Obesity: Devices and Bariatric Options

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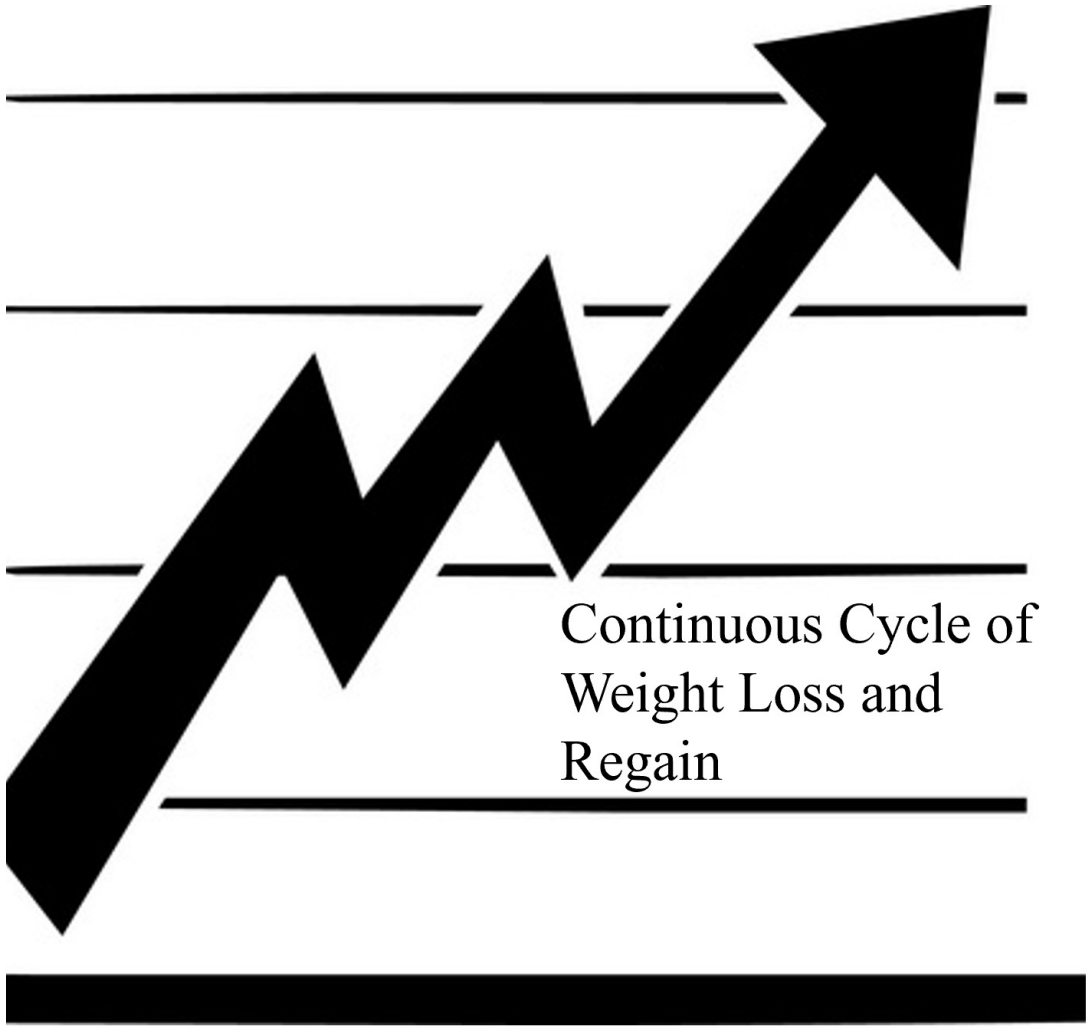
UT Health San Antonio

Diet & Exercise Alone

Genetics & hormones prevent diet and exercise from working by themselves.



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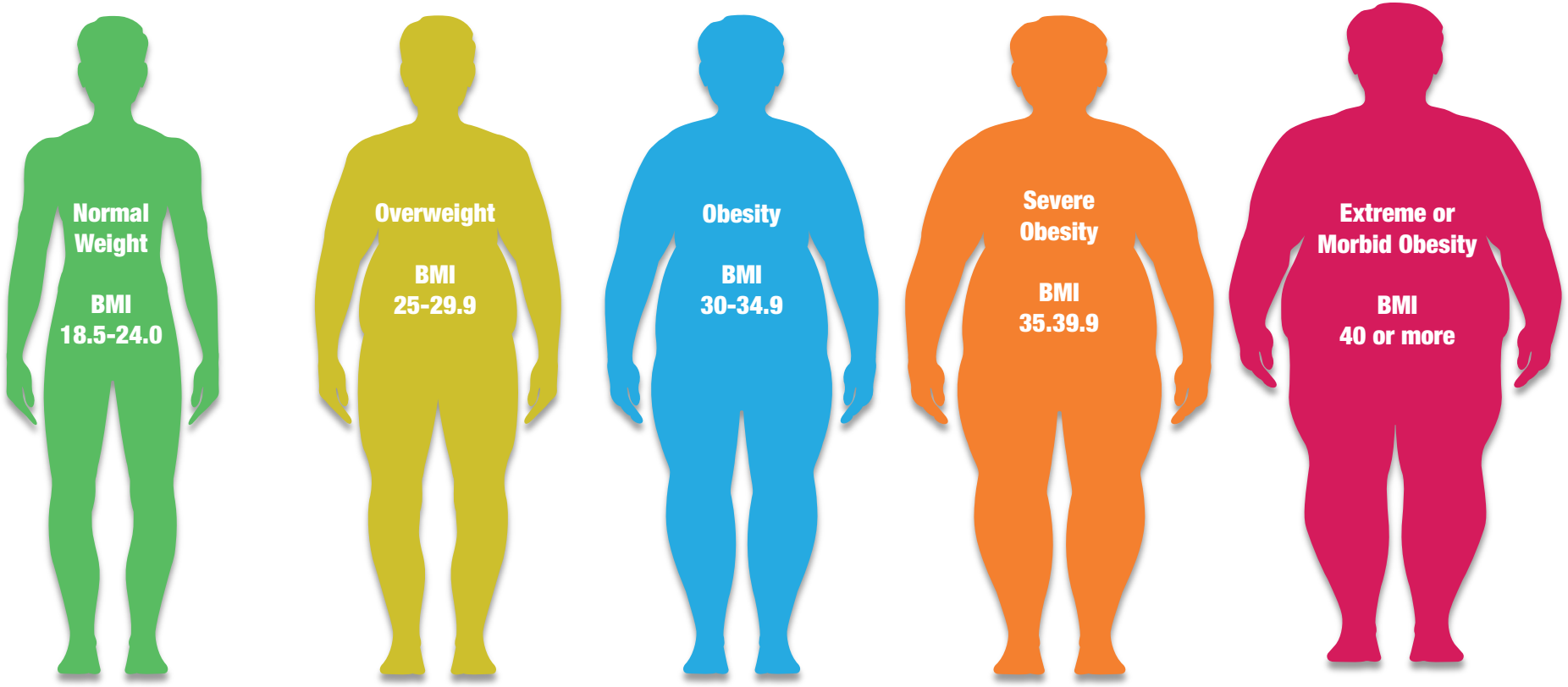
NIH Recommendations for Treating Obesity

