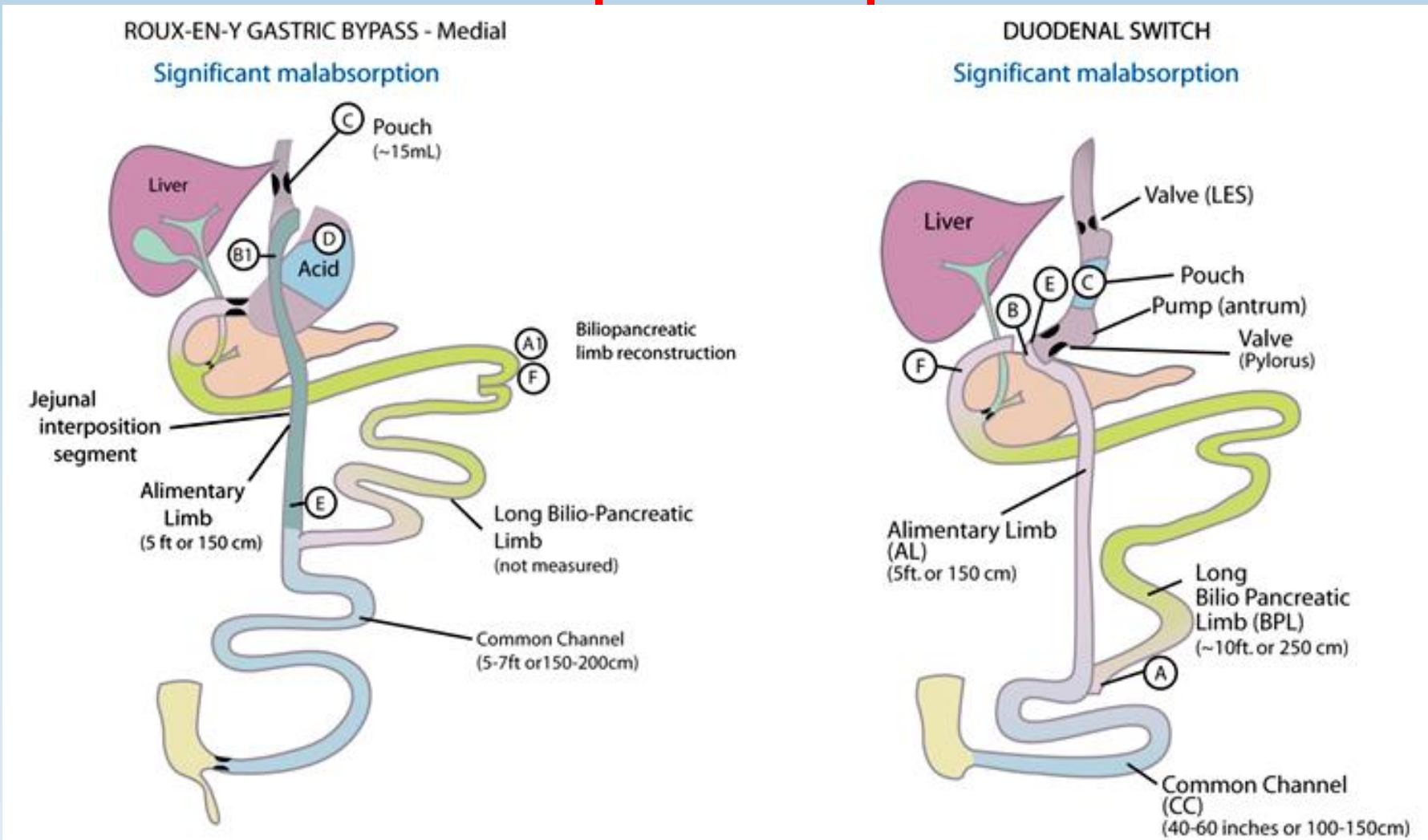
Mild malabsorption



Approx. 70% EWL

Risk for late regain (50% EWL at 5-10 years)

Malabsorptive Operations



80% EWL (67%-92%) @ 10 yrs	75% EWL (67%-80%) @ 10 yrs

Weight Loss Surgery Types:

Stomach Restrictive & Malabsorptive

Distribution and tensile strength of subcutaneous fat (including the SFS) can vary depending on the type of weight loss surgery the patient has had.

- **Stomach restrictive surgeries** – Sleeve Gastrectomy, Adjustable Gastric Band (AGB), Proximal Gastric Bypass
  - **Skin and subcutaneous tissues typically normal (not thinned out)**
- **Malabsorptive surgeries** – Duodenal Switch, Distal (Medial) Gastric Bypass
  - **Thinner tissues, less elastic**
  - Higher bleeding risk – vitamin K deficiency, 10 mg IV the night before and day of surgery or 5 mg qid for a month preceding
  - **Hypoproteinemia and Hypoalbuminemia must be corrected**
  - Iron deficiency: iron infusions (1g of Venofer)

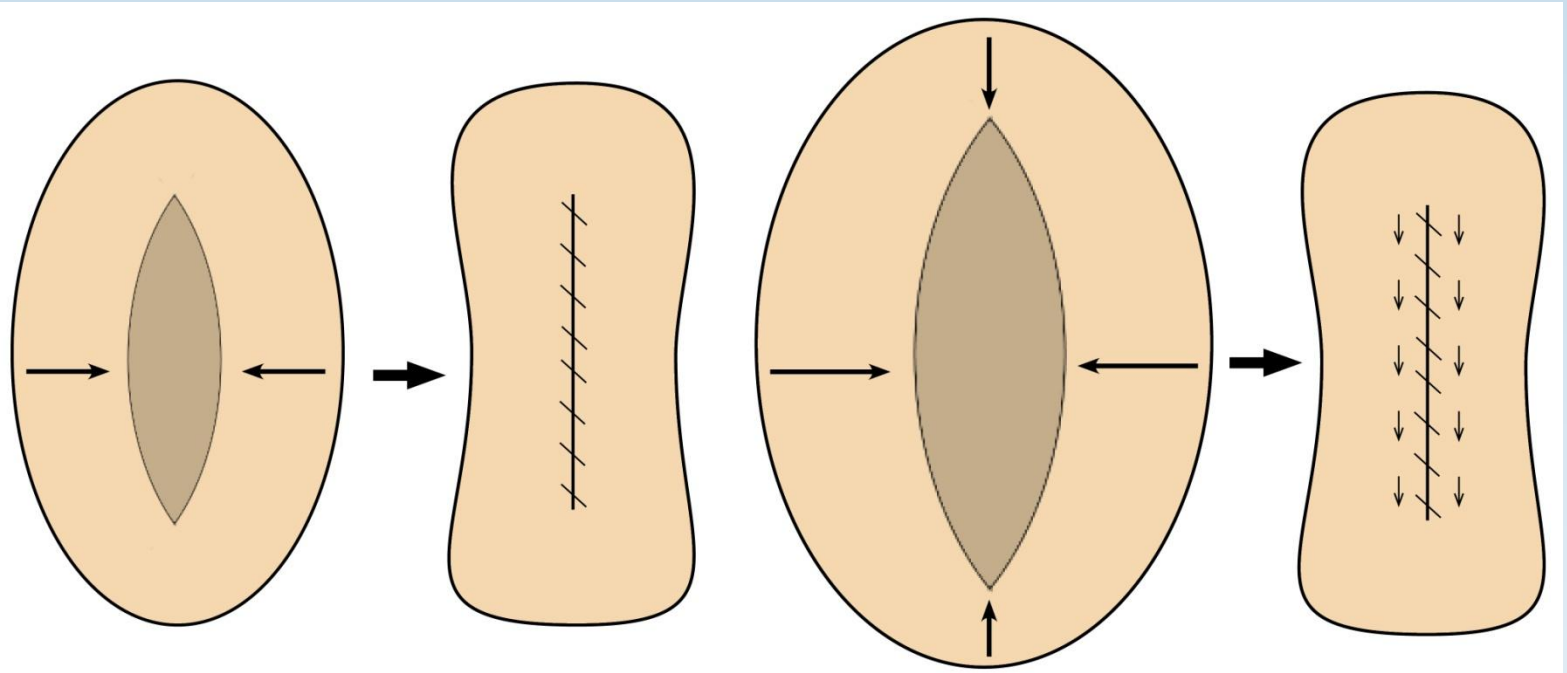
Special Considerations for Weight Loss Surgery Patients

W/U Post-Bariatric Patient:

- **CMP, Mg Phos** – treat Hypoproteinemia (tp < 6.5) or Hypoalbuminenia (Alb < 3.5)
- **CBC** – investigate and treat anemia
- **Serum iron** – >100, Ferritin> 100 – if not give them IV iron (Ferrilicit/ Venofer etc); very few side effects.
- **B 12** – shoot for levels > 600 – 1 mg sub q shots q week
- **PT/ PTT levels** – especially patients
- **Leg cramps (esp. in GBP/DS patients)** – check serum intact PTH, vitamin D, serum calcium, 24 hour urine ca – may be secondary to inadequate calcium/ vitamin D replacement. Generally we want to see vit D ~50; PTH < 60 and 24 hour ca in the 200-250 range.

Abdominal Wall Plication Principles

Goal is to correct abdominal girth in the horizontal and vertical directions to restore abdominal wall function (e.g. correct back problems)



Normal weight patient

Weight Loss Surgery Patient

Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. Pg. 151, Fig. 12.26 - 12.30
Toranto IR. R esolution of back pain with the wide abdominal rectus plication abdominoplasty. Plast Reconstruct Surg. 1988 ; 81 : 777 .

Abdominal Wall Musculo-Aponeurotic Reconstruction Techniques

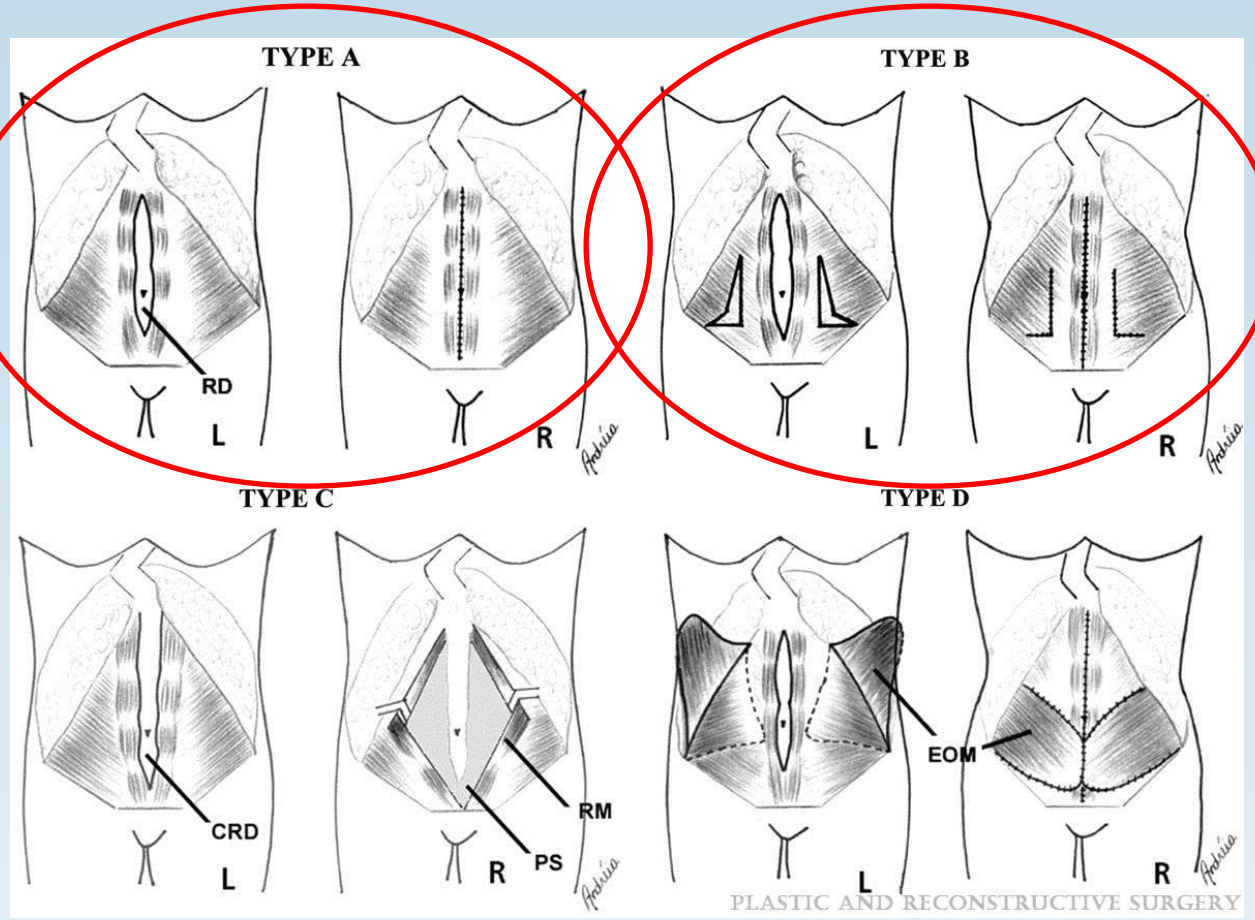
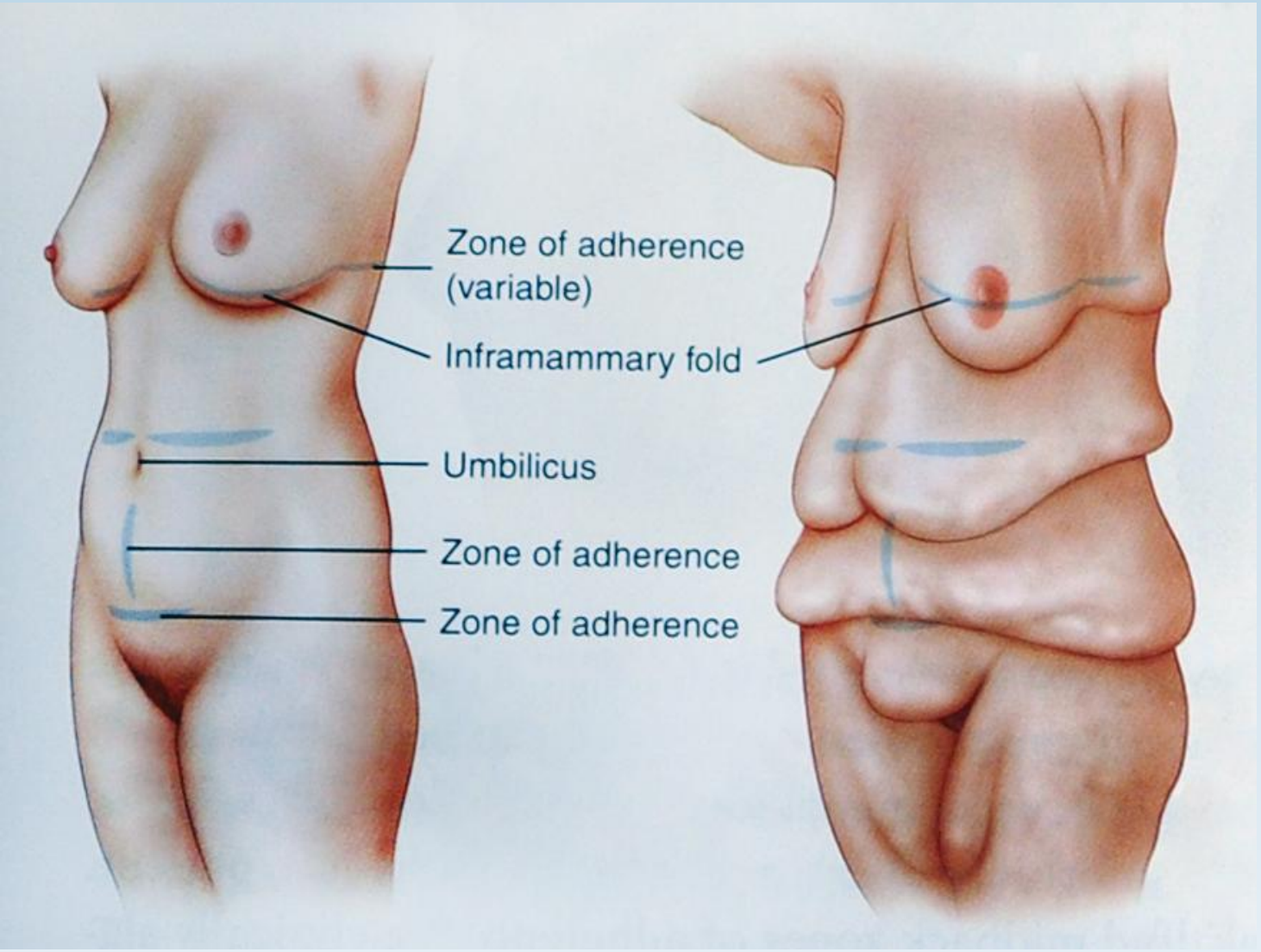
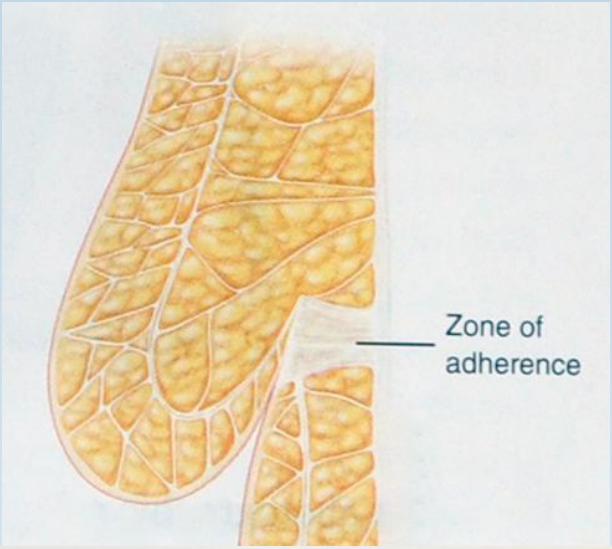


Fig. 2. Types of abdominal deformity and their correction. Type A, rectus diastasis secondary to pregnancy; correction is by plication of the anterior rectus sheath. Type B, rectus diastasis with laxity of the musculoaponeurotic layer; correction by plication of the anterior recuts sheath and external oblique aponeurosis. Type C, congenital lateral insertion of the rectus muscles at the costal margins and probable herniae. Correction by undermining the posterior rectus sheath, invagination of the linea alba, and anchoring the anterior rectus sheath to the midline. Type D, rectus diastasis and poor waistline definition. Correction is accomplished by anterior rectus sheath plication and medial advancement of the external oblique muscles. (Reprinted from Nahas, F. X. An aesthetic classification of the abdomen based on the myoaponeurotic layer. Plast. Reconstr. Surg. 108: 1787, 2001.)