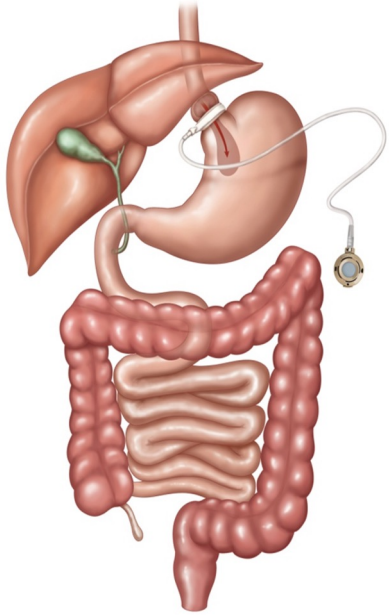


	Life Style Modification	Life Style Modification	Life Style Modification	Life Style Modification
	Medical Management	Medical Management	Medical Management	Medical Management
		Consider Surgery	Surgery	Surgery

Laparoscopic Surgery Options

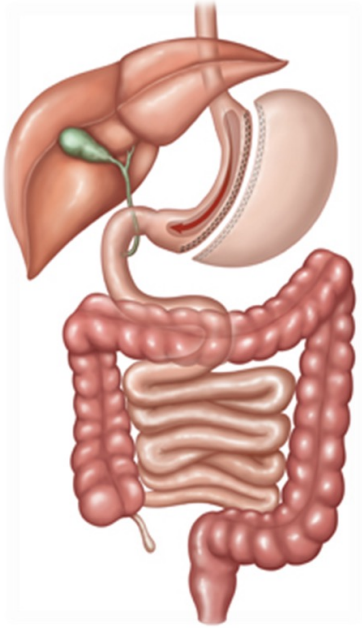
Adjustable Gastric Banding

(AGB)



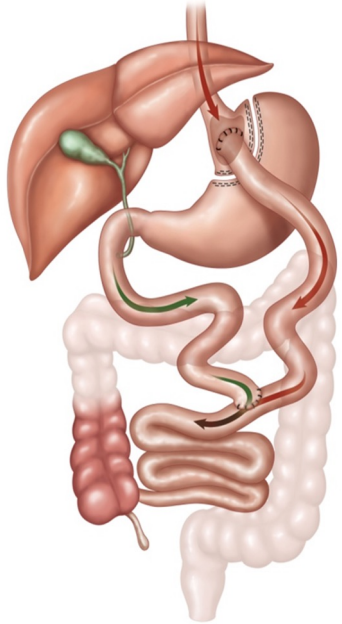
Sleeve Gastrectomy

(SG)



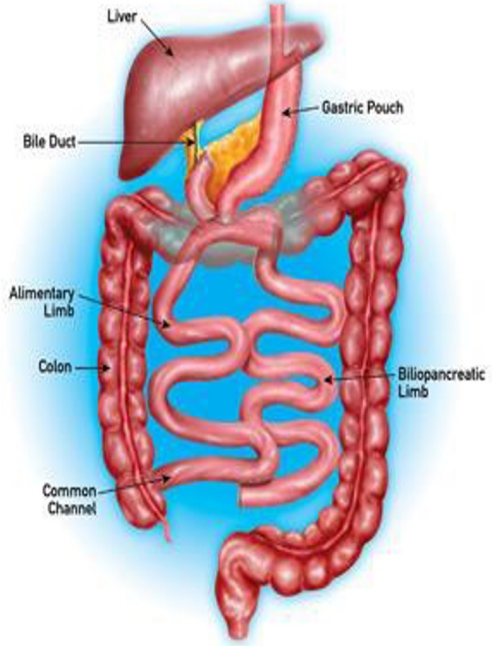
Roux-en-Y Gastric Bypass

(RYGB)



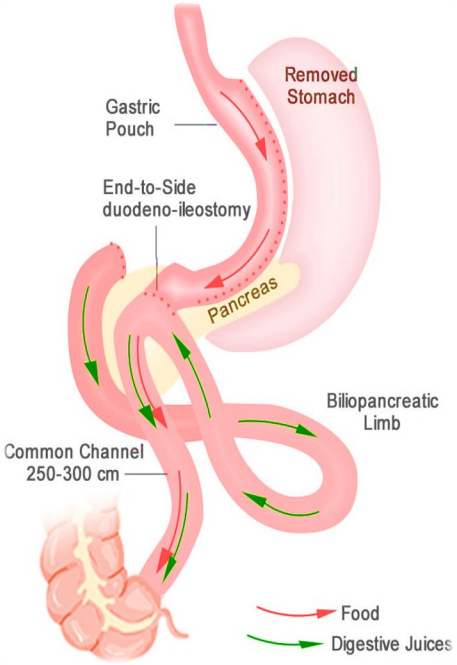
Bilio-pancreatic Diversion with Duodenal Switch

(BPD-DS)



Single Anastomosis Duodeno-ileal Bypass w/ Sleeve Gastrectomy

(SADI-S)



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Estimate of Bariatric Surgery Numbers, 2011-2017

Published June 2018

	2011	2012	2013	2014	2015	2016	2017
Total	**158,000**	**173,000**	**179,000**	**193,000**	**196,000**	**216,000**	**228,000**
Sleeve	17.80%	33.00%	42.10%	51.70%	53.61%	58.11%	**59.39%**
RYGB	36.70%	37.50%	34.20%	26.80%	23.02%	18.69%	**17.80%**
Band	35.40%	20.20%	14.00%	9.50%	5.68%	3.39%	**2.77%**
BPD-DS	0.90%	1.00%	1.00%	0.40%	0.60%	0.57%	**0.70%**
Revision	6.00%	6.00%	6.00%	11.50%	13.55%	13.95%	**14.14%**
Other	3.20%	2.30%	2.70%	0.10%	3.19%	2.63%	**2.46%**
Balloons	–	–	–	–	0.36%	2.66%	**2.75%**

The ASMBS total bariatric procedure numbers are based on the best estimation from available data (BOLD,ACS/MBSAQIP, National Inpatient Sample Data and outpatient estimations).

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Laparoscopic Adjustable Gastric Banding

- Placed around top of stomach; port under skin
- Requires fluid adjustments in port
- No bowel connections or staple lines
- Weight loss 10-20% total body weight*

  (30-50% *excess* body weight loss)
- Removal is possible
- High chance of removal (50% at 10 years)

*MBSAQIP 2016-2020

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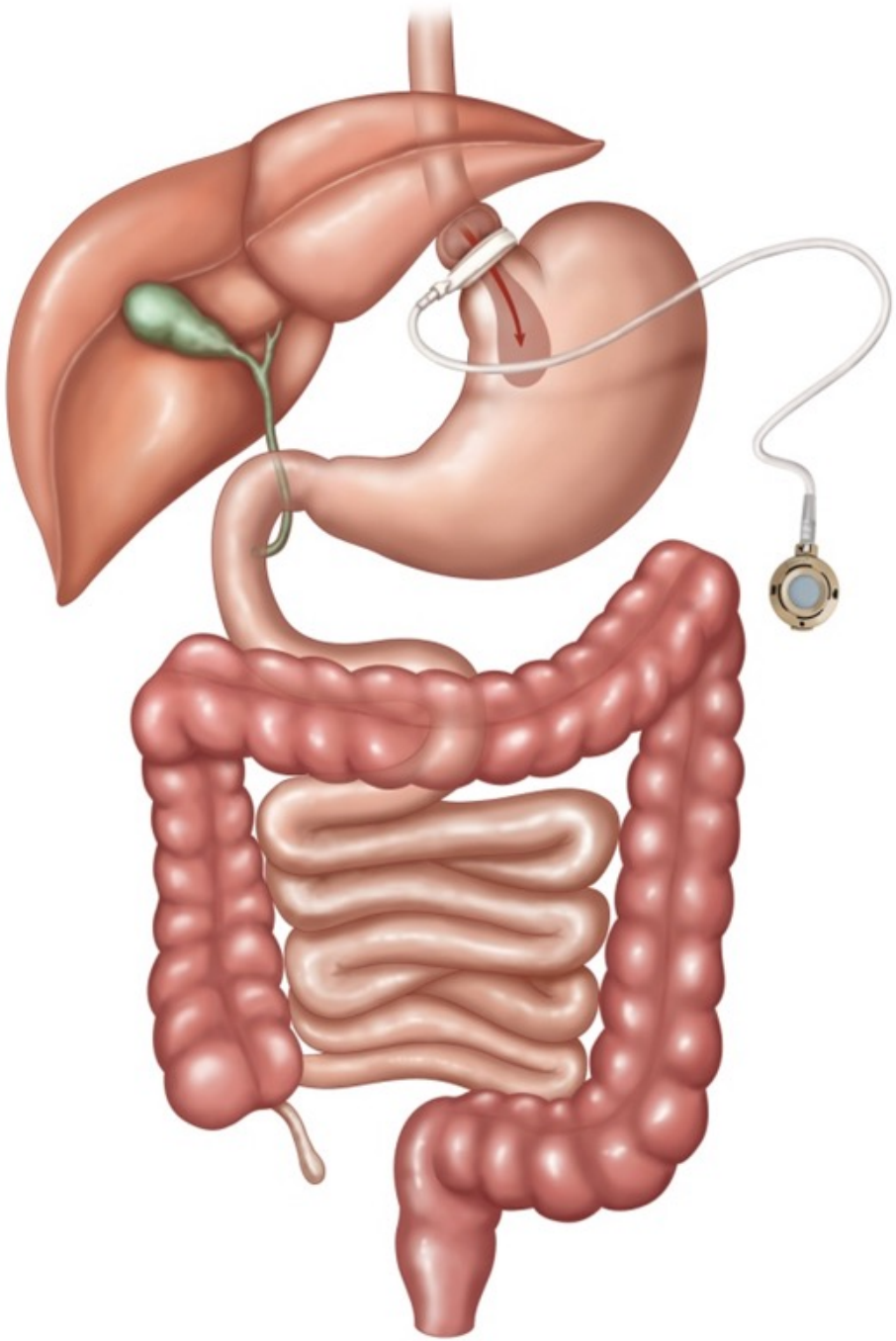


Laparoscopic Adjustable Gastric Banding

Pros:

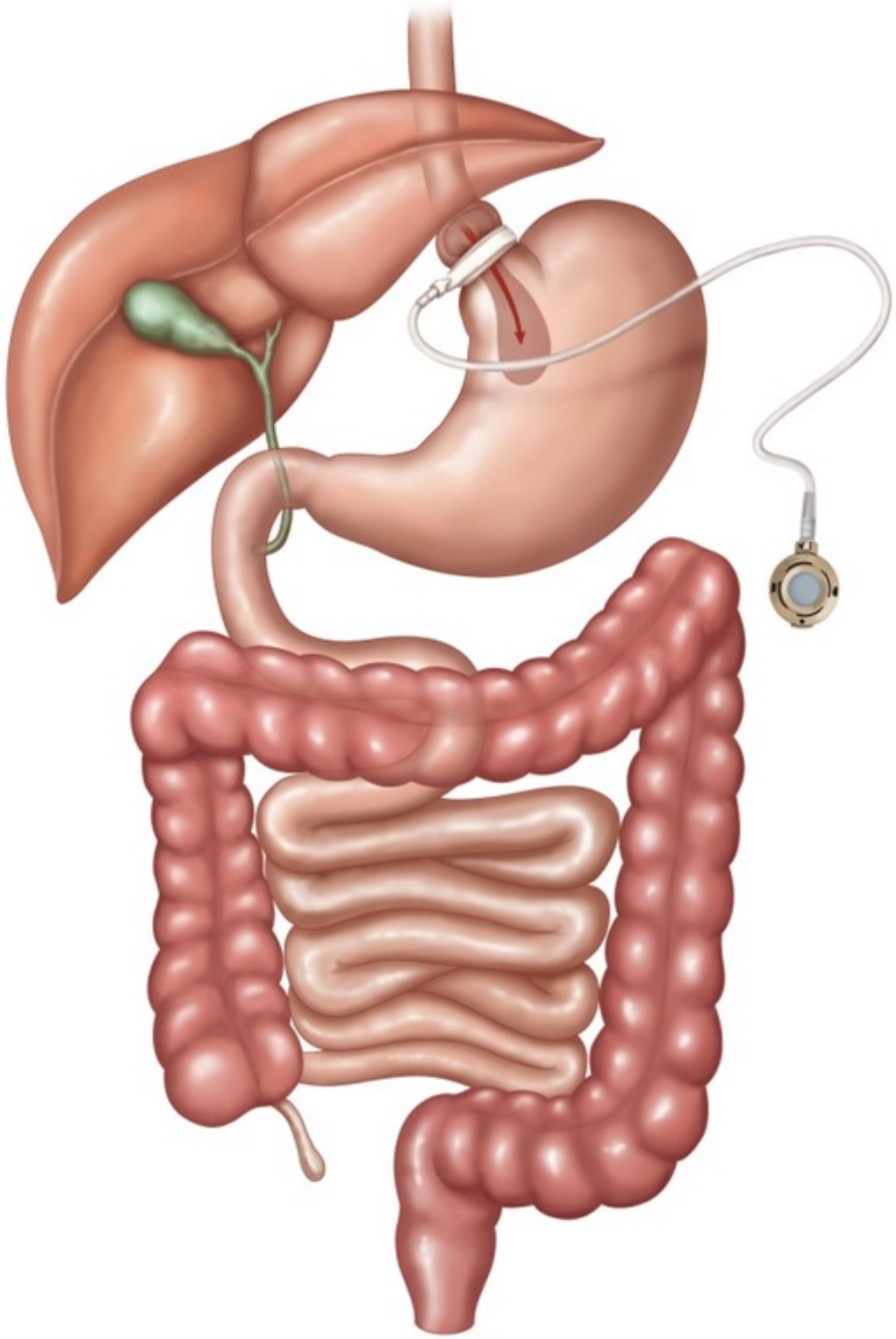
- No stapling
- No involvement of small intestine
- Decreases hunger