Abdominoplasty. Friedland, Jack A.; Maffi, Terry R. Plastic and Reconstructive Surgery. 121(4):1-11, April 2008. doi: 10.1097/01.prs.0000305954.35080.8f

Zones of Adherence for Weight Loss Patients





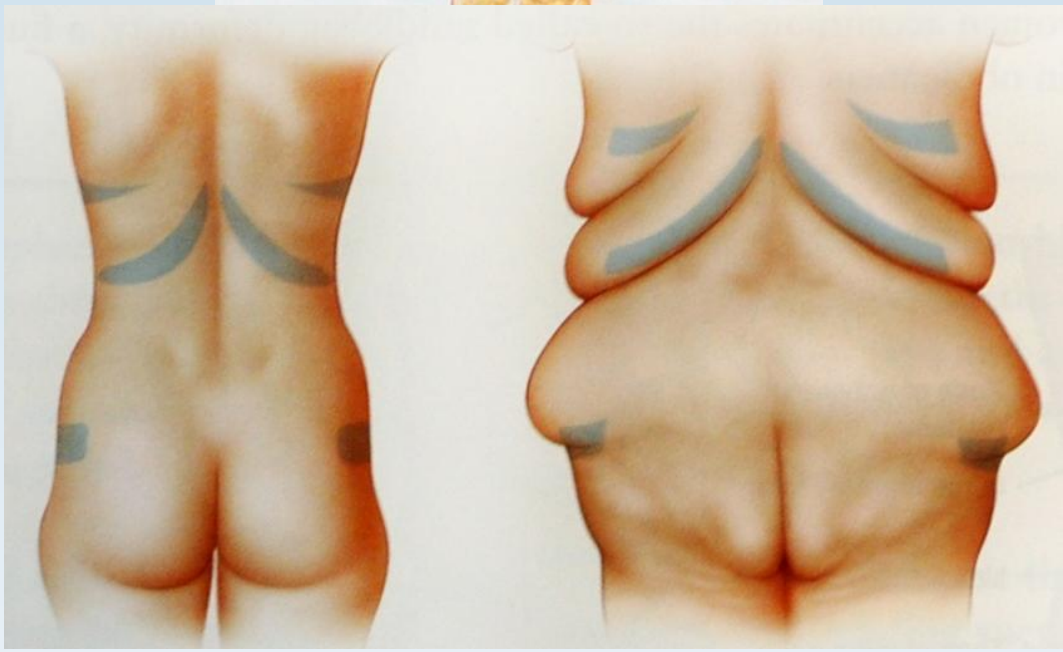
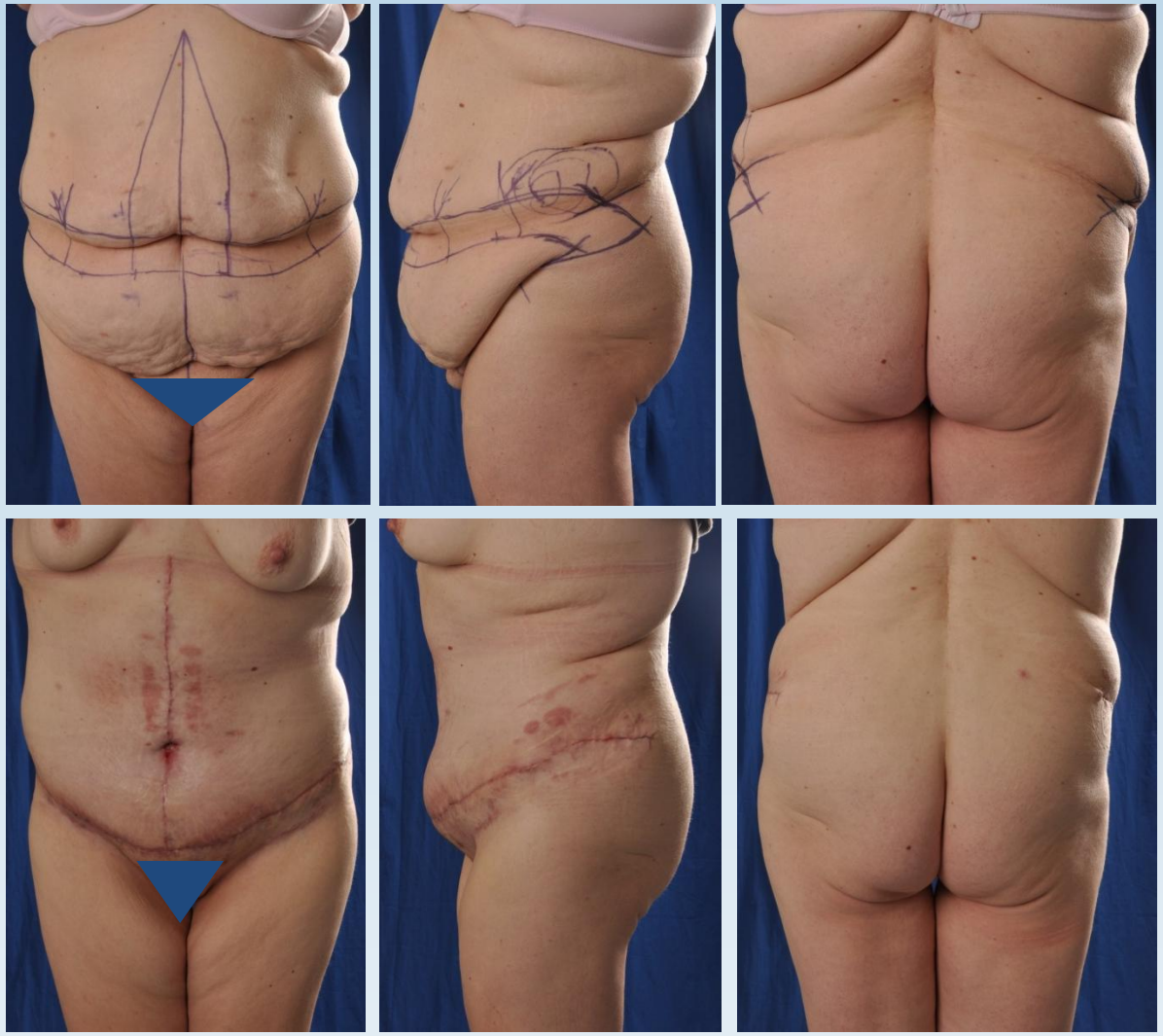


Photo credit: The Art of Aesthetic Surgery, pg. 2685-6

Zones of Adherence

Courtesy of Center for Weight Loss Surgery. 36 F; 2 y s/p Sleeve Gastrectomy; Total Weight Loss: 149 lbs.

Zones of Adherence



3 Weeks Post-Op

Courtesy of Center for Weight Loss Surgery. 36 F; 2 y s/p Sleeve Gastrectomy; Total Weight Loss: 149 lbs.

Cosmetic & Body Contouring Options

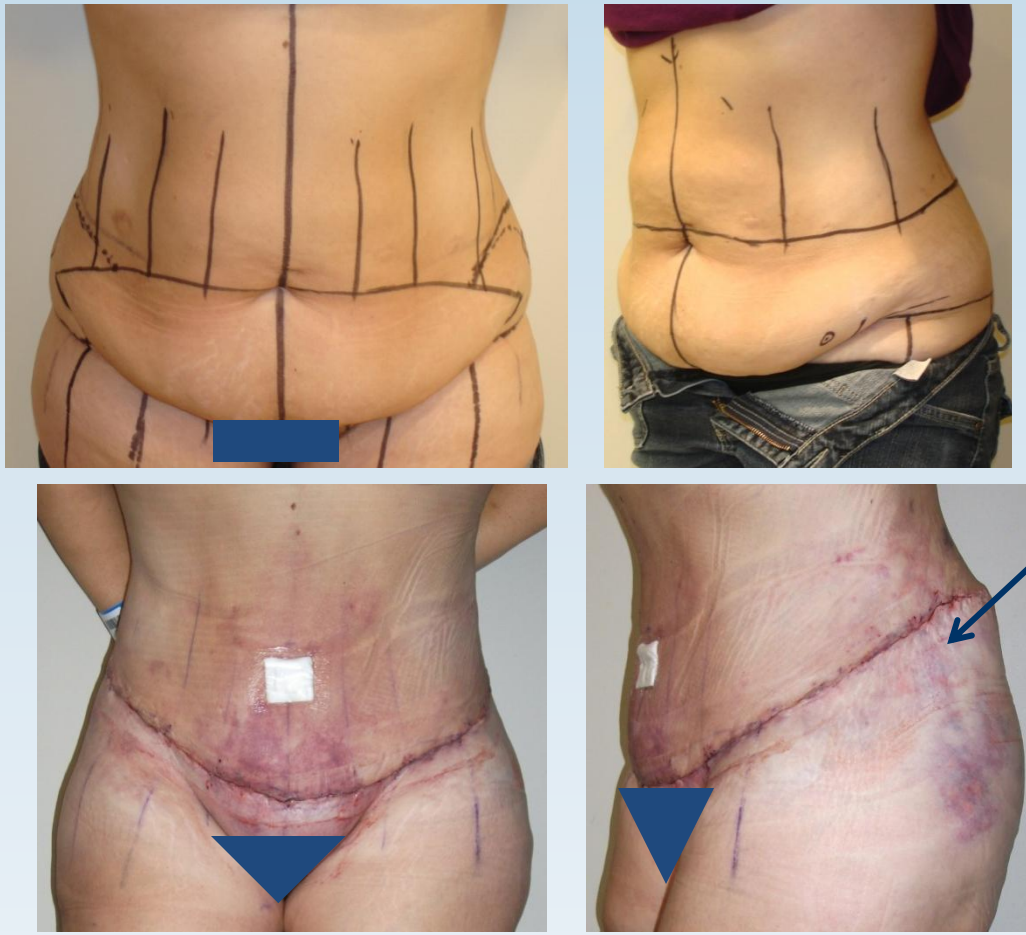
- Standard Abdominoplasty – conventional vs. lipo-abdominoplasty technique
- Bilateral Gluteal & Thigh Lift
- Fleur-de-Lis Abdominoplasty (w/ Thigh Lift)
- Circumferential Abdominoplasty (conventional vs. lipo-abdominoplasty)
  - Anterior Abdominoplasty
  - Bilateral Thigh Lift
  - Gluteal Lift
- Circumferential Fleur-de-Lis Abdominoplasty (w/ Bilateral Gluteal & Thigh Lift)

Medical Necessity

1. Relief from **lower back pain** from the large and heavy pannus.
2. Correction of **severe abdominal wall muscle deformities** which have been stretched by years of obesity.
3. Removal of areas of **Intertriginous Dermatitis** (rashes) which causes areas of inflammation and foul smell in the folds due to overhanging skin.
4. Improvement of **pelvic hygiene.**

Extended Abdominoplasty in a Weight Loss Surgery Patient

Using Lipo-Abdominoplasty Technique (Avelar)



Extended incision line for Abdominoplasty in weight loss surgery patients.

Courtesy of Center for Weight Loss Surgery. 43 F; 6 y s/p Proximal Gastric Bypass; Total Weight Loss: 73.6 lbs.

Fleur-de-Lis Abdominoplasty

Massive weight loss patients are often left with significant midline abdominal fullness. This is usually addressed best with the Fleur-de-Lis approach.

- The vertical & horizontal incision (inverted T) addresses both vertical and horizontal excess skin.

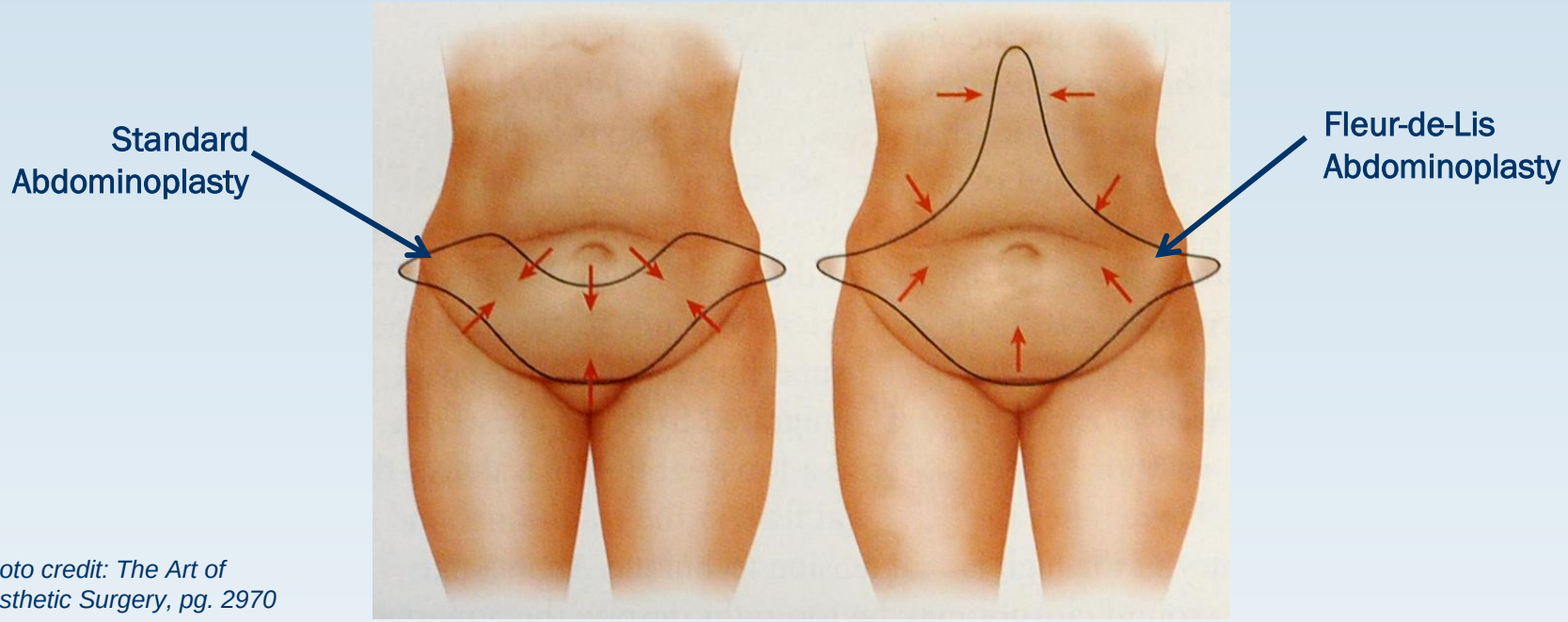
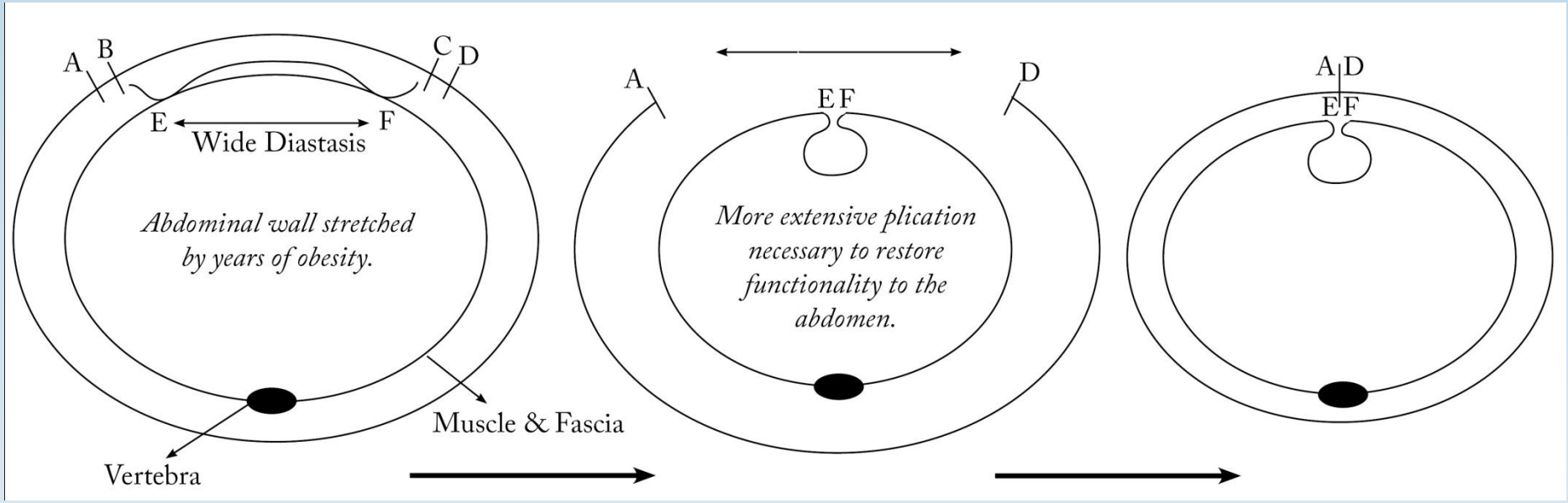


Photo credit: The Art of Aesthetic Surgery, pg. 2970

Wide Rectus Abdominis Plication (WRAP)

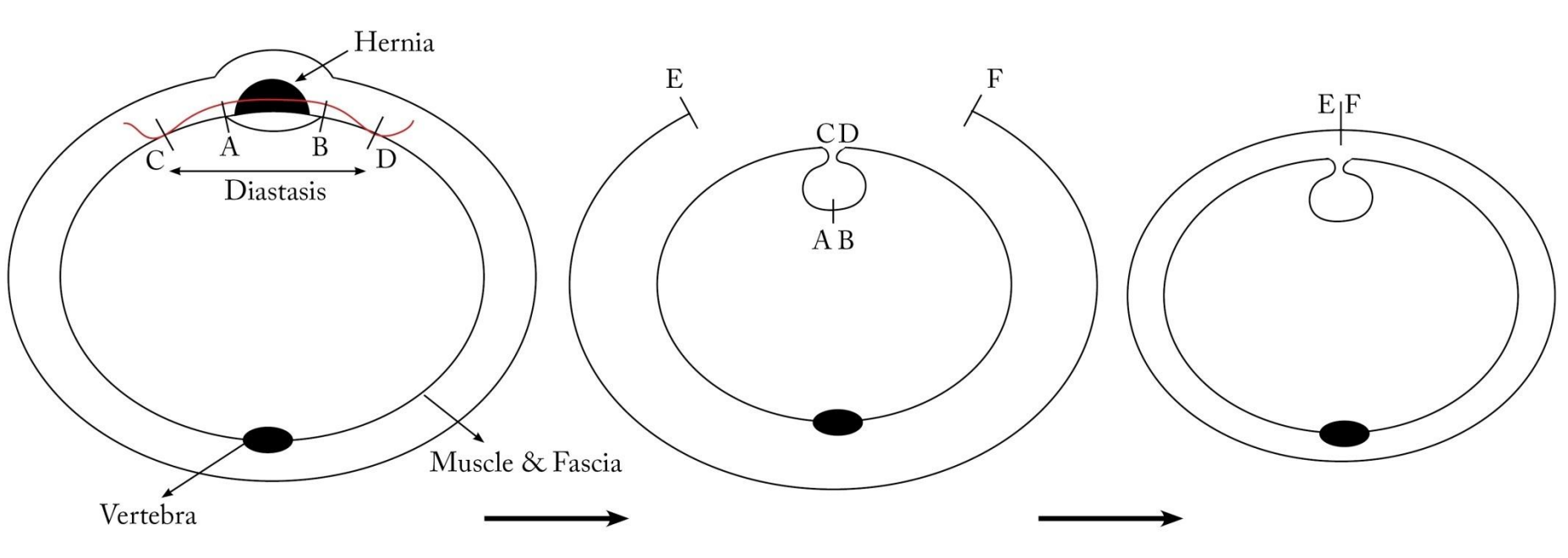


To address the midline abdominal fullness typical in massive weight loss patients, much wider Rectus Abdominis Plication is necessary to restore the abdominal muscle & fascia.

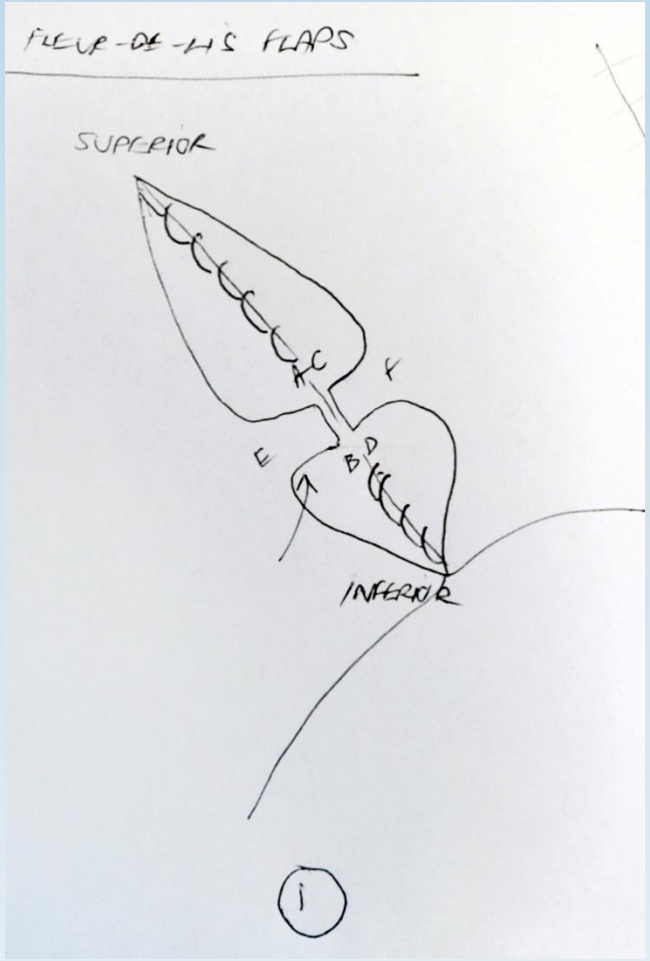
Toranto IR. R esolution of back pain with the wide abdominal rectus plication abdominoplasty. Plast Reconstruct Surg. 1988 ; 81 : 777 .
Photo credit: Body Contouring After Massive Weight Loss , pg. 200

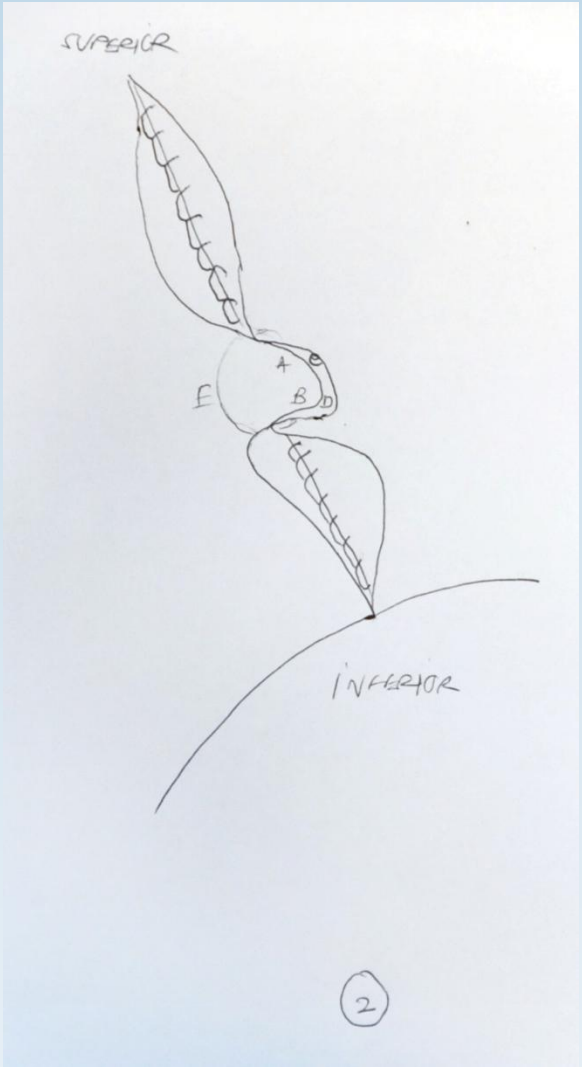
Wide Rectus Abdominis Plication with Hernia Repair

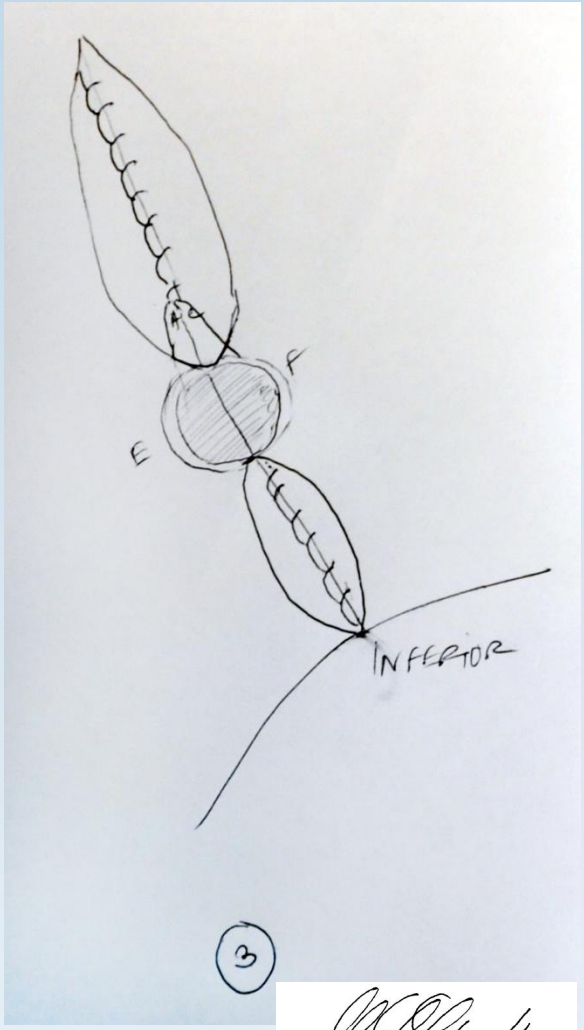
- Avoids use of mesh – could lead to bowel adhesions and fistula formation



Fleur-de-Lis Abdominoplasty Flaps



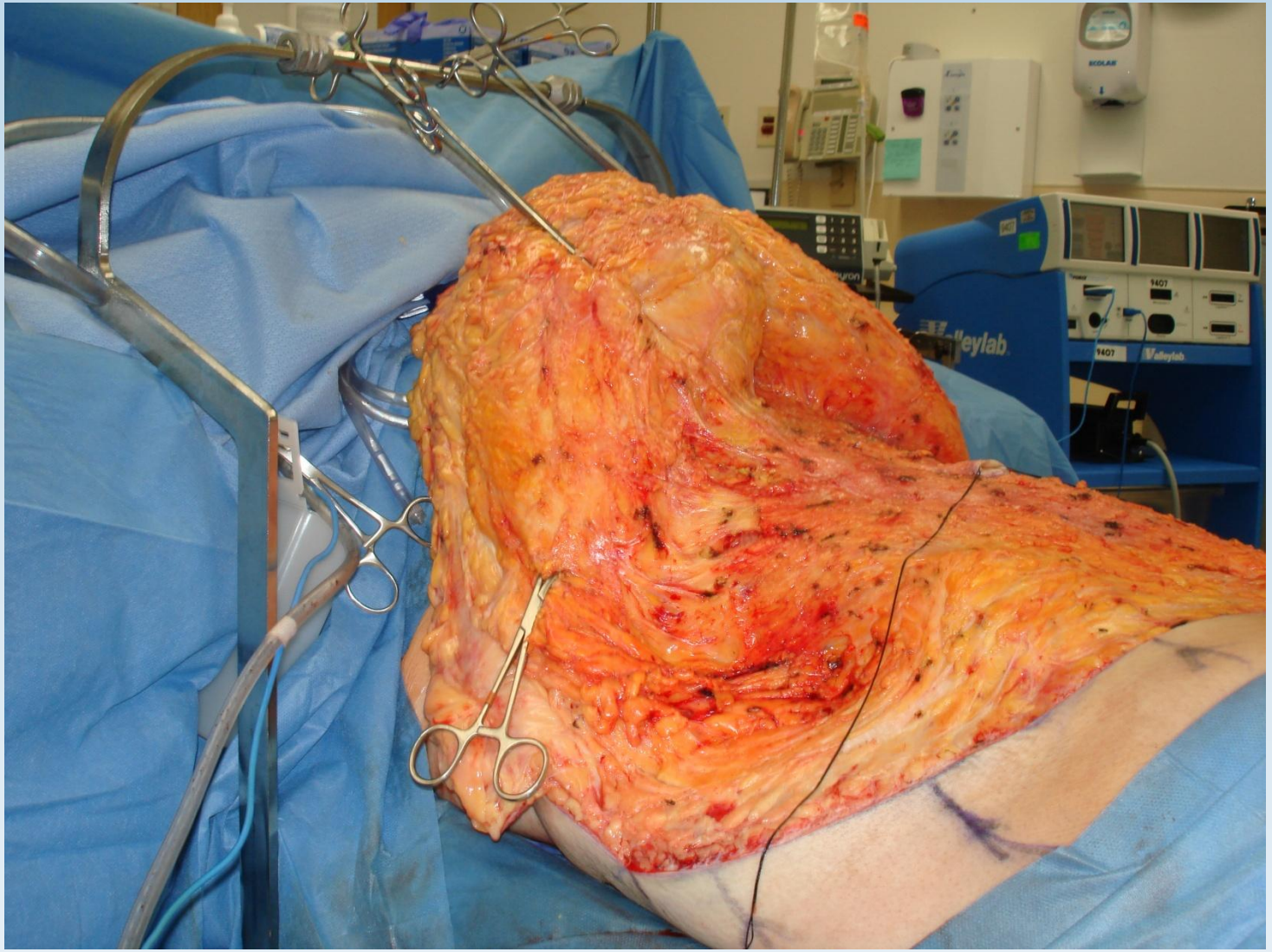




Fleur-de-Lis Extended Abdominoplasty

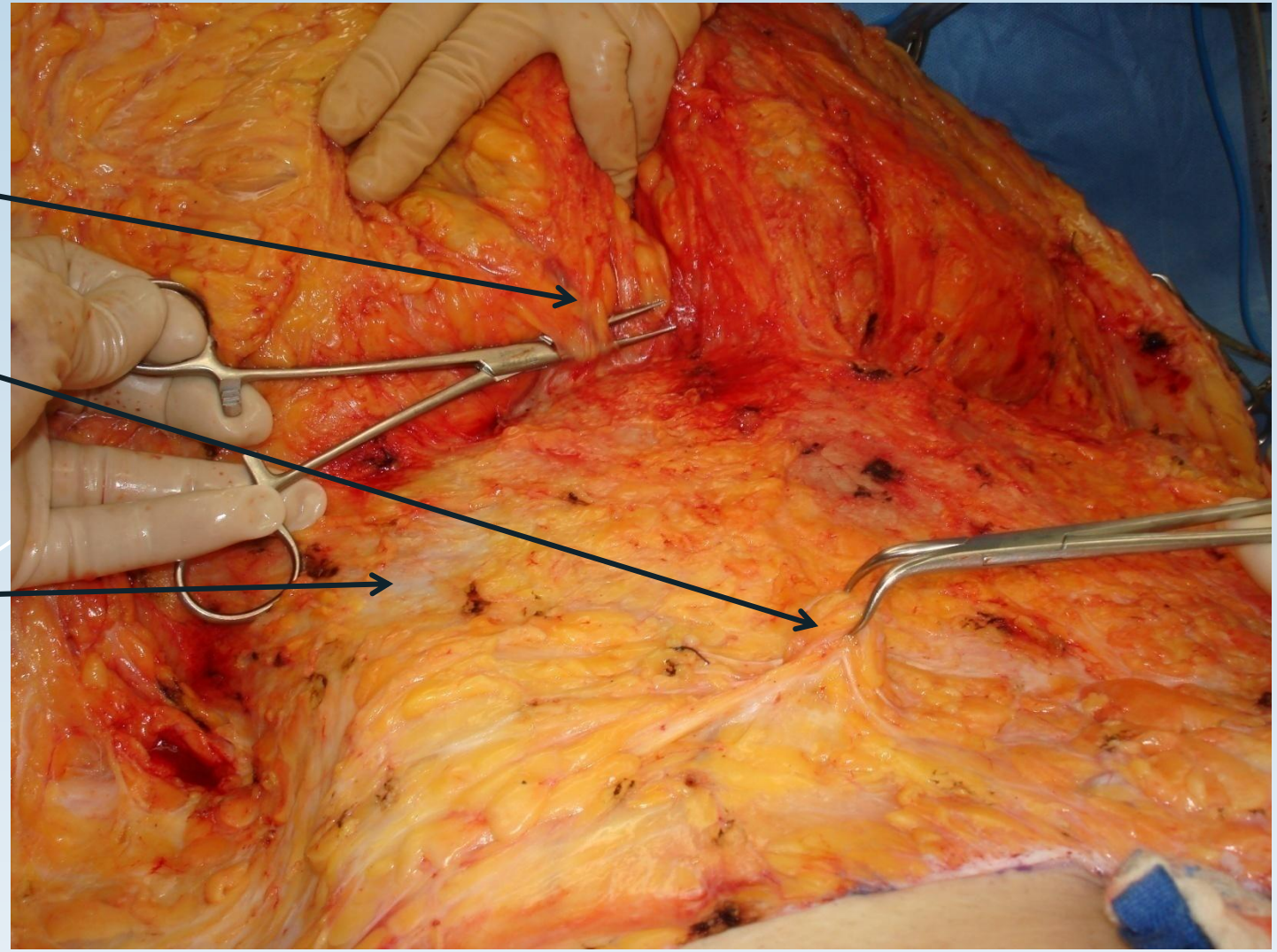
31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

Fleur-De-Lis Intra-Op: Set-Up



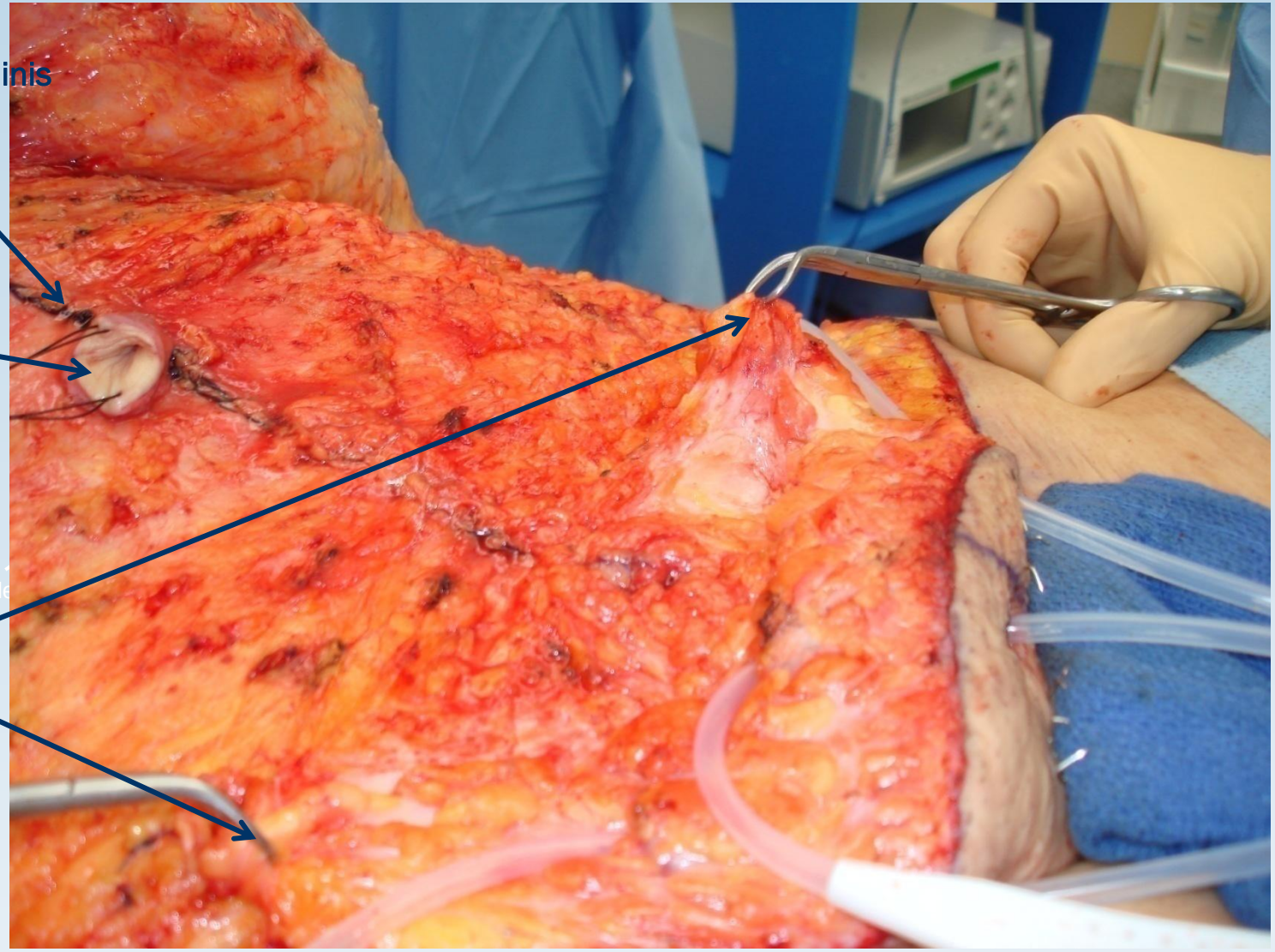
31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

Internal Scarpa Thigh Lift



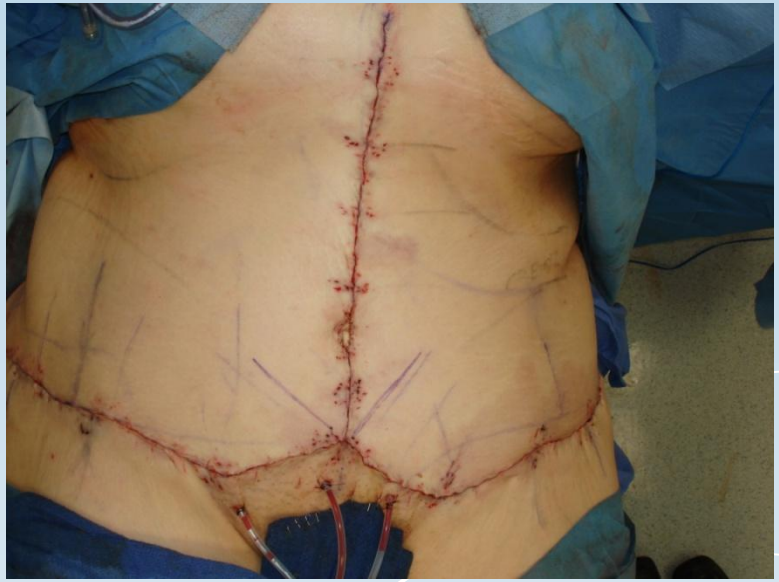
31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

Internal Scarpa Thigh Lift



31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

Fleur-de-Lis Intra-Op



11 lb. 3.2 oz., 29 H 34 ¼ W

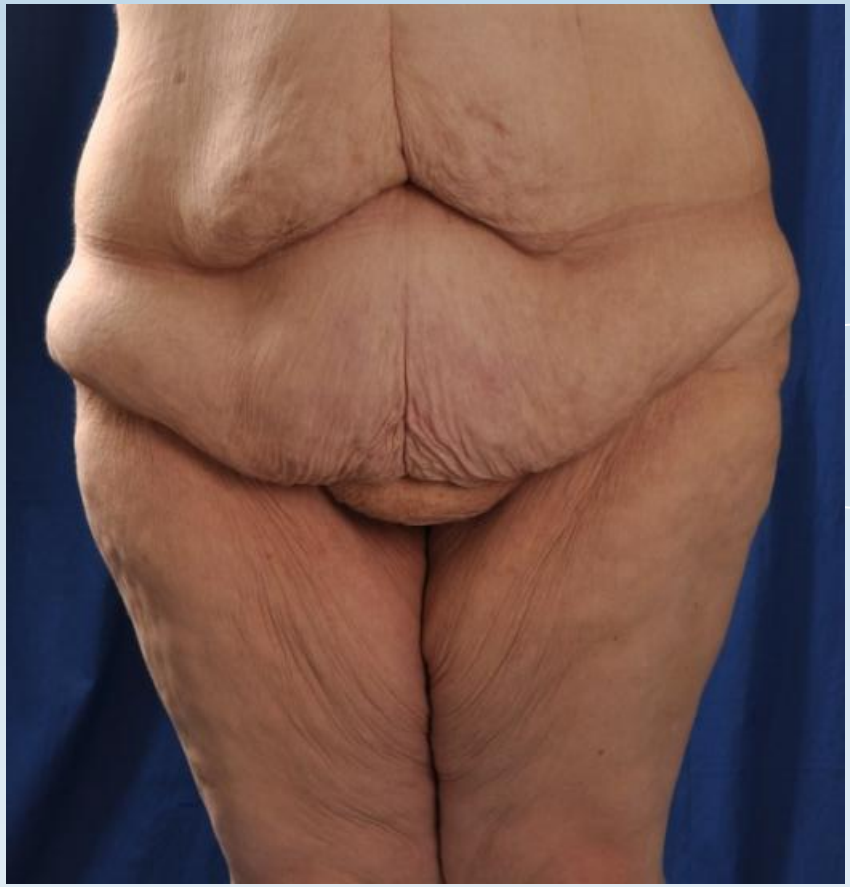
31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