Cons:

- Involves a ”foreign body”
- Requires adjustments through port injections
- Can cause swallowing difficulties
- Poor tolerance and slippage may lead to removal
- No change on metabolism

Ideal for:

- Absorption of vitamins, critical medication
- Extensive surgical history
- Steroid dependence
- Low BMI without metabolic disease
- Highly compliant patient



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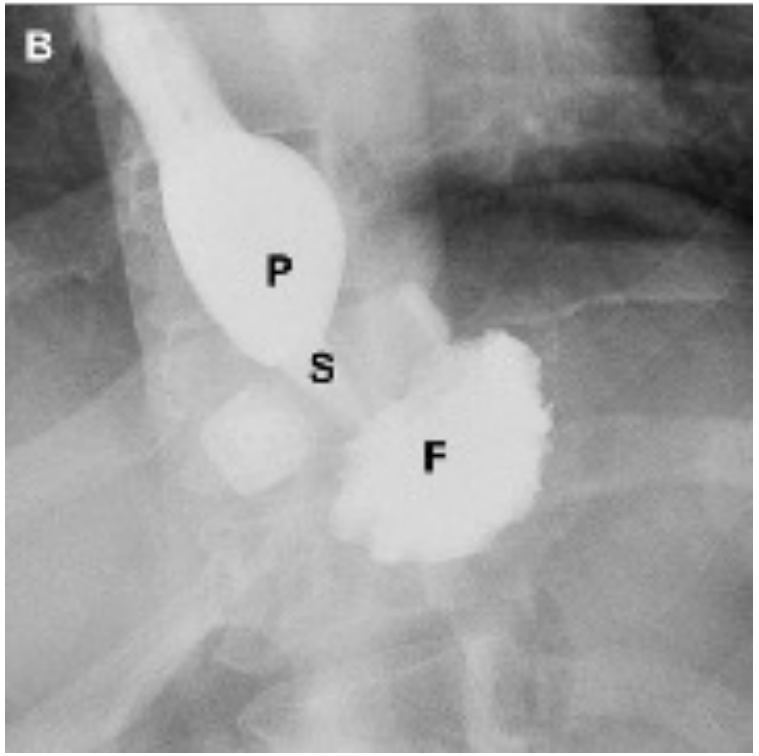
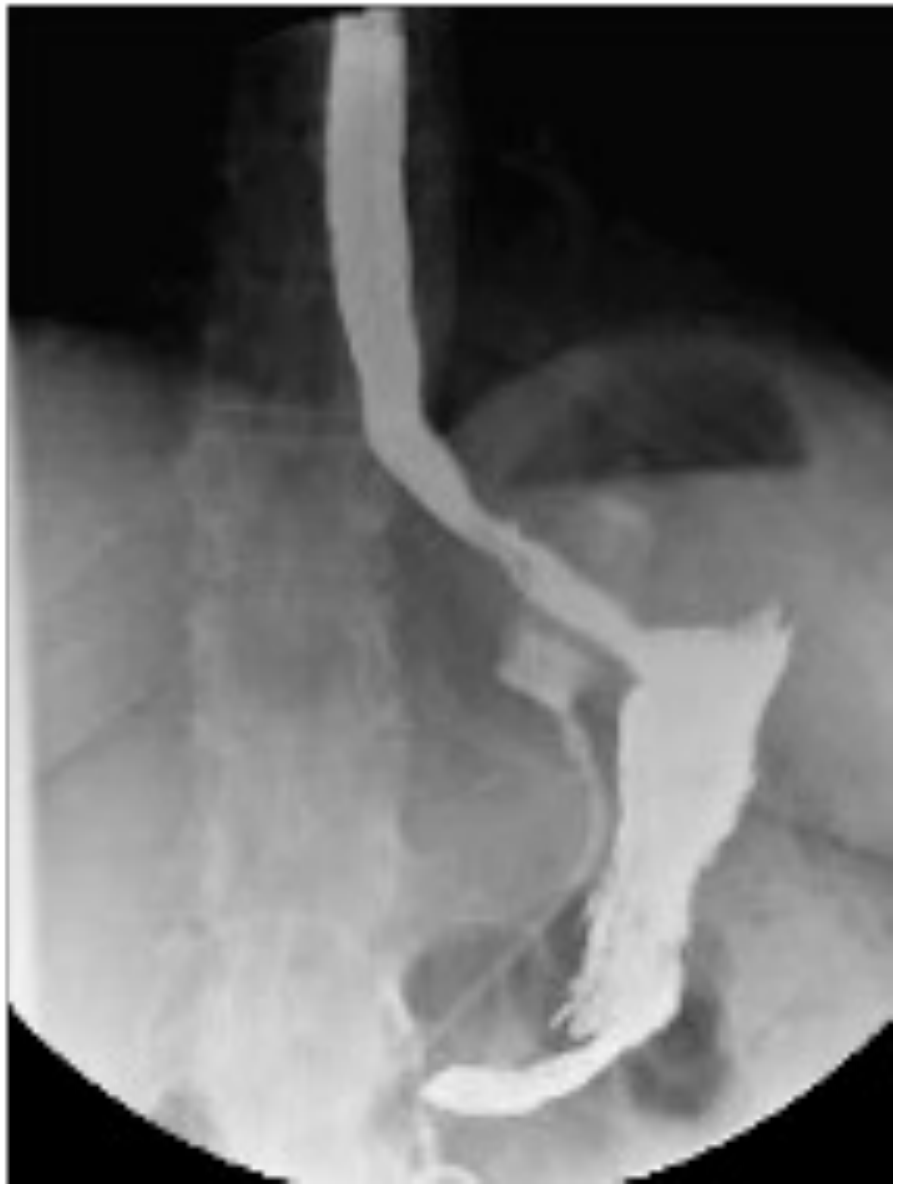
Normal postoperative films