1 Week Post-Op

1 Week Post-Op

31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

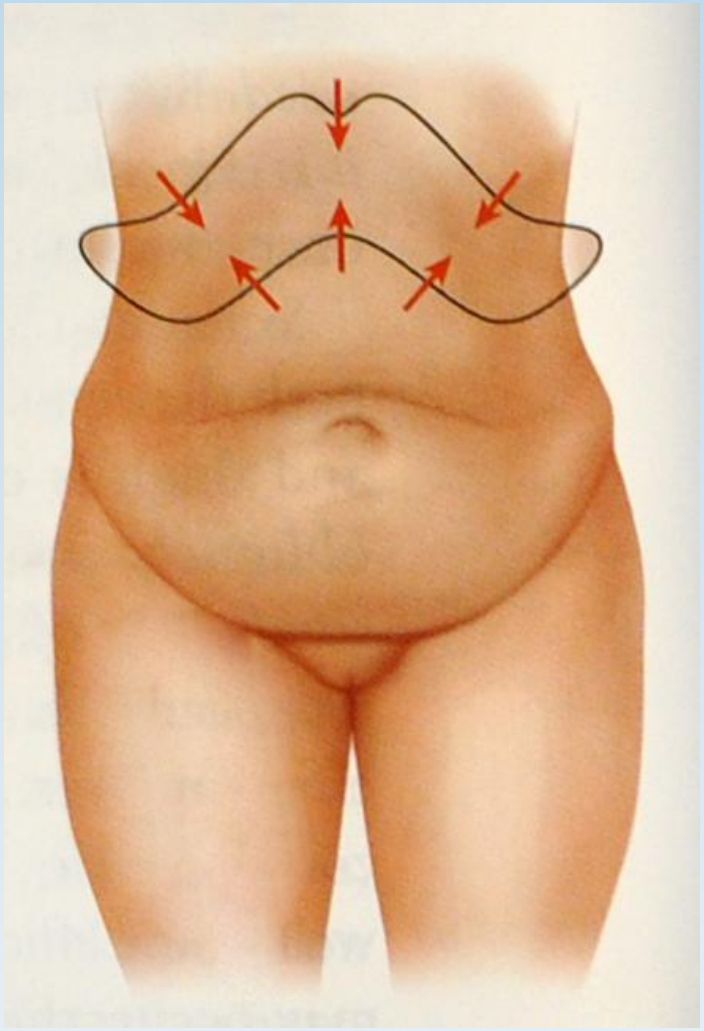
Internal Scarpal Medial Thigh Lift



1 Week Post-Op

31 F, 210 lb. weight loss 17 m s/p Lap. Revision from AGB to Duodenal Switch.

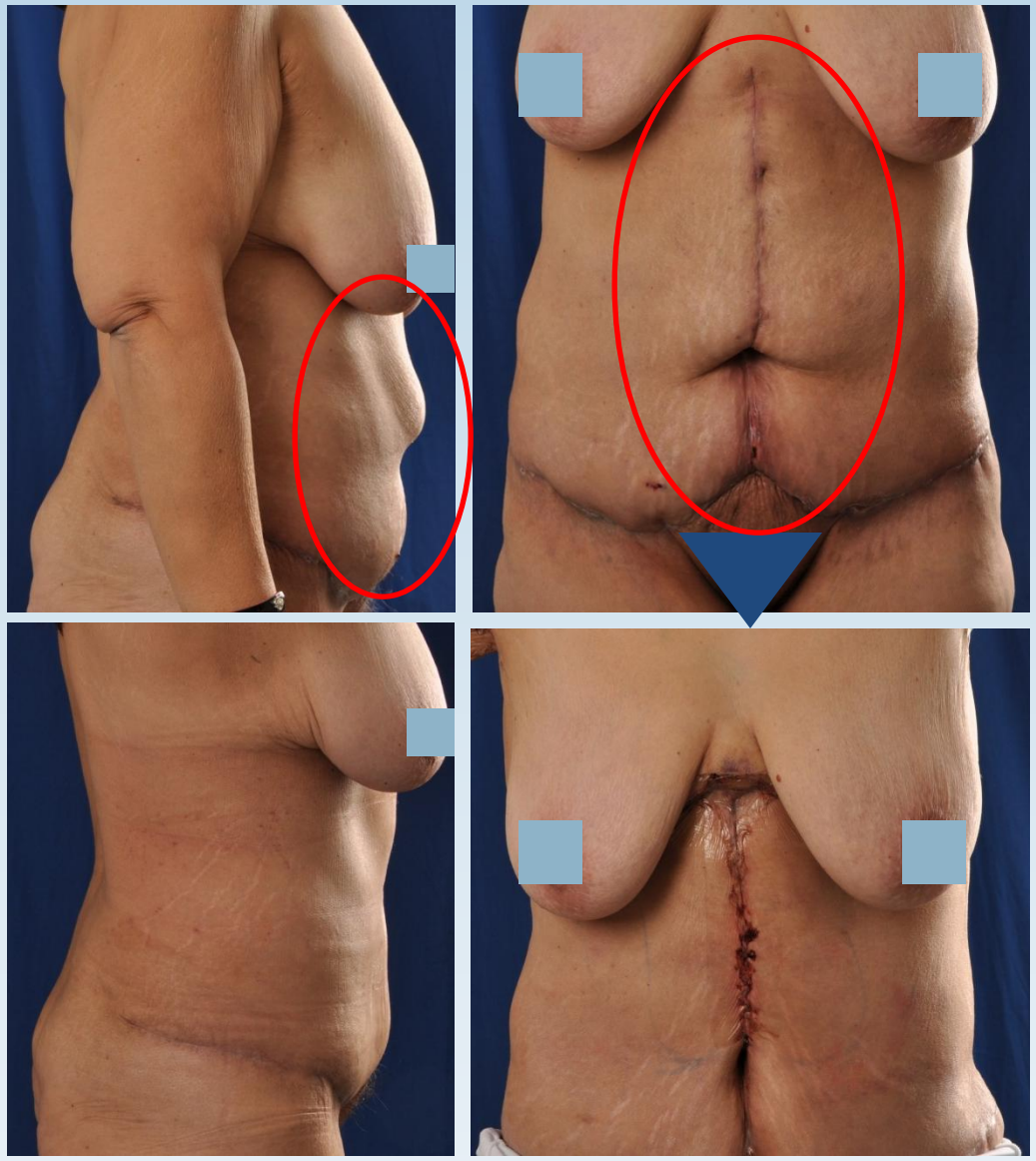
Reverse Abdominoplasty



- Used to address skin laxity in the upper abdomen.
- Excess abdominal skin is removed vertically and upwards.

Photo Credit: The Art of Aesthetic Surgery, pg. 2970

Reverse Abdominoplasty

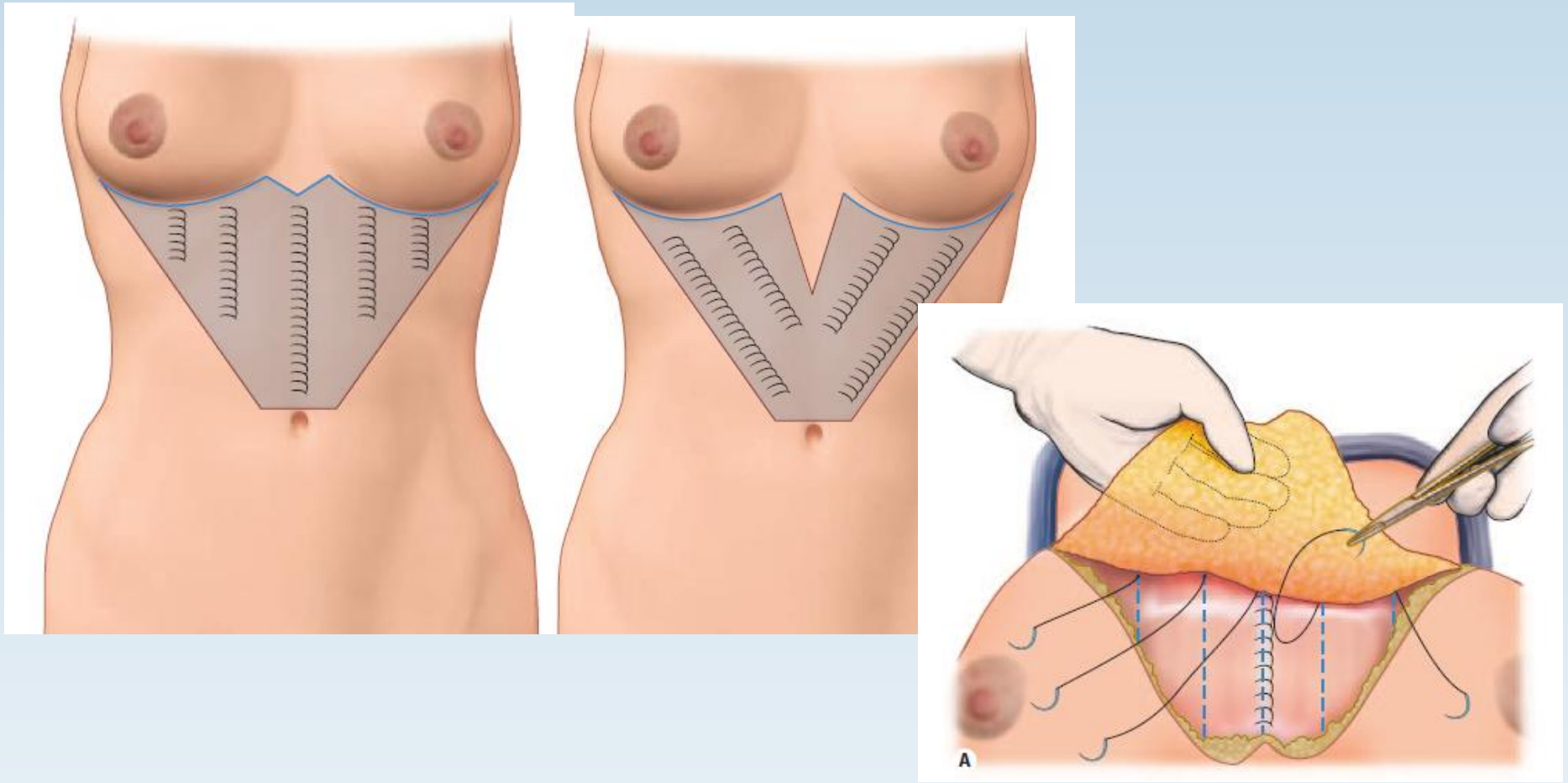


Pt. desired correction of upper abdominal laxity 2 m s/p Fleur-de-Lis Panniculectomy

1 wk post-op

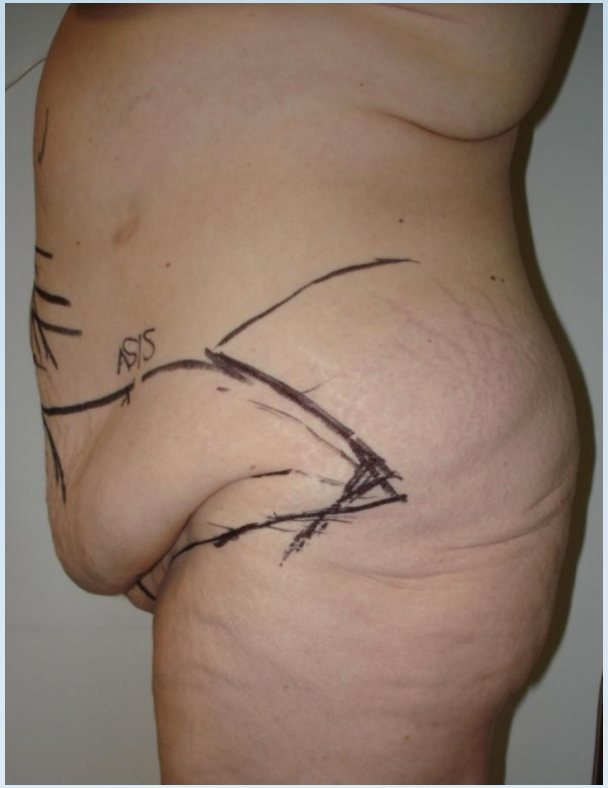
Courtesy of Center for Weight Loss Surgery. 52 F. Weight Loss Surgery: Lap. Medial Gastric Bypass; Total Weight Loss: 252.6 lbs.

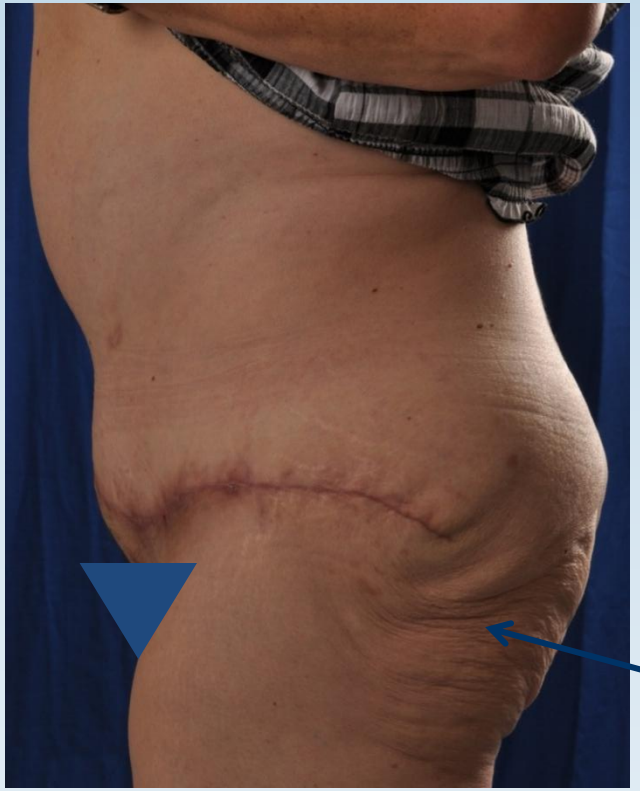
Progressive Tension Suturing Technique In Reverse Abdominoplasty



Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 122-4, Fig. 10.9 A, 10.10 A, 10.11 A

Extended Fleur-de-Lis Abdominoplasty Limitation

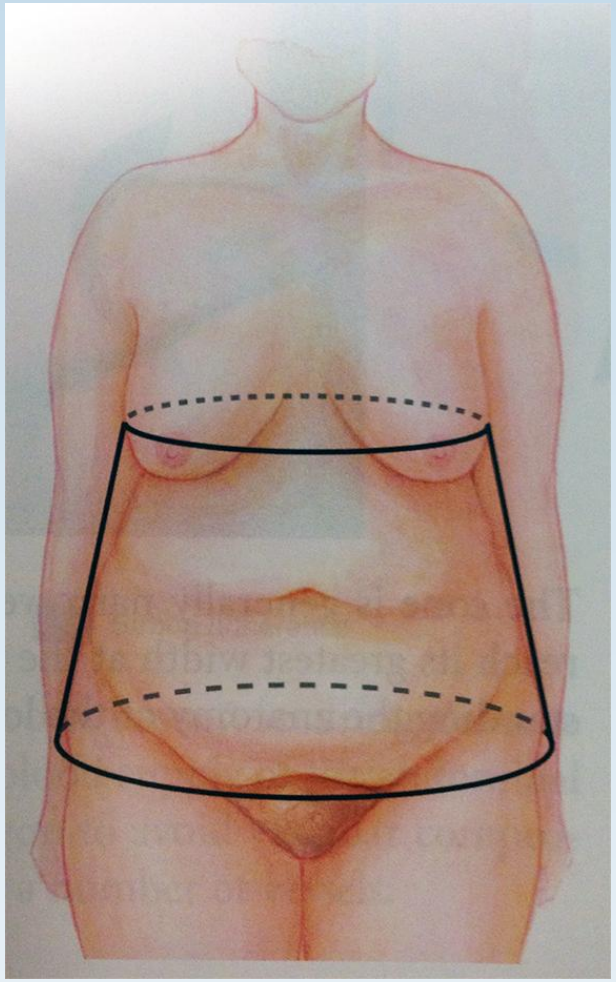




Residual gluteal and thigh deformity is not addressed by a pure anterior Abdominoplasty. Incision extends posteriorly significantly.

Courtesy of Center for Weight Loss Surgery. 57 F; 14 months s/p Proximal Gastric Bypass; Total Weight Loss: 90.2 lbs.

Lower Trunk Deformity After Massive Weight Loss



Weight loss surgery patients typically have:

- Loose, overhanging skin around their entire body
- Collapsed, cone-shaped deformity

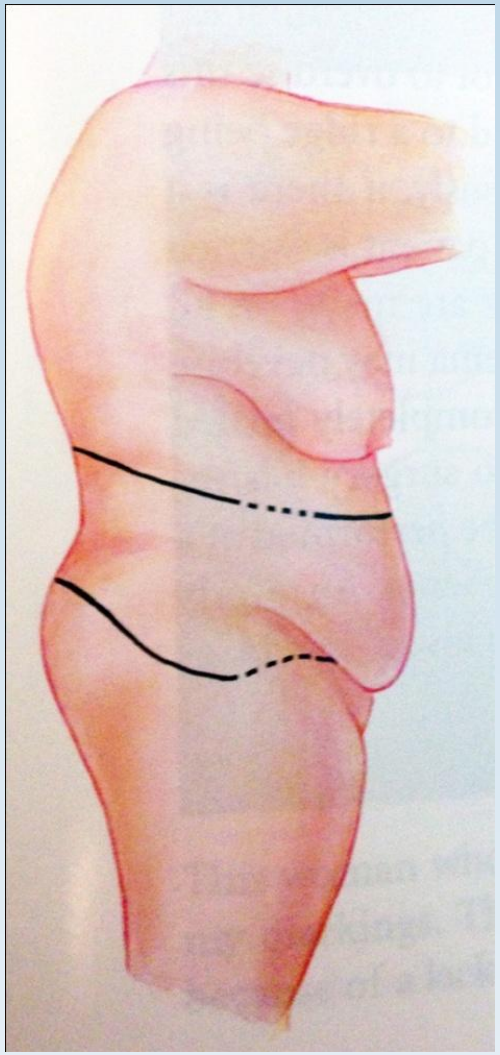
A circumferential approach is a safe and effective single-stage alternative that results in dramatic improvement

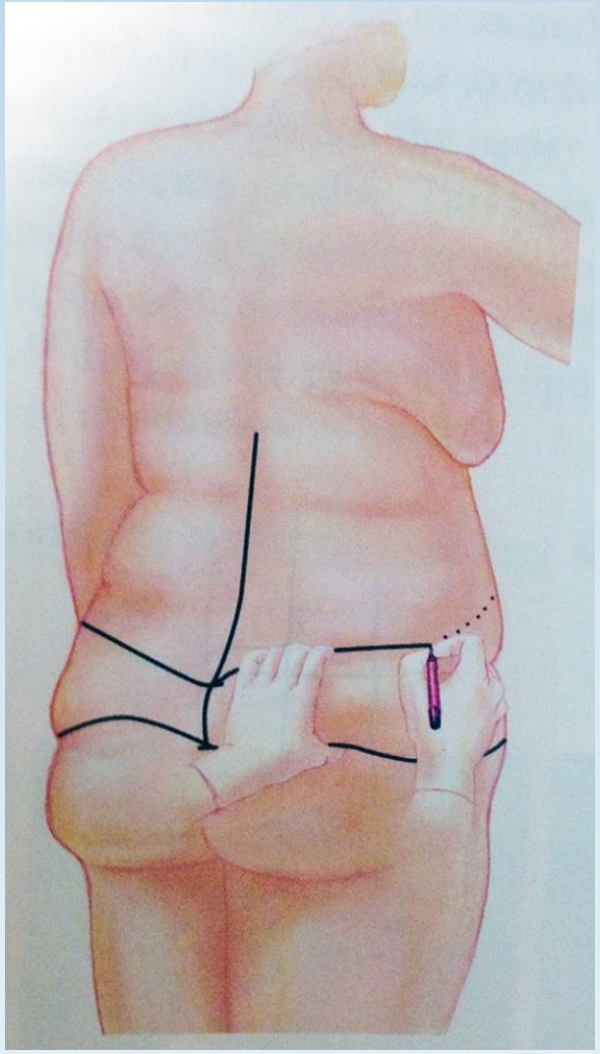
Photo credit: Body Contouring After Massive Weight Loss, Pg. 79

Example: Lower Trunk Deformity After Massive Weight Loss

Courtesy of Center for Weight Loss Surgery. Weight Loss Surgery: Medial Gastric Bypass; Total Weight Loss: 142.8 lbs.

Circumferential Abdominoplasty





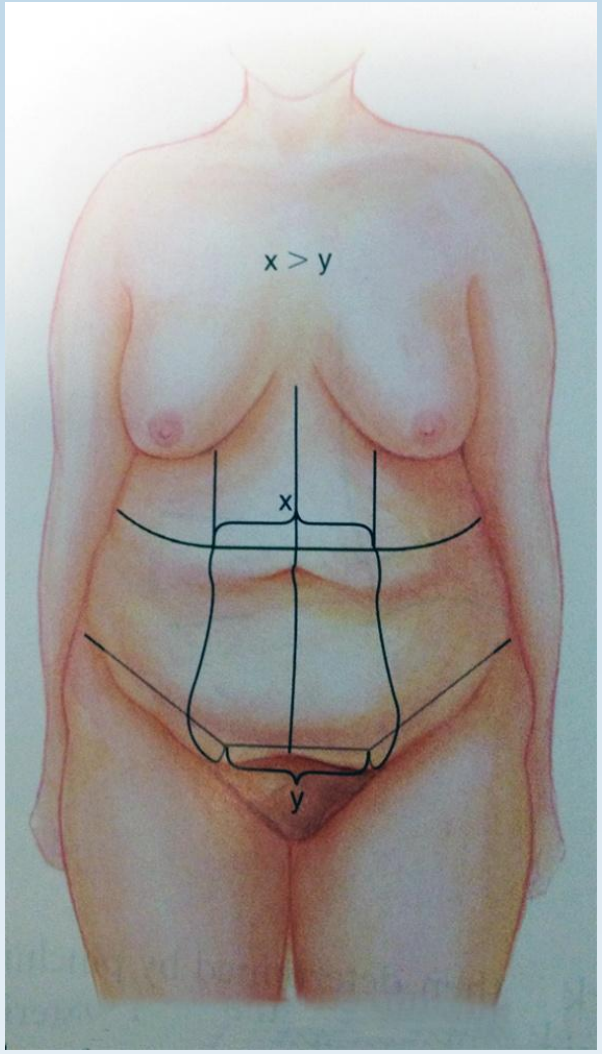
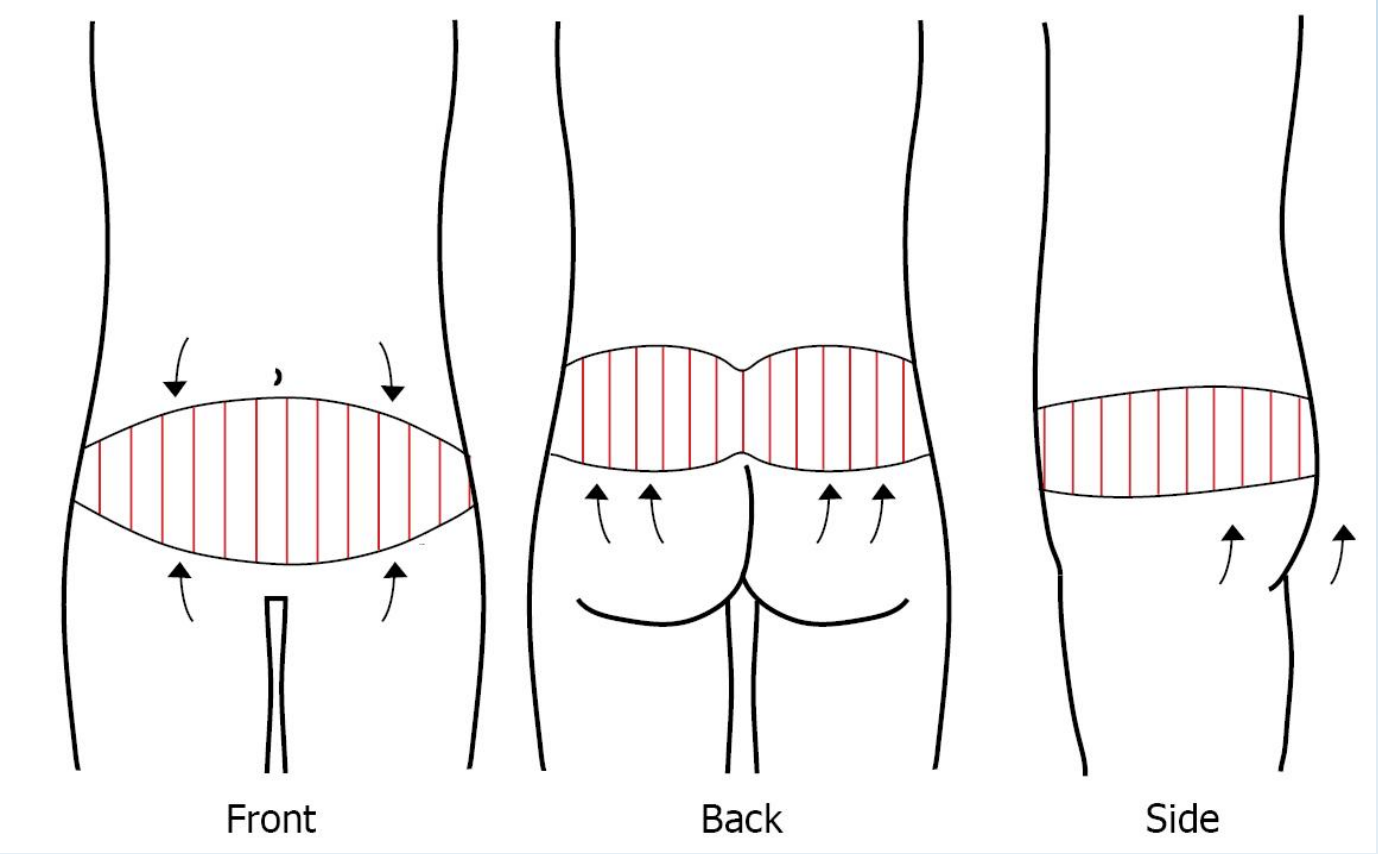


Photo credit: Body Contouring After Massive Weight Loss, pg. 99-100

Circumferential Abdominoplasty: Three Part Procedure

Most efficient way to address excess skin that extends around the entire body.



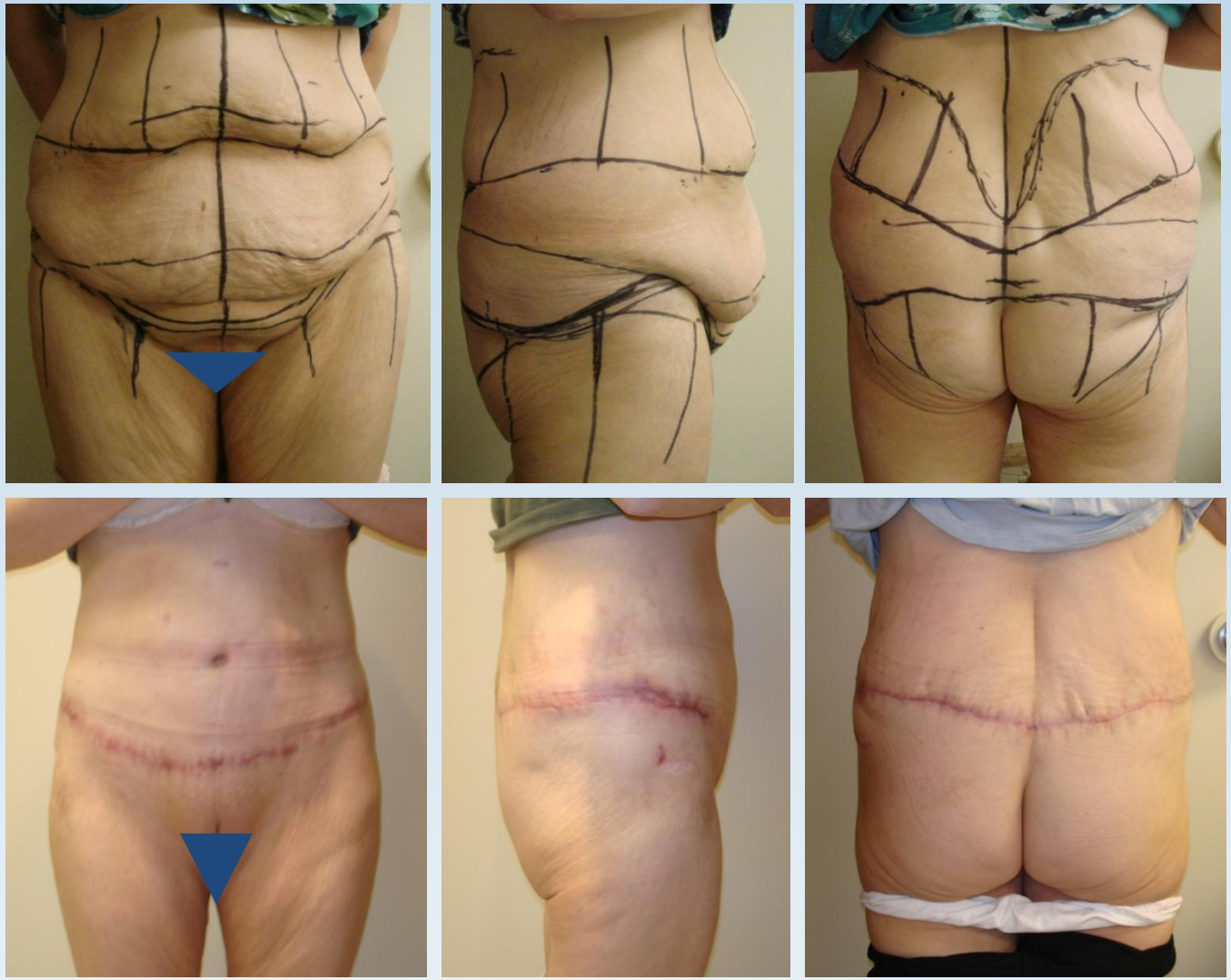
Circumferential Operation

Anterior Standard Abdominoplasty, Conventional Technique

Courtesy of Center for Weight Loss Surgery. 52 F; 1 y 5 m s/p Proximal Gastric Bypass, Total Weight Loss: 126.5 lbs.

Circumferential Operation

Anterior Standard Abdominoplasty Using Lipo-Abdominoplasty *(Avelar Technique)*



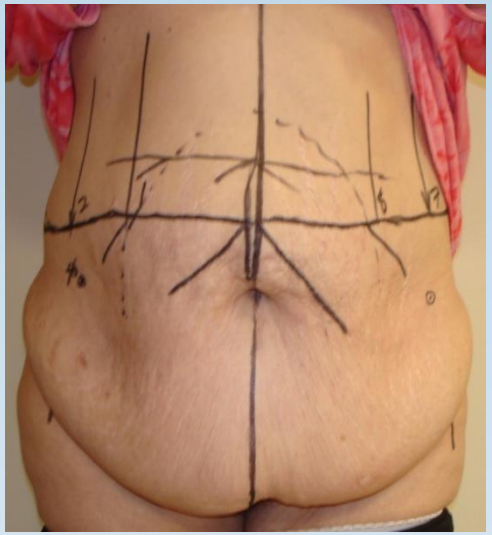
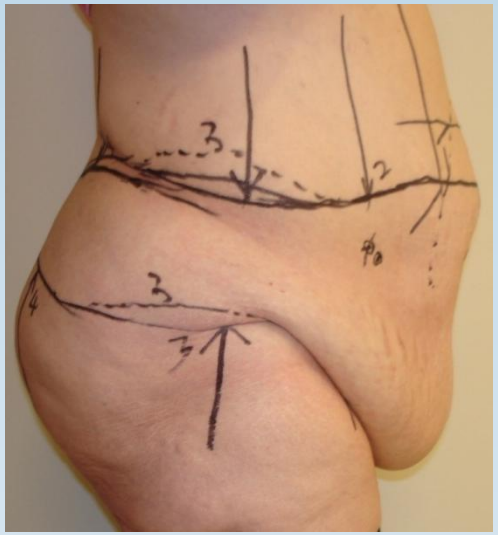
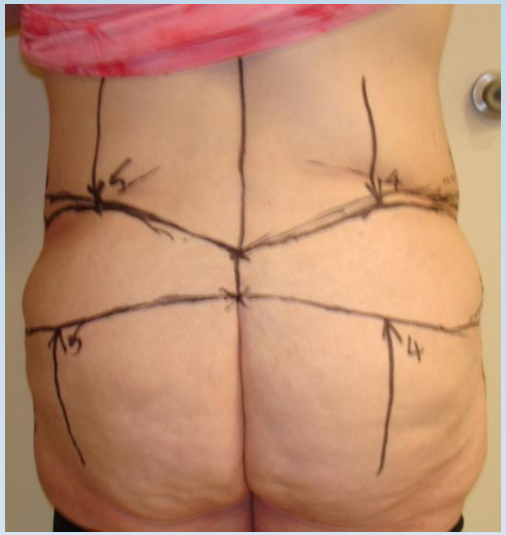
An advantage of this technique is that no drains are necessary.

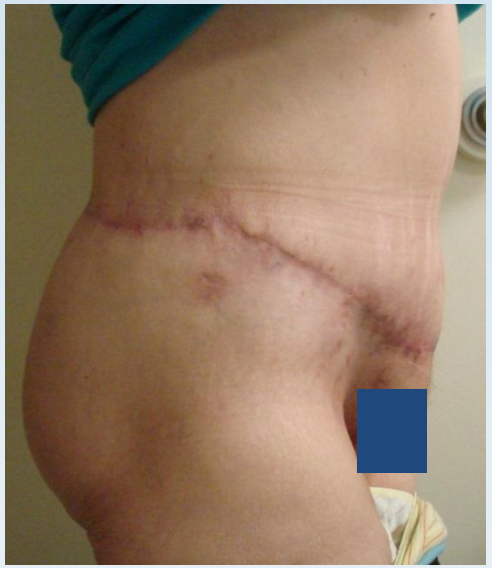
Post-op infected (E.coli) seroma 2 wks s/p. Normal WBC count resolved with drainage and antibiotics; pt. had simultaneous Lap. Cholecystectomy.

Courtesy of Center for Weight Loss Surgery. 42 F; 8 months s/p Proximal Gastric Bypass; Total Weight Loss: 116.4 lbs.

Circumferential Operation

Anterior Standard Abdominoplasty, Conventional Technique

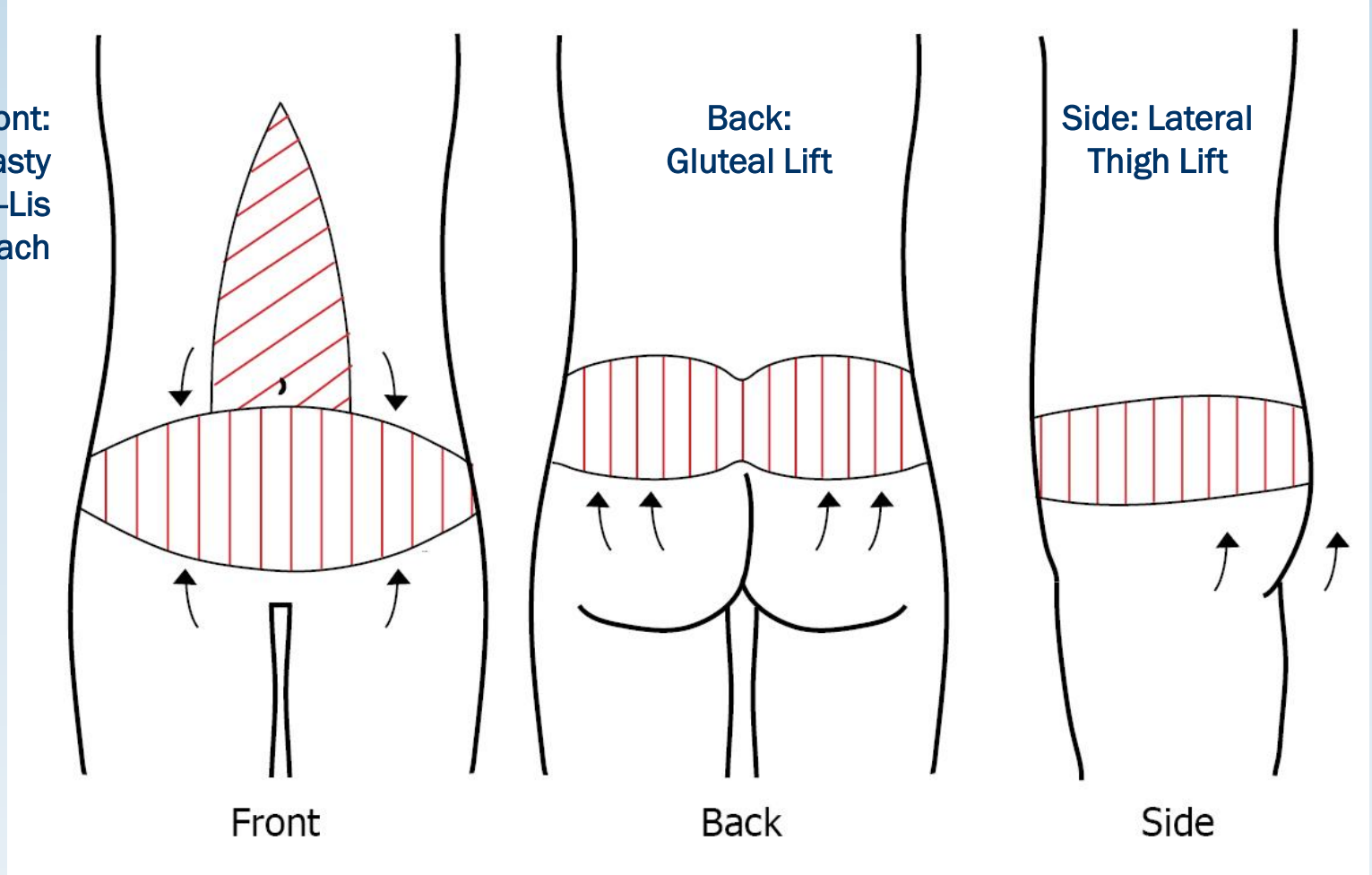






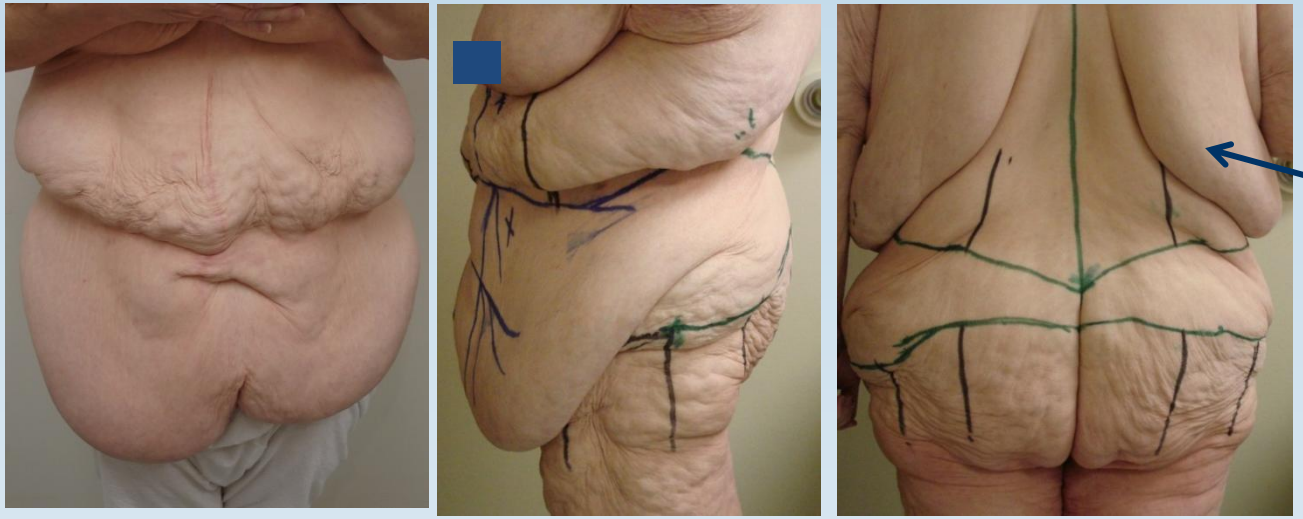

Courtesy of Center for Weight Loss Surgery. 57 F, 2.5 y s/p Proximal Gastric Bypass; Total Weight Loss: 99.6 lbs.