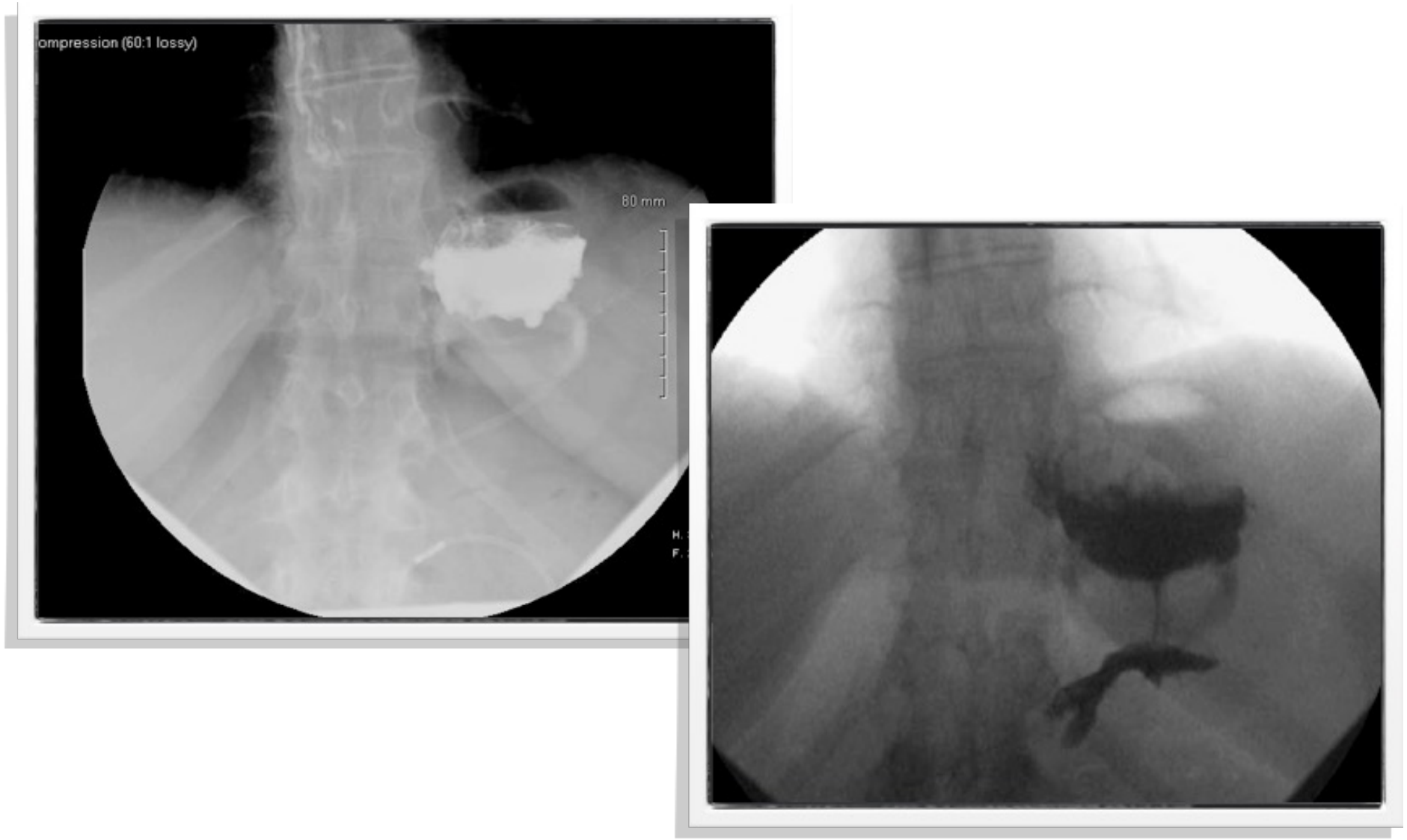


Carucci, et al Rad Clin N Am 2007

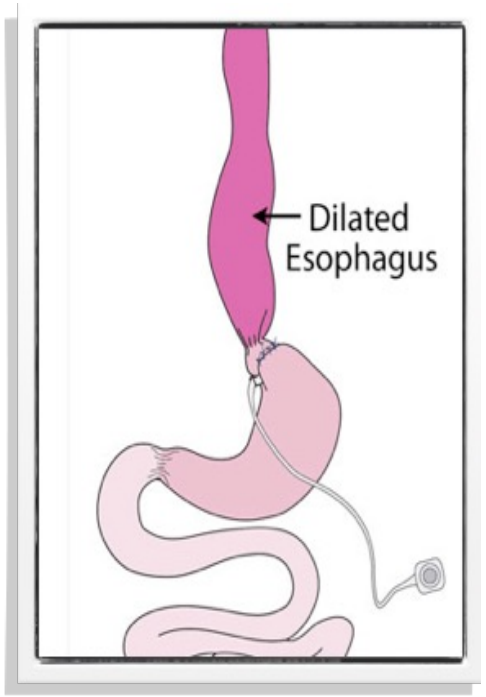


Allen JW. Med Clin N Am 2007

Acute band slip (prolapse)