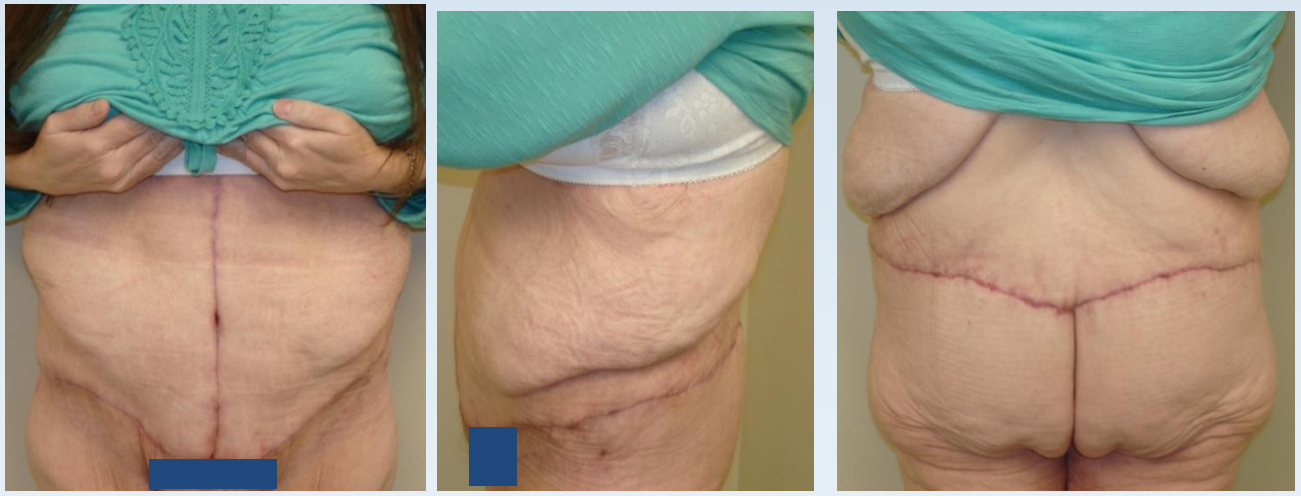
Fleur-de-Lis Abdominoplasty:
Three Part Procedure

Front:
Abdominoplasty
Using Fleur-de-Lis
Approach



Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift



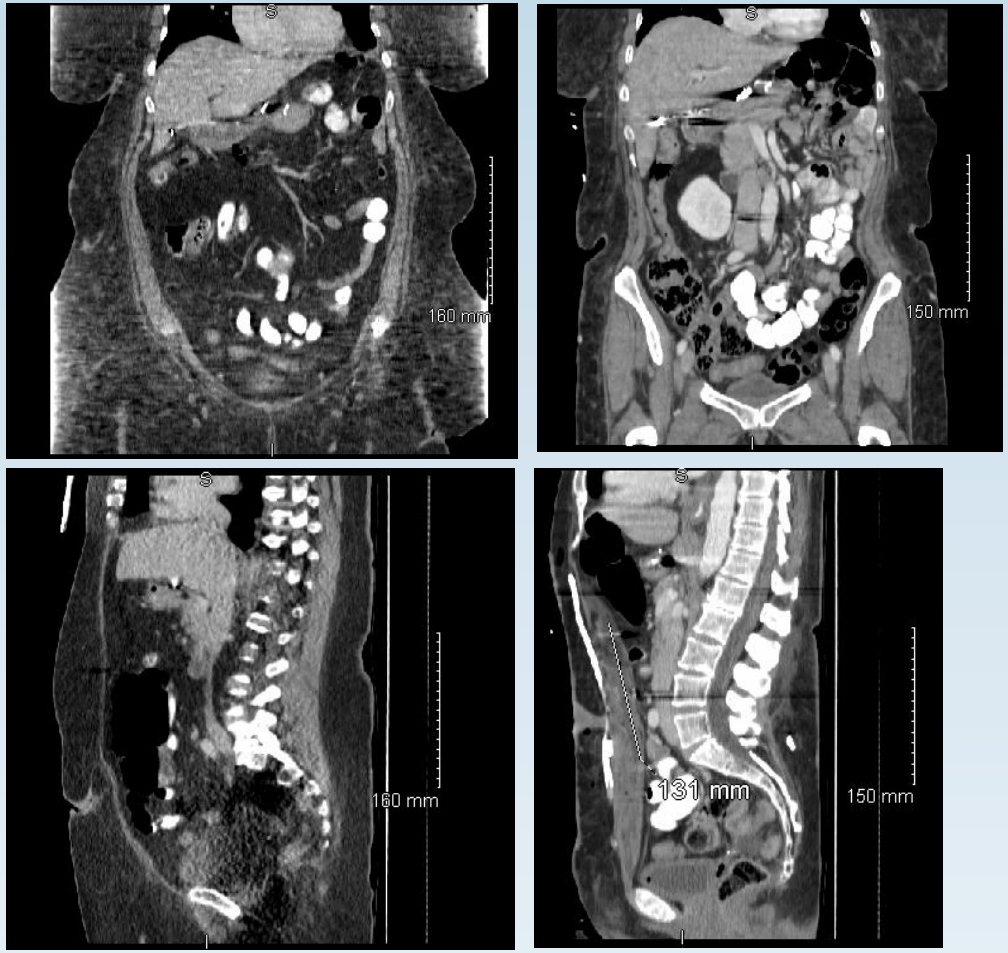


Lower thoracic folds cannot be addressed with lower body lift, requires upper body lift to address these.

6 Weeks Post-Op

Courtesy of Center for Weight Loss Surgery. 57 F; 2 y s/p Lap. Revision VBG Gastroplasty to Medial Gastric Bypass; Total Weight Loss: 203 lbs.

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift



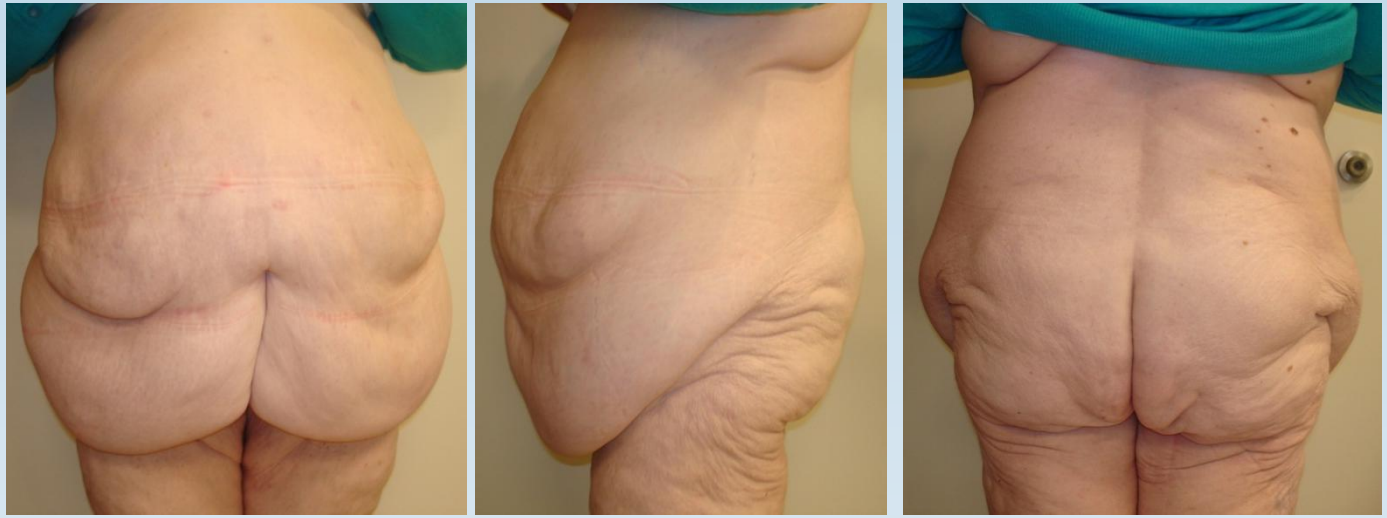
CT Scan of Abdomen

2009

2011

Courtesy of Center for Weight Loss Surgery. 57 F; 2 y s/p Lap. Revision VBG Gastroplasty to Medial Gastric Bypass; Total Weight Loss: 203 lbs

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift



Courtesy of Center for Weight Loss Surgery. 63 F; 2 y s/p Sleeve Gastrectomy; Total Weight Loss: 84 lbs.

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift

Abdominal wall exam limited by thick subcutaneous tissue.

Wide Breach, Hernia not evident on physical examination.

Avoid tumescent/ liposuction cannula.

CT Scan of Abdomen

2010

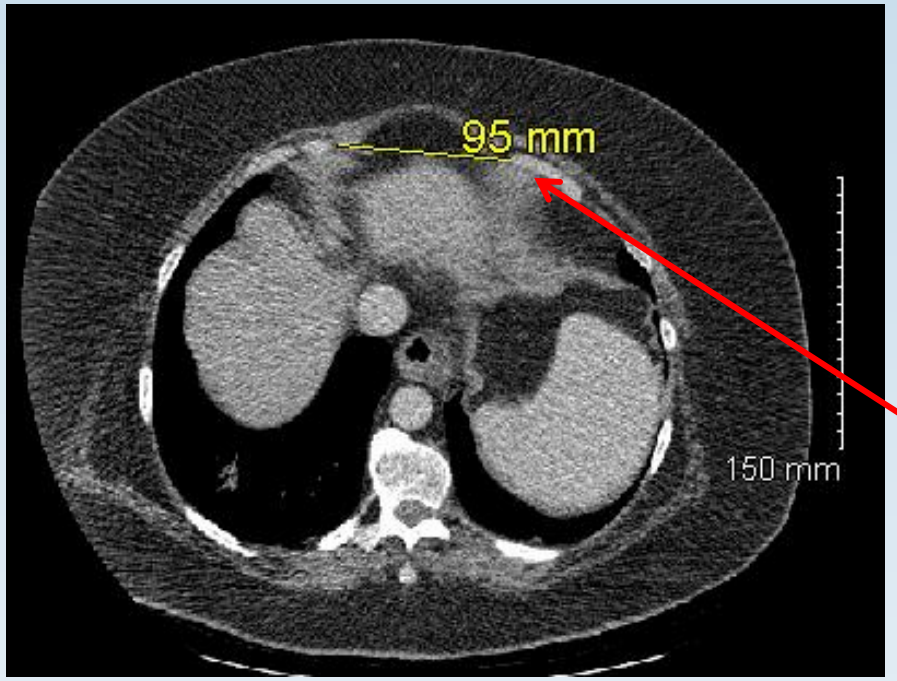
2012

Effective Herniorrhaphy Without Using a Mesh.

Courtesy of Center for Weight Loss Surgery. 63 F; 2 y s/p Sleeve Gastrectomy; Total Weight Loss: 84 lbs.

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift

CT Scan of Abdomen



Wide Diastasis

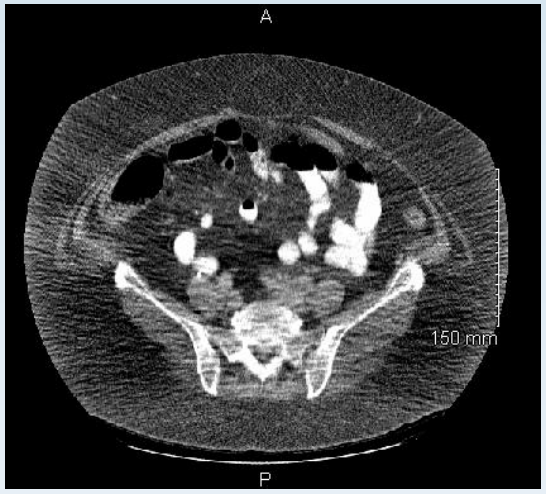
2010

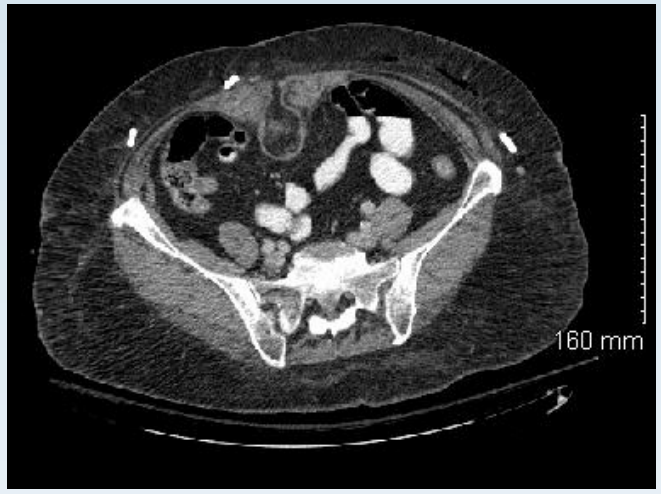
Courtesy of Center for Weight Loss Surgery. 63 F; 2 y s/p Sleeve Gastrectomy; Total Weight Loss: 84 lbs.

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift

CT Scan of Abdomen

2010

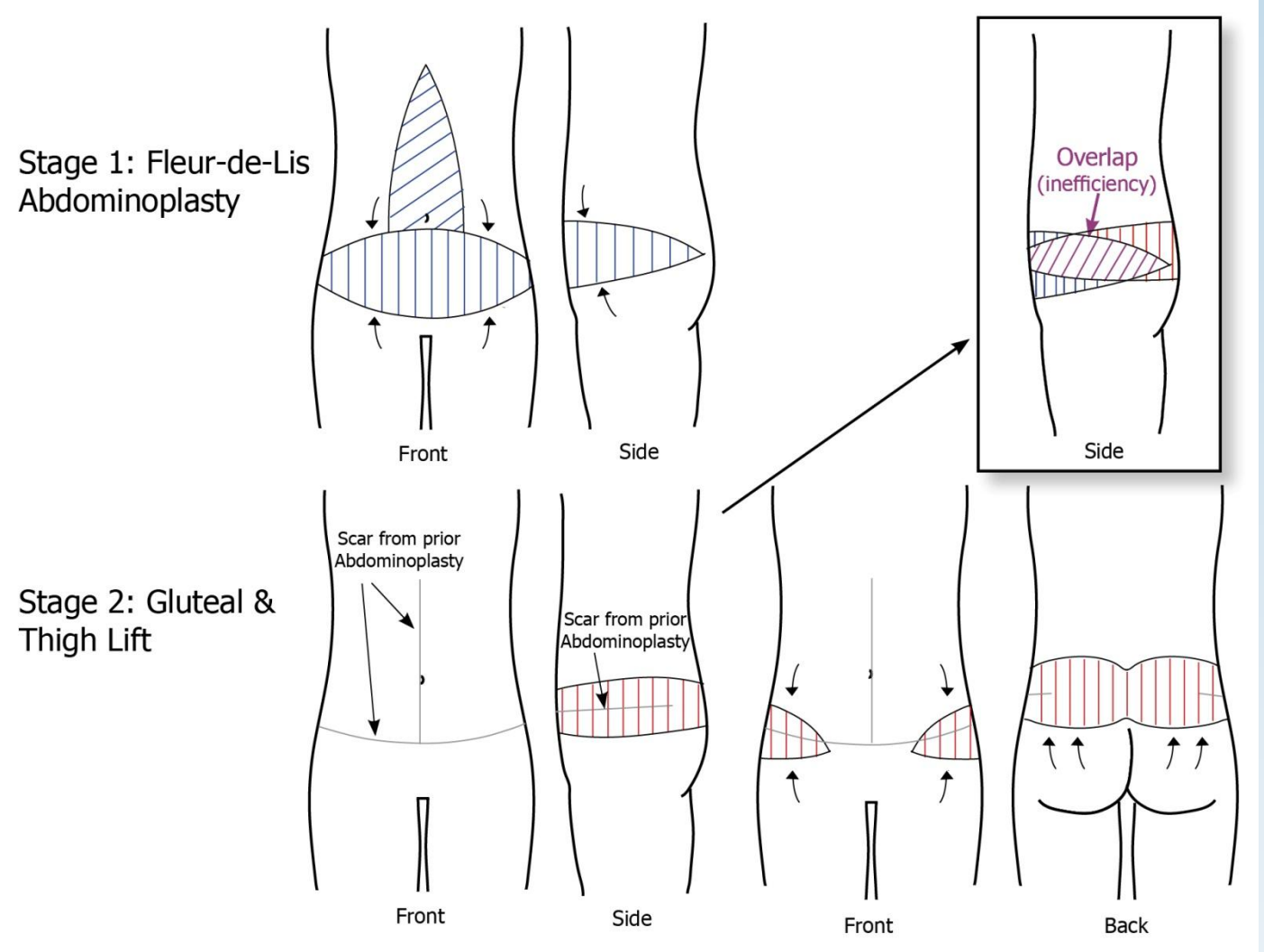




2012

Weight Loss Surgery: Sleeve Gastrectomy;
Total Weight Loss: 84 lbs.

Circumferential Fleur-de-Lis Abdominoplasty w/ Gluteal & Thigh Lift

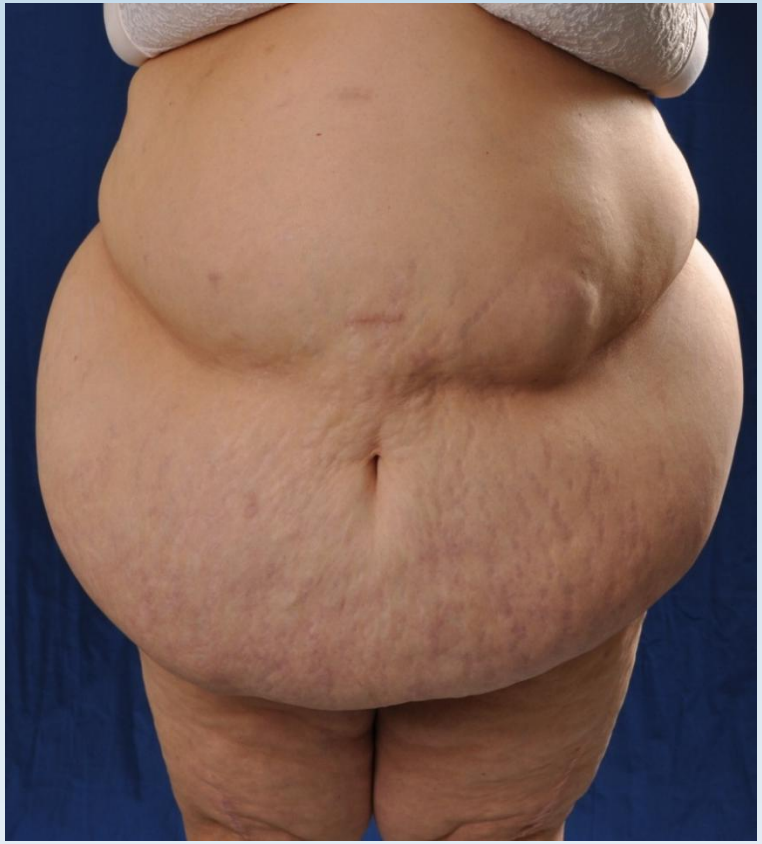


Inefficiency of Staged Procedures

- Fleur-de-Lis Abdominoplasty followed by Gluteal & Thigh Lift
- More efficient to perform a circumferential operation, as much as 10” of overlap

Courtesy of Center for Weight Loss Surgery. 50 F; 2 y s/p Medial Gastric Bypass; Total Weight Loss: 202 lbs.

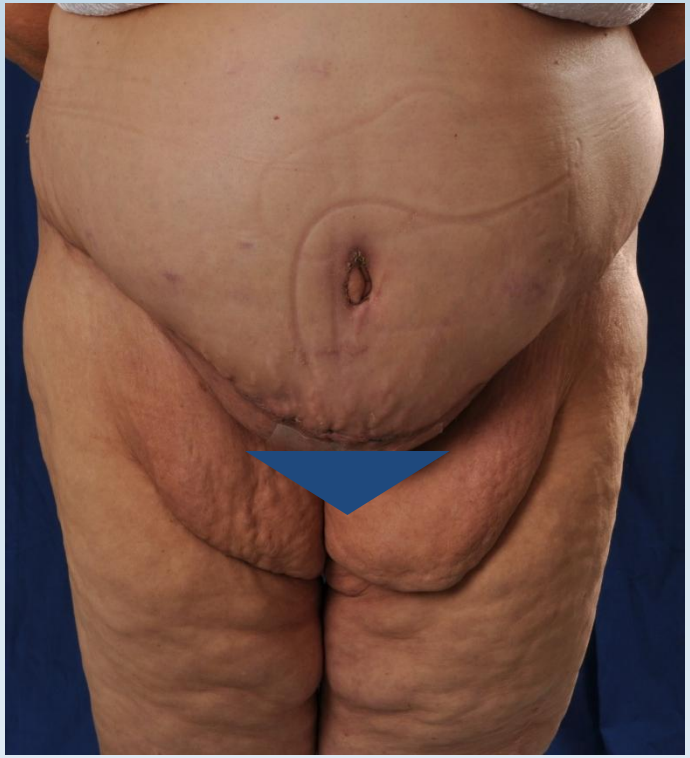
Morbidity From A Lower Trunk Deformity in Bariatric Patients BMI >40



Medical necessity: Lower back pain, Intertriginous Dermatitis (rashes), pelvic hygiene.

Courtesy of Center for Weight Loss Surgery. 67 F; 6 y s/p Adjustable Gastric Band; Total Weight Loss: 110 lbs. (BMI 44.2)

Morbidity From A Lower Trunk Deformity in Bariatric Patients BMI >40



Removed 23 lbs. 3.6 oz. from pannus

Courtesy of Center for Weight Loss Surgery. 67 F; 6 y s/p Adjustable Gastric Band; Total Weight Loss: 110 lbs. (BMI 44.2)

Case Study

Deflated skin lower trunk, buttocks, lateral thigh, posterior folds.

Plan: Lipo Body Lift

41 F; 130 lb. weight loss s/p Lap. Proximal Gastric Bypass

Case Study

Lipo Body Lift

Removed 14.2 lbs.; Fat Aspirate 1,700 mL

Day 1 Post-Op, posterior folds have been corrected

41 F; 130 lb. weight loss s/p Lap. Proximal Gastric Bypass

Case Study

Lipo Body Lift

Correction of lower posterior fold using the Mangubat Angulated Underminer

2 Months Post-Op

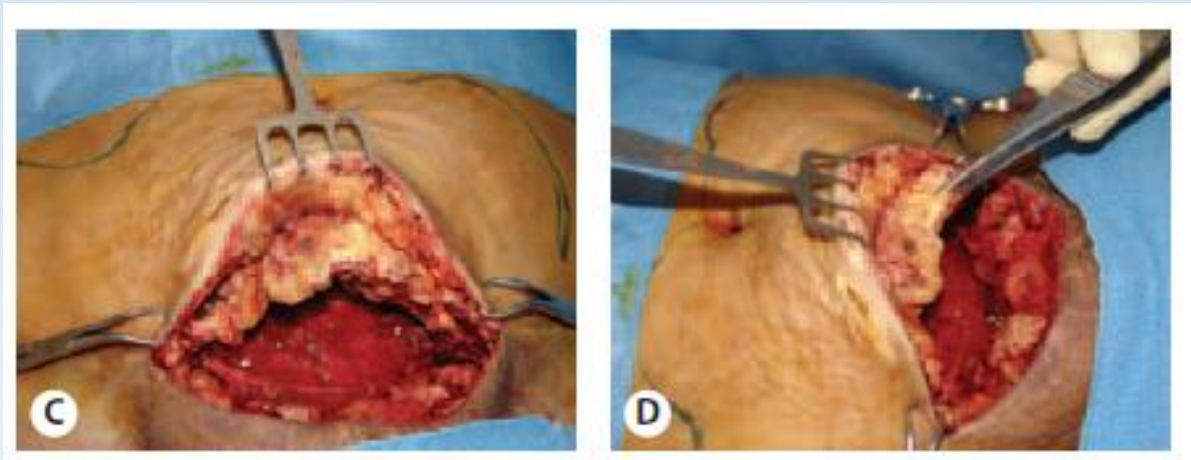
41 F; 130 lb. weight loss s/p Lap. Proximal Gastric Bypass

Body Contouring after Massive Weight Loss

- Limit surgery to 6 hrs
- Avoid too much surgery at one time
- Results correlate with BMI. Esp BMI >35.
- These pts can develop neurological problems even without an abnormal position
- Emphasize:
  - Improve contour not skin quality!
  - May take 4-6 wks to recover
  - May take 1-2 yrs for results to stabilize

Complications

- Seroma
- Hematoma – drains may clog up
  "Fainting/Dizziness" post-op
- DVT/PE
- Dog ears
- Fat Necrosis –Cellulits not responding to antibiotics –"Firmness" – may need debridement



Hunstad, Joseph P., and Remus Repta. *Atlas of Abdominoplasty*. Philadelphia: Saunders/Elsevier, 2009. Pg. 122-4, Fig. 10.9 A, 10.10 A, 10.11 A

Complications

- Heavy smoker, malabsorptive operation, prior history of skin loss s/p Fleur-de-Lis Panniculectomy
- Gluteal auto augmentation increases risk for skin loss

3 Weeks Post-Op

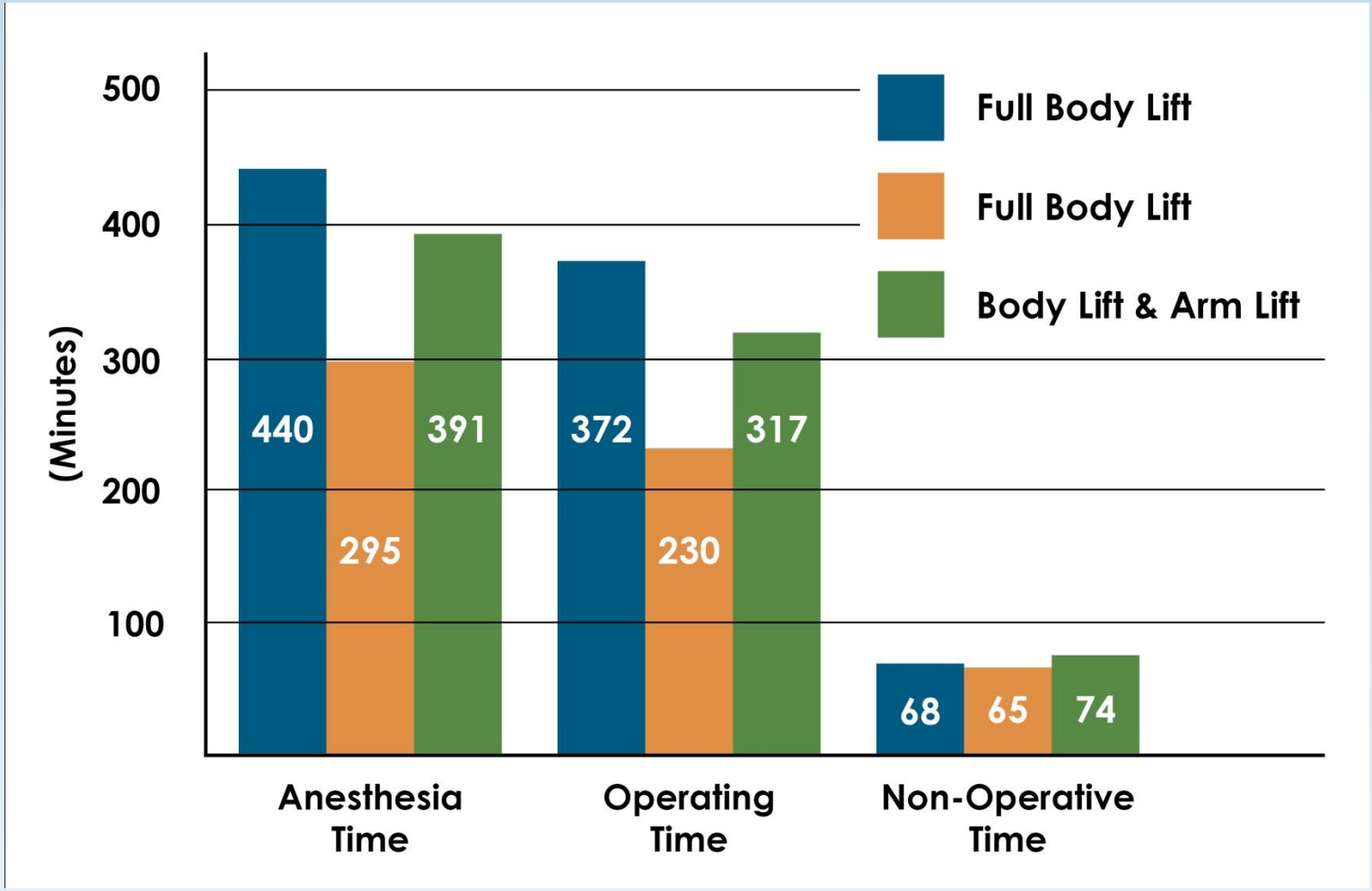
Courtesy of Center for Weight Loss Surgery. 50 F; 2 y s/p Medial Gastric Bypass; Total Weight Loss: 202 lbs.

Outpatient Body Contouring Operations in Massive Weight Loss Patients

- Crew experienced and trained in body contouring operations after massive weight loss
- Efficient position changes (two positions, prone and supine)
- Lipo-Abdominoplasty technique (Avelar)
- VASER technology
- Experienced co-surgeon
- Experienced anesthesia

Circumferential Body Contouring Surgeries

Performed at Free Standing Outpatient Ambulatory Surgery Center



Courtesy of Le Belle Vie Surgery Centers.

Outcomes

Complication Rate

	National Data		Our Data	
	Type 2 (n=67)	Type 3 (n=47)	Abdomino-plasty (n=177)	Circum-ferential (n=7)
Wound Dehiscence	29.85%	31.91%	1.7%	0%
Skin Necrosis	5.97%	8.51%	1.7%	0%
Bleeding	2.99%	6.38%	4.5%	0%
Pulmonary Embolism (PE)	1.49%	2.13%	1.1%	0%
Overall Complication Rate	44.78%	61.7%	9%	0%
Length of Stay (LOS)	3.06 days	3.77 days	2001-2008: 2 days 2008-2013: 1 day	

1 patient developed skin necrosis after two-stage circumferential operation (smoker)

National data from: Capella. Body Lift After Massive Weight Loss. Vol 117, No. 2, Pg. 419

Outcomes

Complication Rate

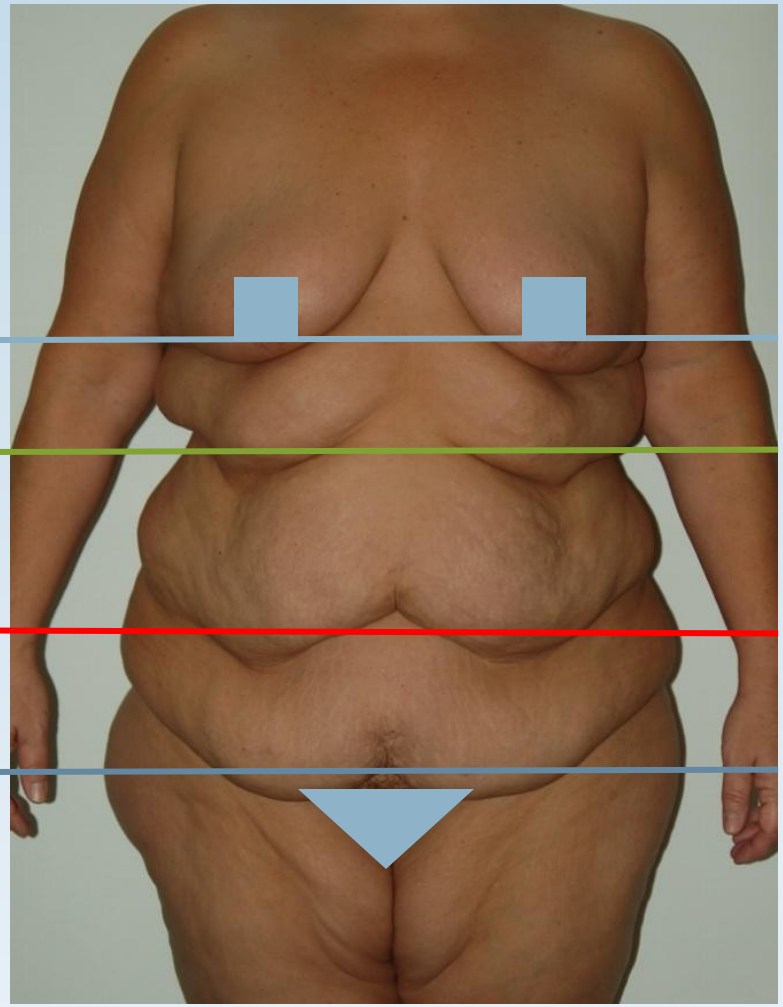
	National Data		Our Data	
	Normal Weight (n=56)	Obese - BMI >30 (n=60)	Abdomino-plasty (n=177)	Circum-ferential (n=7)
Wound Dehiscence	4.5%	31.91%	1.7%	0 %
Skin Necrosis	5.3%	8.51%	1.7%	0 %
Pulmonary Embolism (PE)	0%	2.13%	1.1%	0%
Overall Complication Rate	28.6%	53.4%	9%	0%

1 patient developed skin necrosis after two-stage circumferential operation (smoker)

National data from: Lippincott, Williams & Wilkins. Annals of Plastic Surgery. Vol. 58, No. 3. March 2007.

Case Study

Patient presents with 80 lb. weight loss after bariatric surgery 5 years ago for body contouring.



Courtesy of Le Belle Vie Surgery Centers.

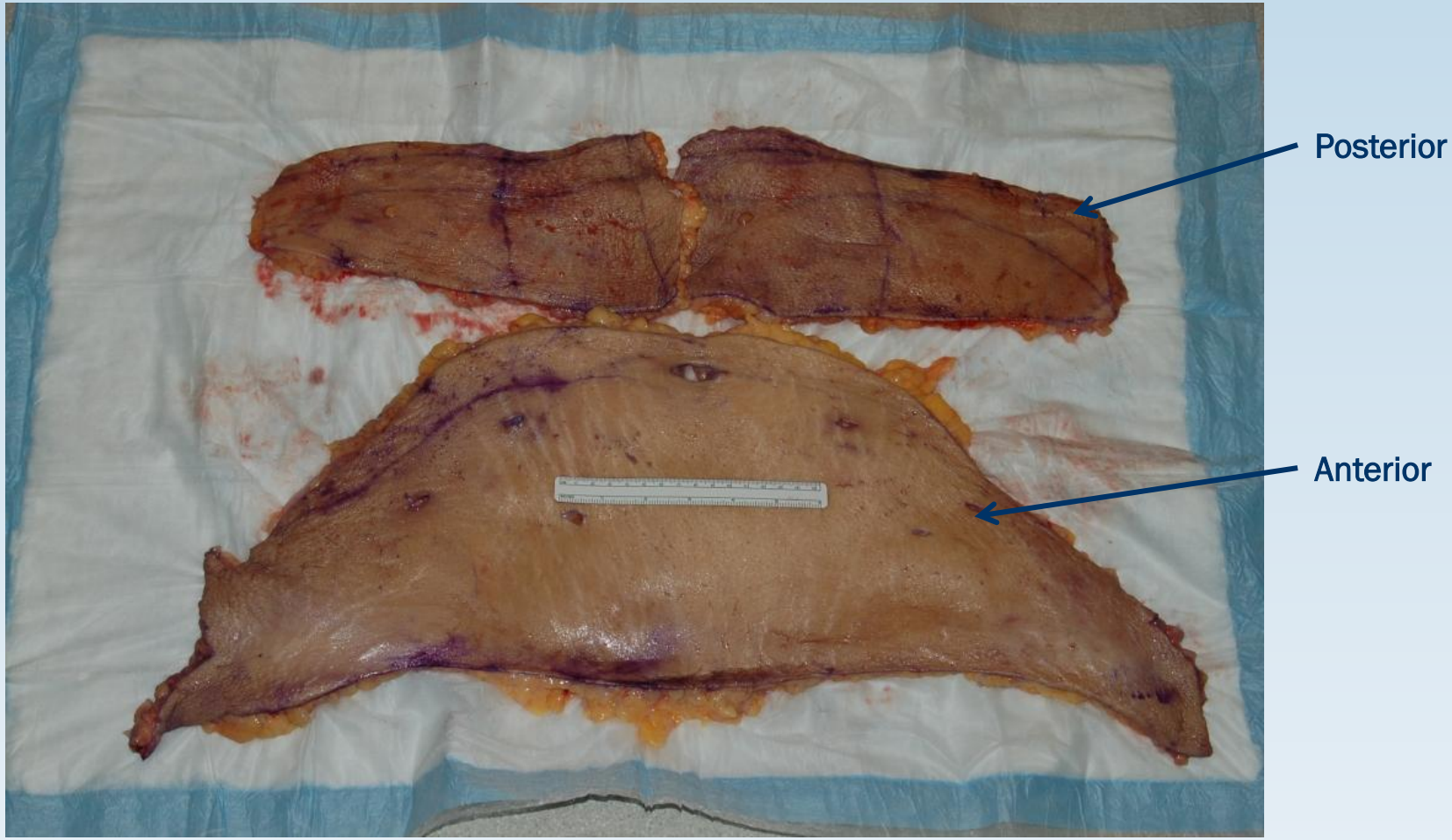
Case Study

Patient presents with 80 lb. weight loss after bariatric surgery 5 years ago for body contouring.

Courtesy of Le Belle Vie Surgery Centers.

Case Study

Patient underwent circumferential lip-body lower body lift.



Courtesy of Le Belle Vie Surgery Centers.

Case Study

Day 1 Post-Op

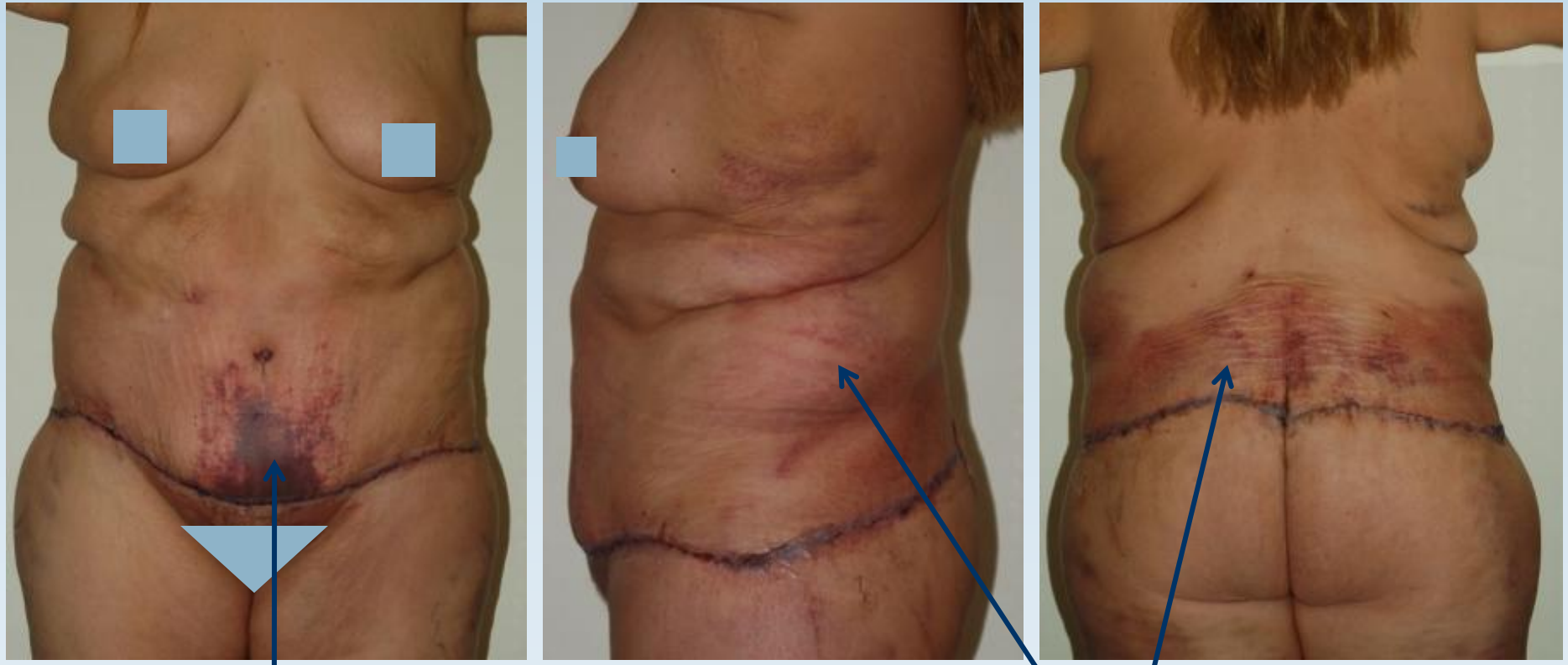
Area of Ecchymotic Skin in the Lower Abdomen

Dehiscence

Courtesy of Le Belle Vie Surgery Centers.

Case Study

Day 3 Post-Op



Courtesy of Le Belle Vie Surgery Centers.

Case Study

Area of Ecchymotic Skin
in the Lower Abdomen

Day 9 Post-Op

2 Weeks Post-Op

Courtesy of Le Belle Vie Surgery Centers.

Case Study

1 week s/p debridement

Courtesy of Le Belle Vie Surgery Centers.

Case Study

8 Weeks Post-Op

Wound Vac

Courtesy of Le Belle Vie Surgery Centers.

Case Study

2 Months s/p Surgery;
2 Weeks After Debridement/Wound Vac Therapy

10 Month Post-Op

Courtesy of Le Belle Vie Surgery Centers.

Case Study

1 Year, 5 Months Post-Op

Courtesy of Le Belle Vie Surgery Centers.

Case Study

Day 2 s/p Scar Revision & Vaser Dermal Subcision and Liposuction

Courtesy of Le Belle Vie Surgery Centers.

Upper Lateral Thoracic Lift

Addresses skin laxity in the upper back and lateral folds.

Day 3 Post-Op

Courtesy of Le Belle Vie Surgery Centers.