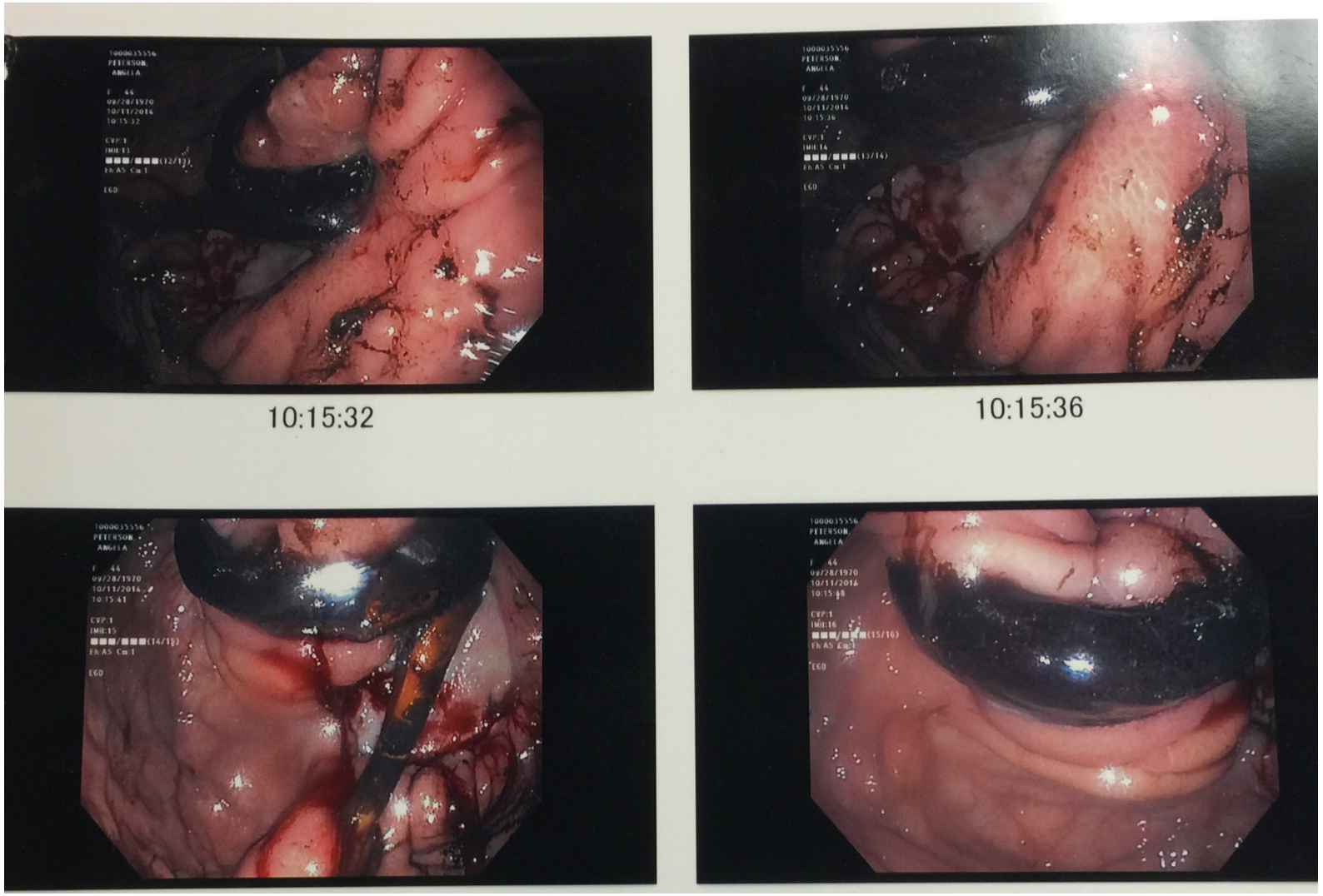
Esophageal dilation



Case Presentation

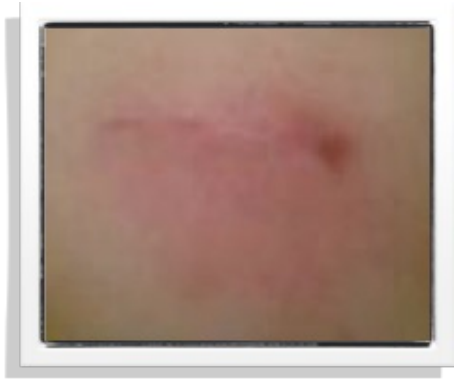
- 36 y/o female had Lap Band placed in Mexico 3 years prior to evaluation
- Band was filled at time of surgery
- Had infection of port unresponsive to multiple antibiotics

Erosion

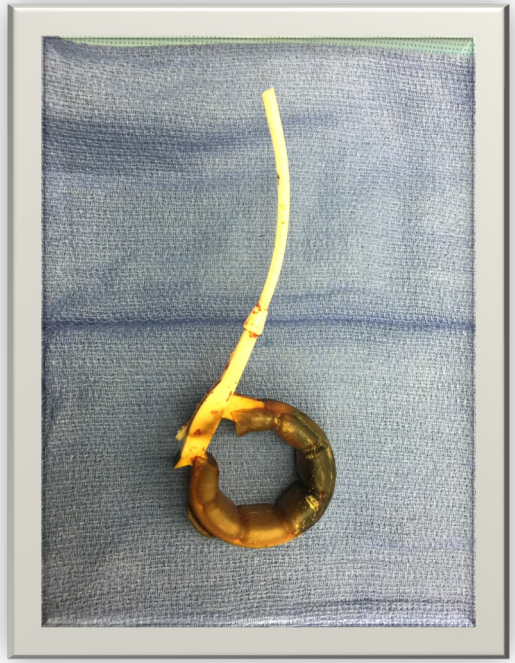


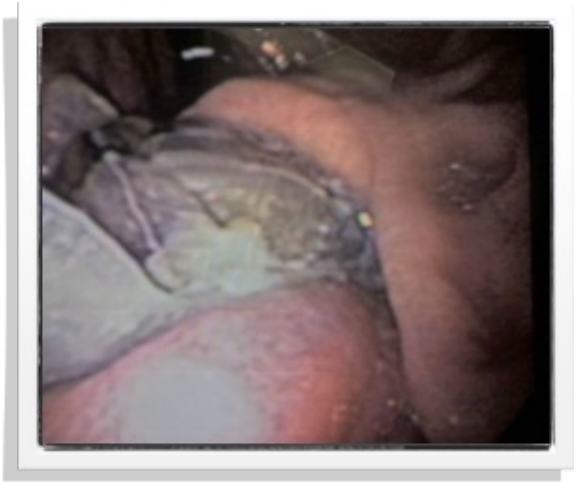
Erosion

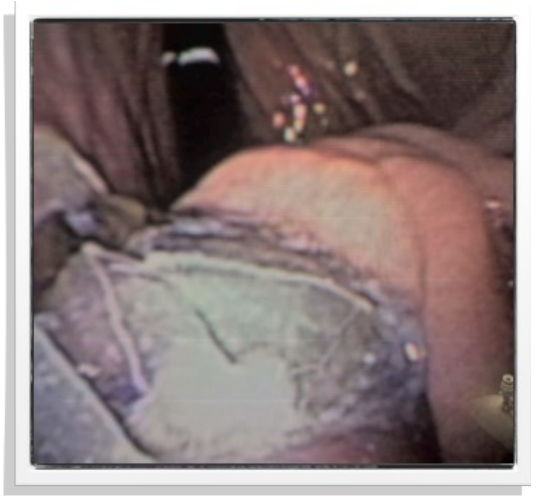
- Occurs because the Band is too tight or secondary to infection
- Impairs the blood supply to the stomach
- Must be removed



PORT SITE INFECTION







Laparoscopic Sleeve Gastrectomy

- About 3/4th of the stomach is removed
- No bowel connections
- Metabolic effects and possible type 2 diabetes remission
- Weight loss 20-30% total body weight*