Weight Loss Surgery Types:
Stomach Restrictive & Malabsorptive

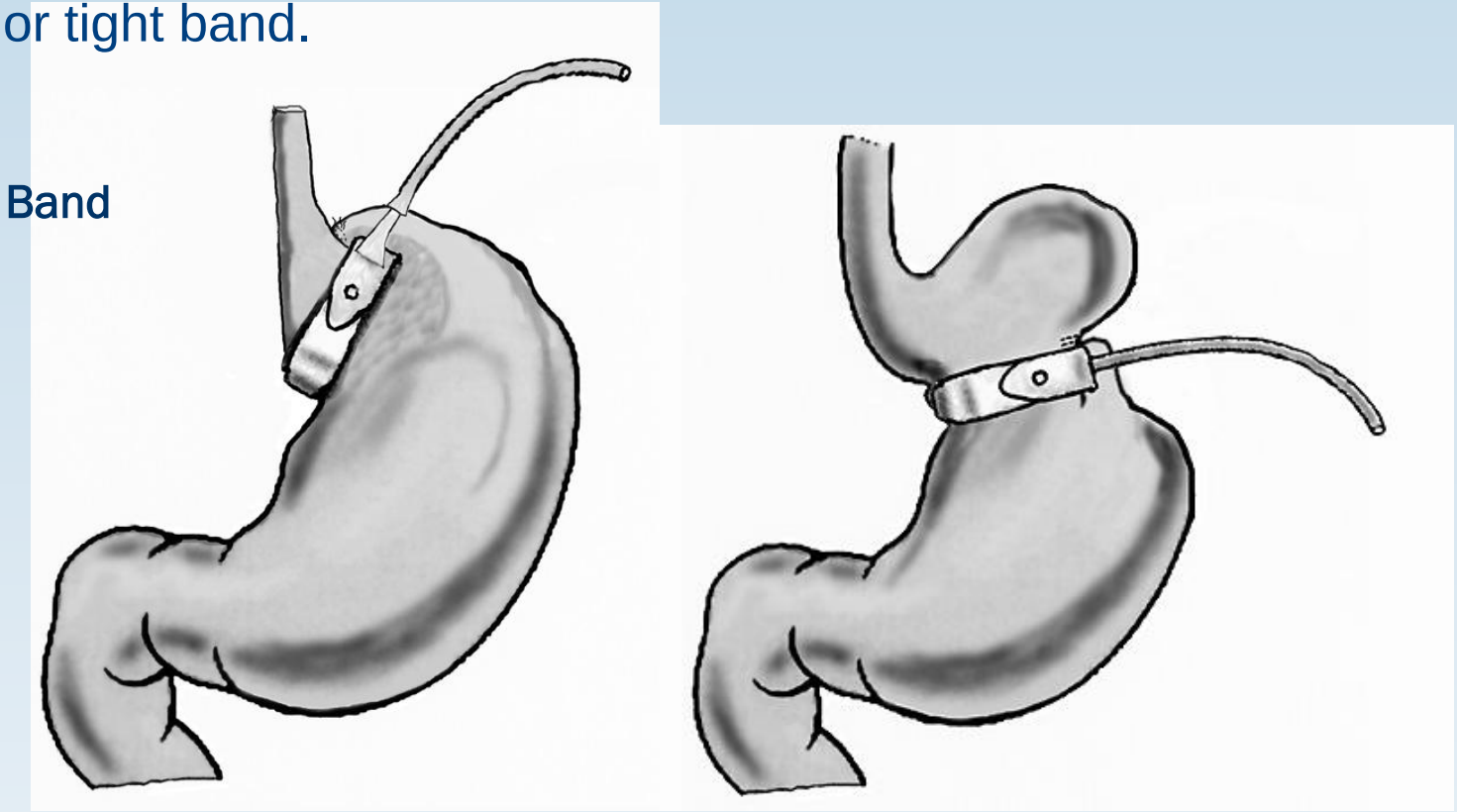
Special considerations for all weight loss surgery patients considering body contouring:

- **Abdominal Pain**
  - Abdominal ultrasound to rule out gallbladder disease
- **Abdominal pain in Gastric Bypass or Duodenal Switch patients**
  - CT abdomen & pelvis to check for internal hernias

Special Considerations:
AGB Patients

All prior AGB patients should obtain a UGI swallow study to check for slippage or tight band.

Slipped Band



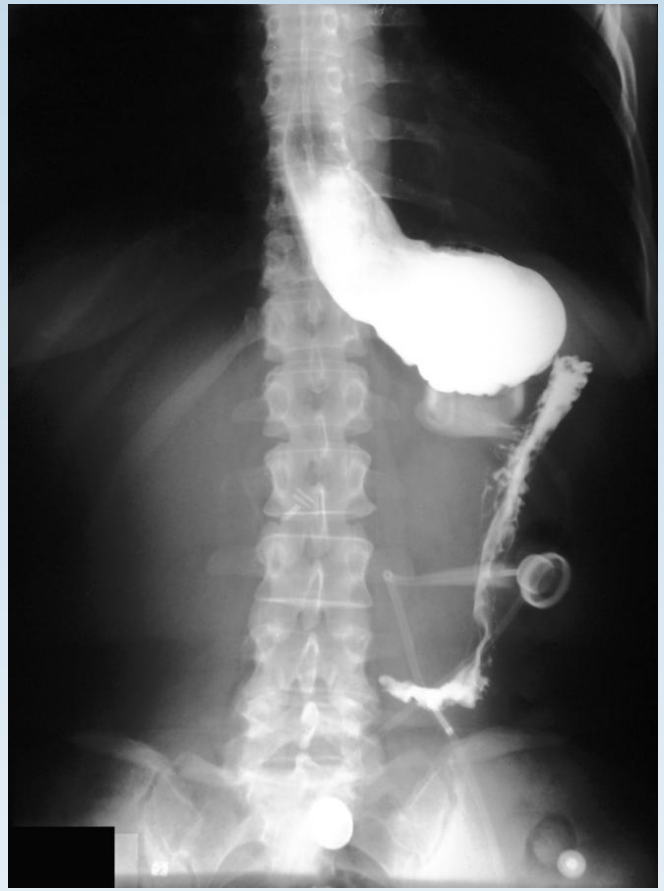
Normal

Slipped

Slipped Band

All prior AGB patients should obtain a UGI swallow study to check for slippage or tight band.

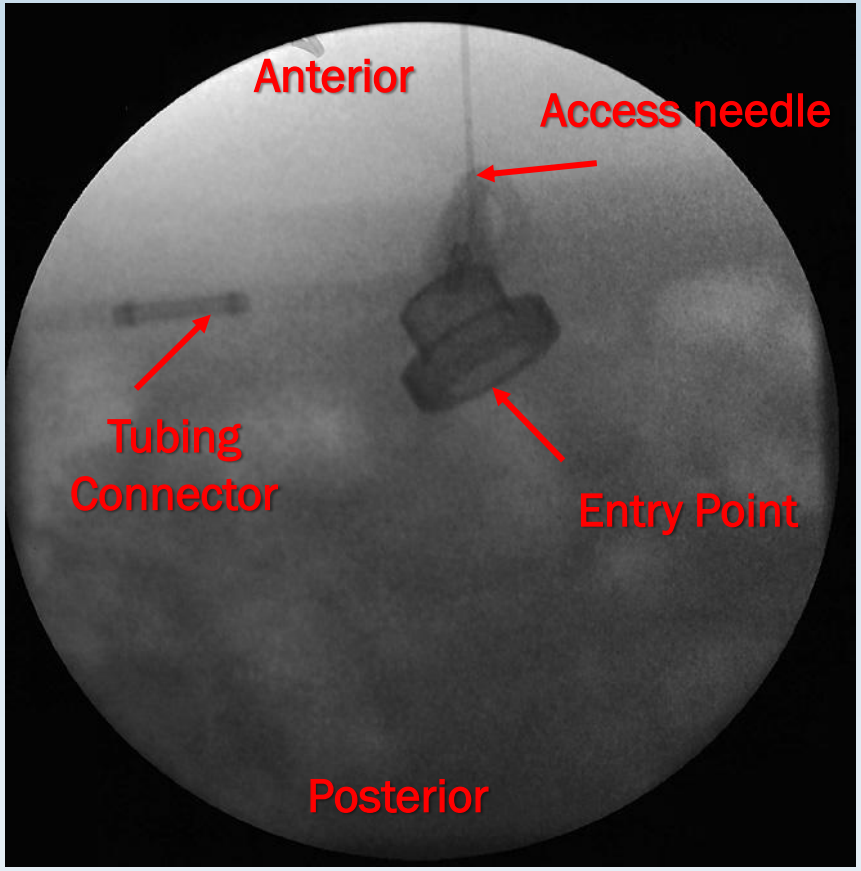
Normal



Slipped

Special Considerations:
AGB Patients

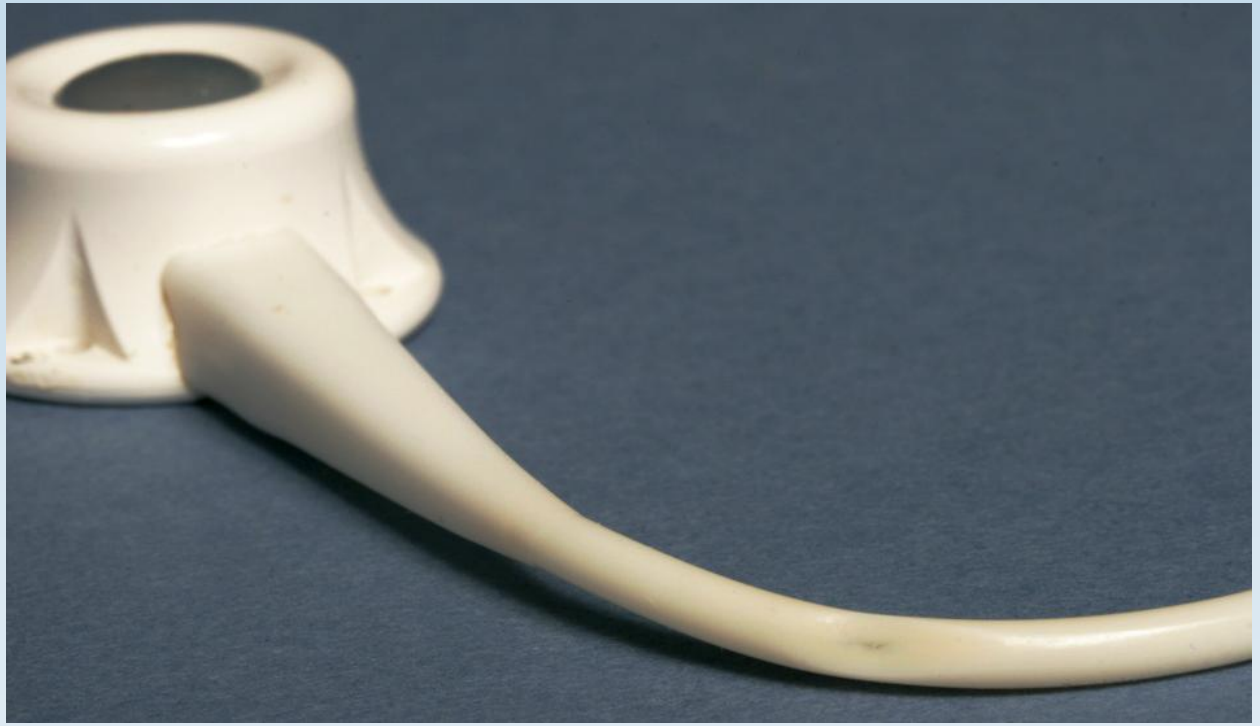
Type of AGB port – be careful using a vaser over these, probe may shatter.



Not uncommon to have port problems such as a flipped port. This can be addressed during abdominoplasty.

Flipped **Port**

AGB Tube Problems:
Stress Fracture From Acute Angulation

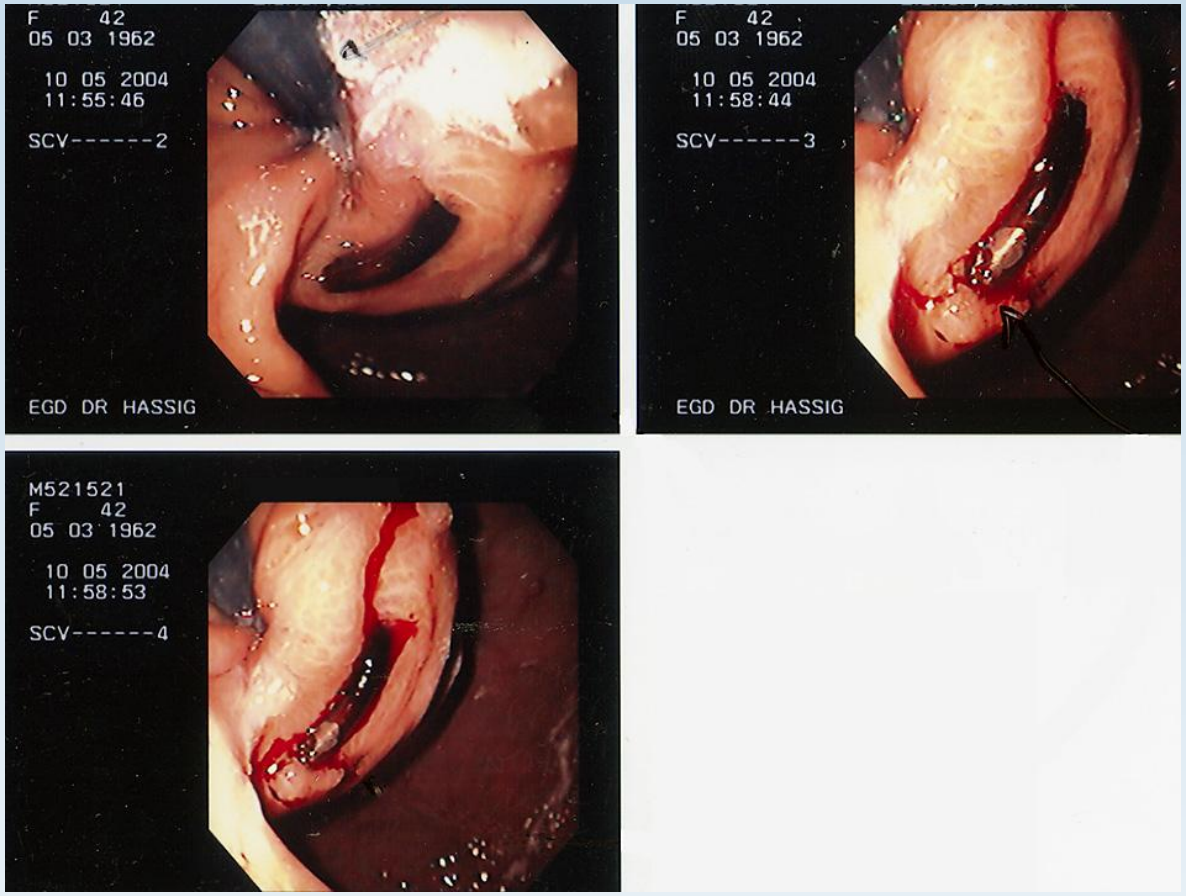


Want smooth angle when anchoring port into the abdominal cavity

If port is at an acute angle it could cause stress fracture in tubing.

Special Considerations: AGB Patients

Any unexplained anemia in an AGB patient is band erosion until prpven otherwise. Must be investigated by a UGI endoscopy, preferable by the bariatric surgeon.

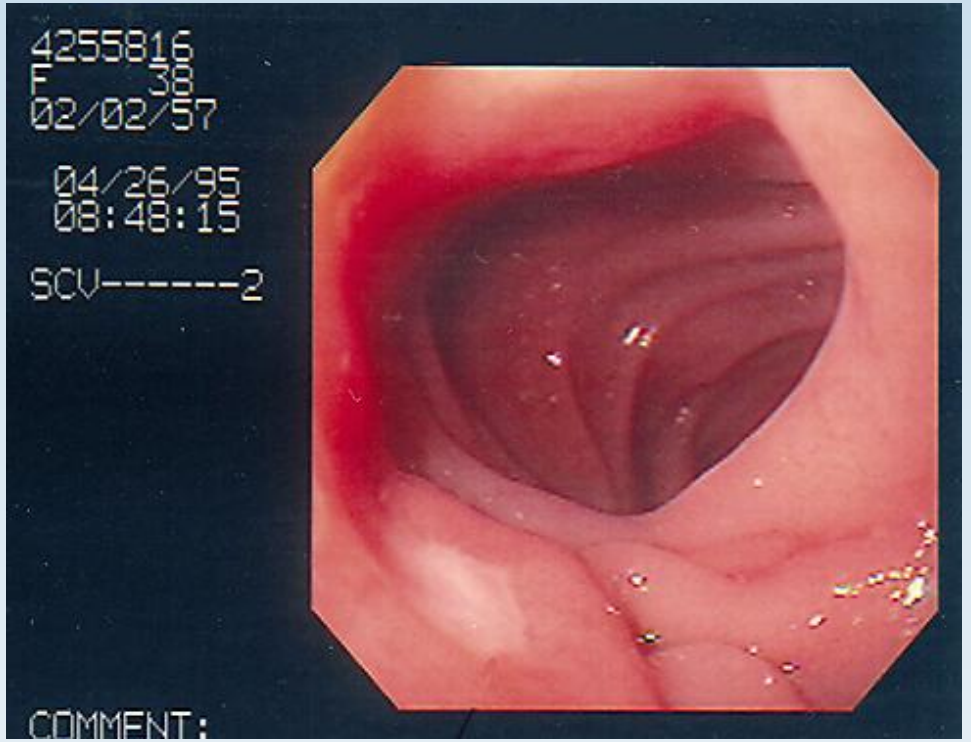


Eroded Band

Special Considerations:
Gastric Bypass Patients

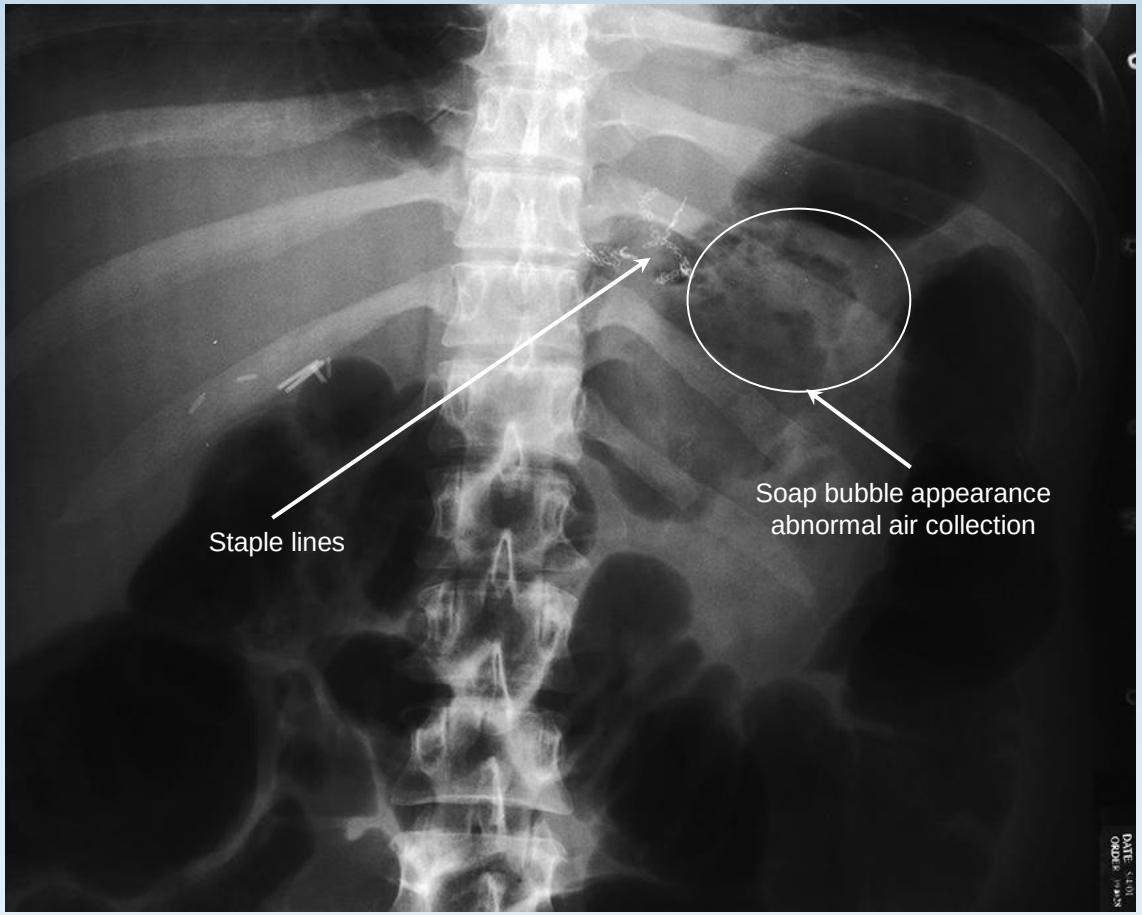
Any unexplained anemia in a gastric bypass patient requires an endoscopy to check for marginal ulcers.

Marginal ulcer with stomal stenosis



Superficial marginal ulcer

Weight Loss Surgery Patients:
No Blind NG Tube Placement



36-year-old female

- 2 years s/p Gastric Bypass
- 184 lb. weight loss

8 days later

- VS – Temp 100.3. HR 106, BP 167/102, RR 20, Sat 100%
- WBC 11.2, Hb/Hct 11.5/33

Abdominoplasty and Body Lift Summary

- Safety first
  - Big procedures require preparation
  - Healthy patients
  - Speed and technical abilities critical to success
- Vigilence
  - Postoperative complications more common
  - Recognize pending problems
  - Early recognition with early intervention
- Avelar concept proven to be useful
  - Decreased OR time
  - Decreased complications
  - Useful for bodylifting
- Massive weight loss patients
  - Require full work up as their problems are unique and often unexpected
  - Nutritional workup essential preop

Thank You!

Body Contouring After Massive Weight Loss:
Abdominoplasty & Body Lift

E. Antonio Mangubat, MD

Seattle, WA