  (60-70% *excess* body weight loss)
- Can potentially worsen GERD/esophagitis

*MBSAQIP 2016-2020

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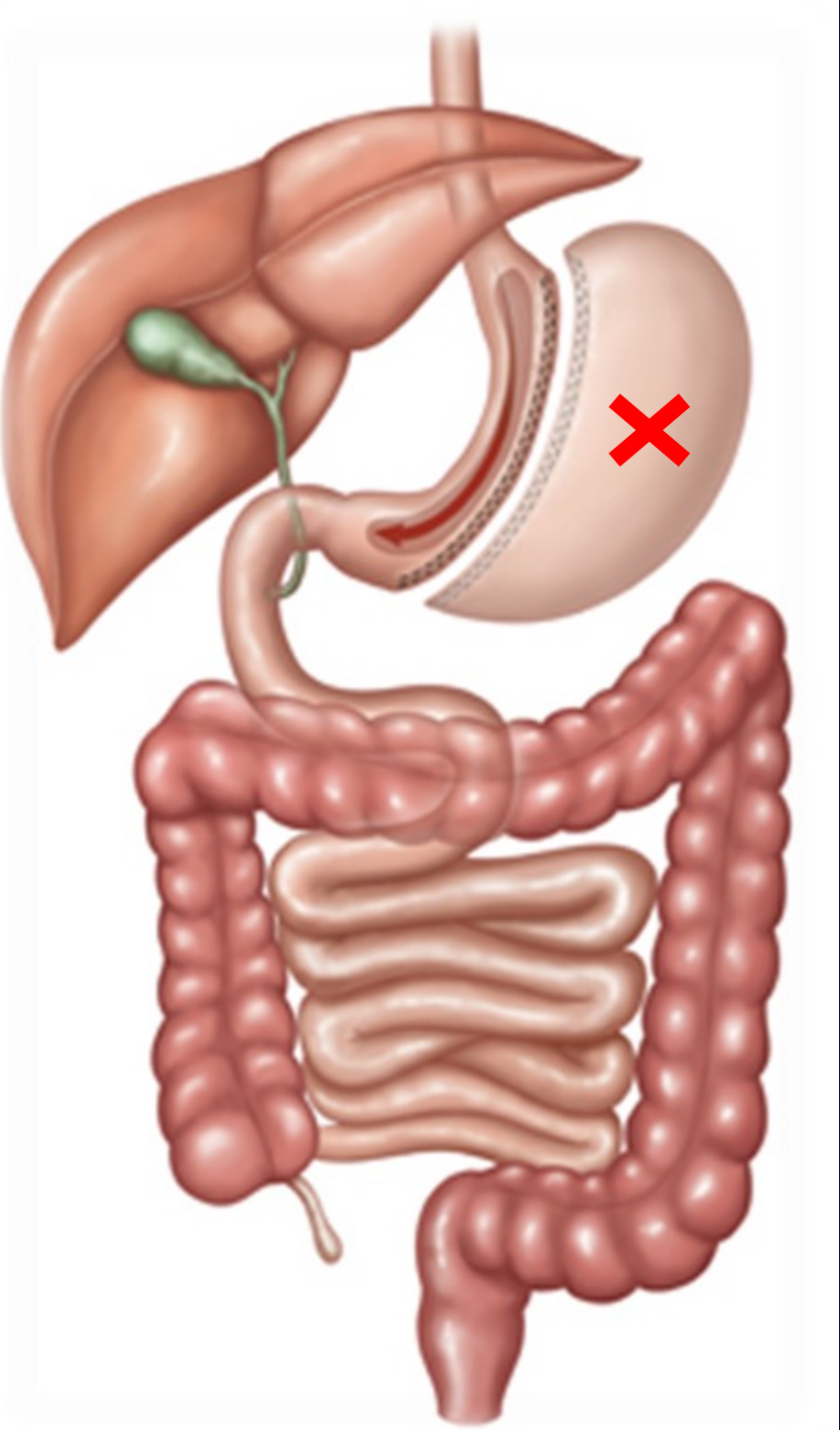
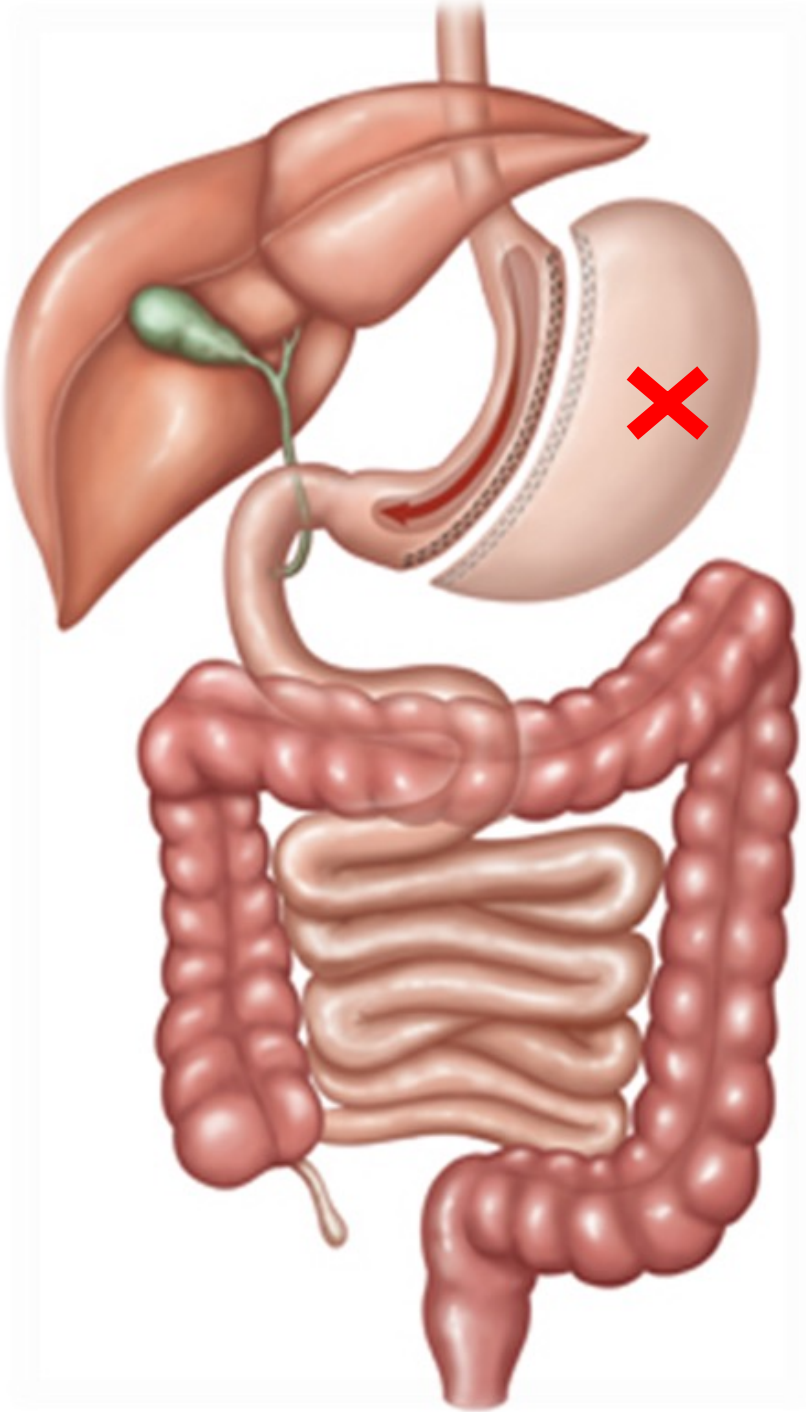


Laparoscopic Sleeve Gastrectomy

- ***Pros:***
  - No involvement of small intestine
  - Decreases hunger
  - Improves metabolism
- ***Cons:***
  - May cause or worsen reflux
  - Possible risk of Barrett's esophagus
  - Less durable weight loss
- ***Ideal for:***
  - Absorption of vitamins, minerals, critical medications
  - Extensive surgical history
  - Steroid dependence (auto-immune conditions)
  - NSAID dependent patients
  - High risk (medical, psych, super morbid obesity)



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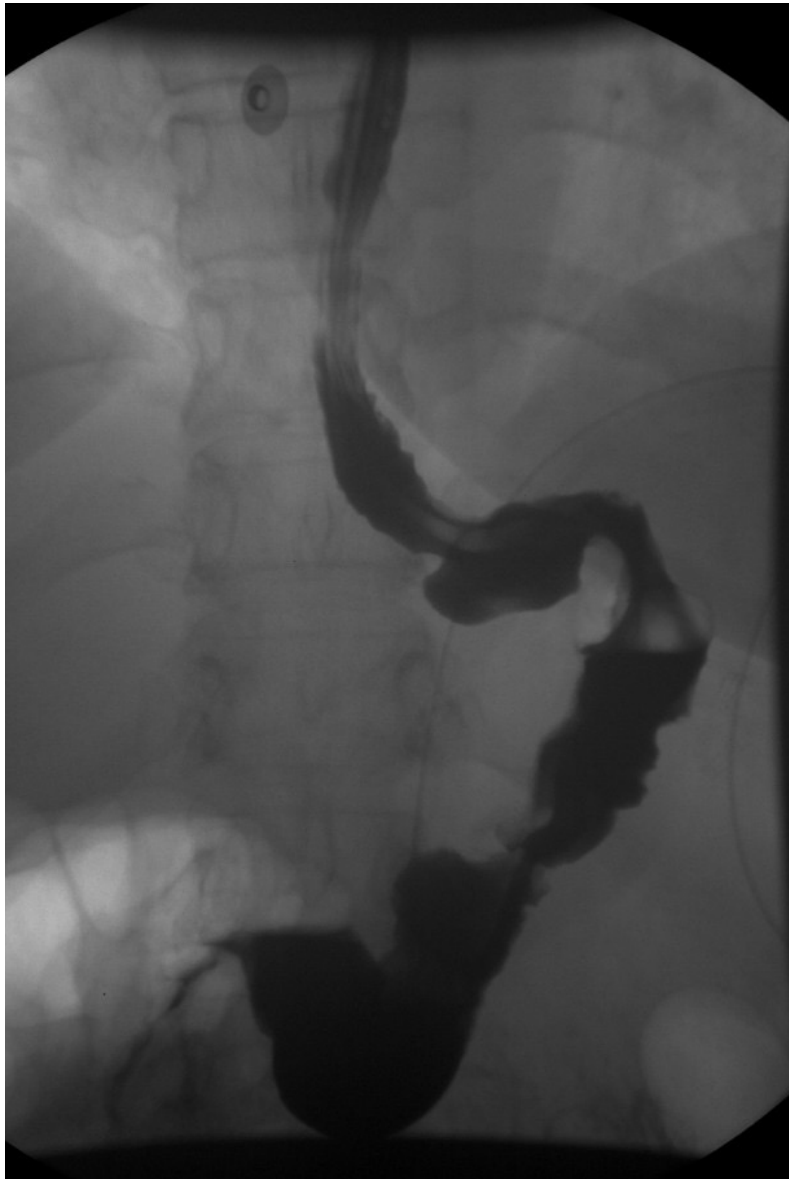
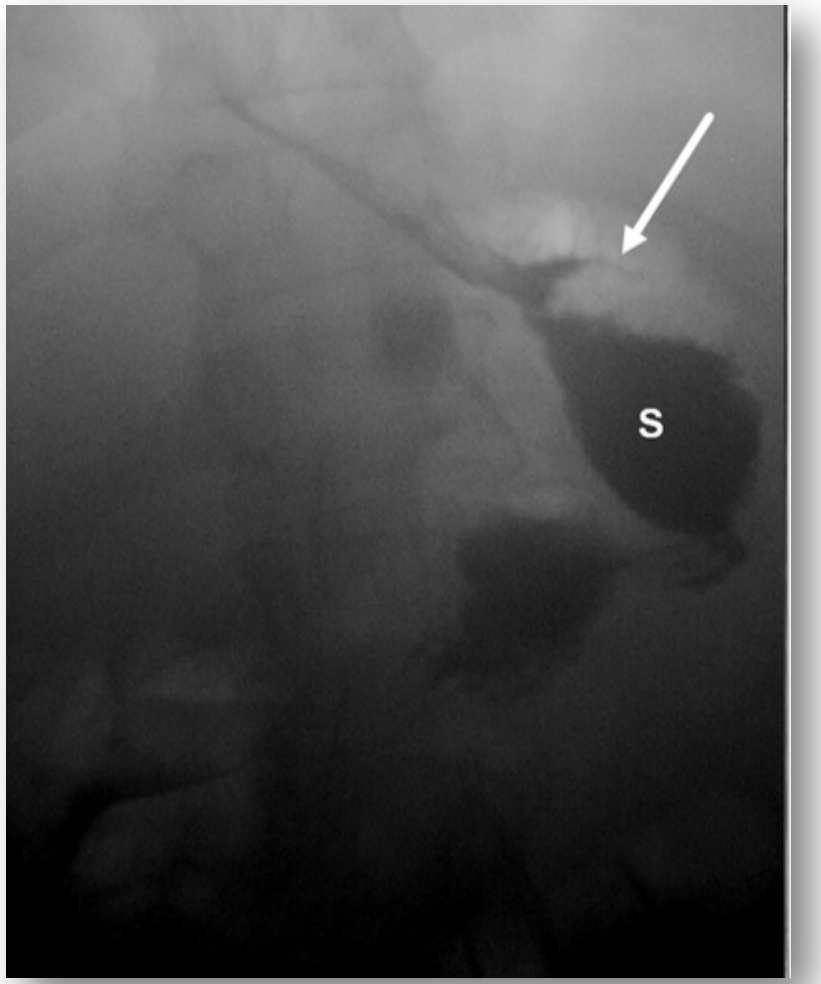
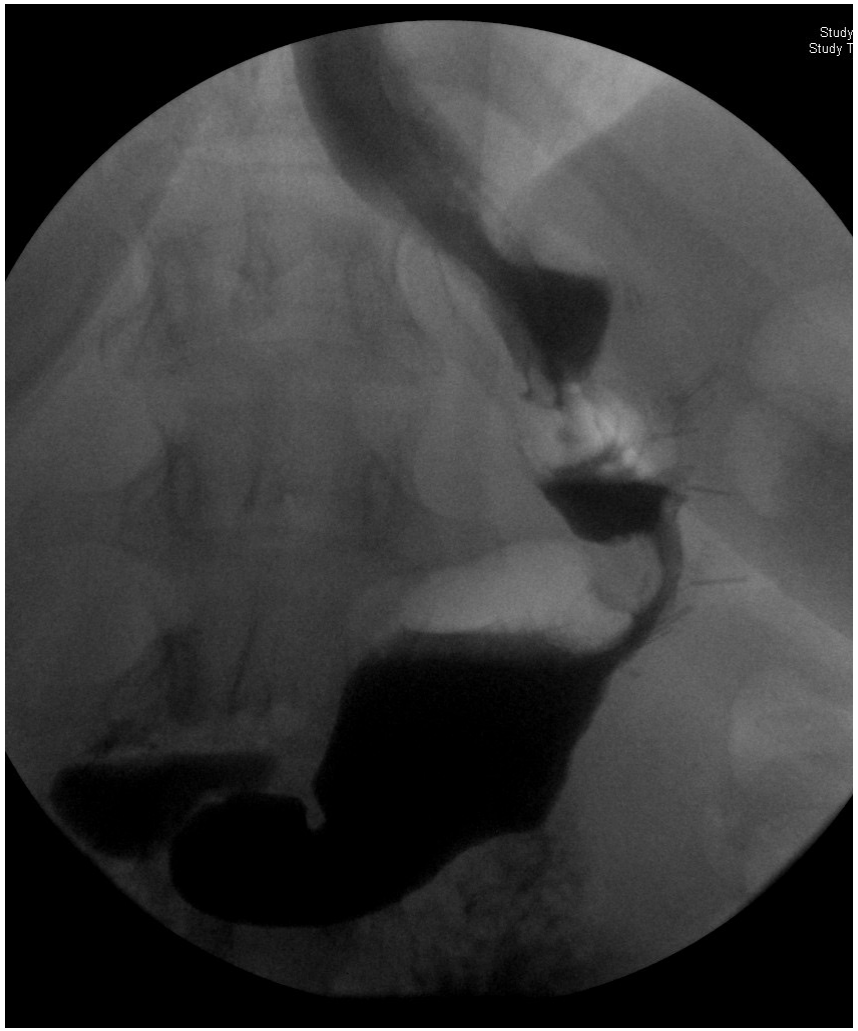


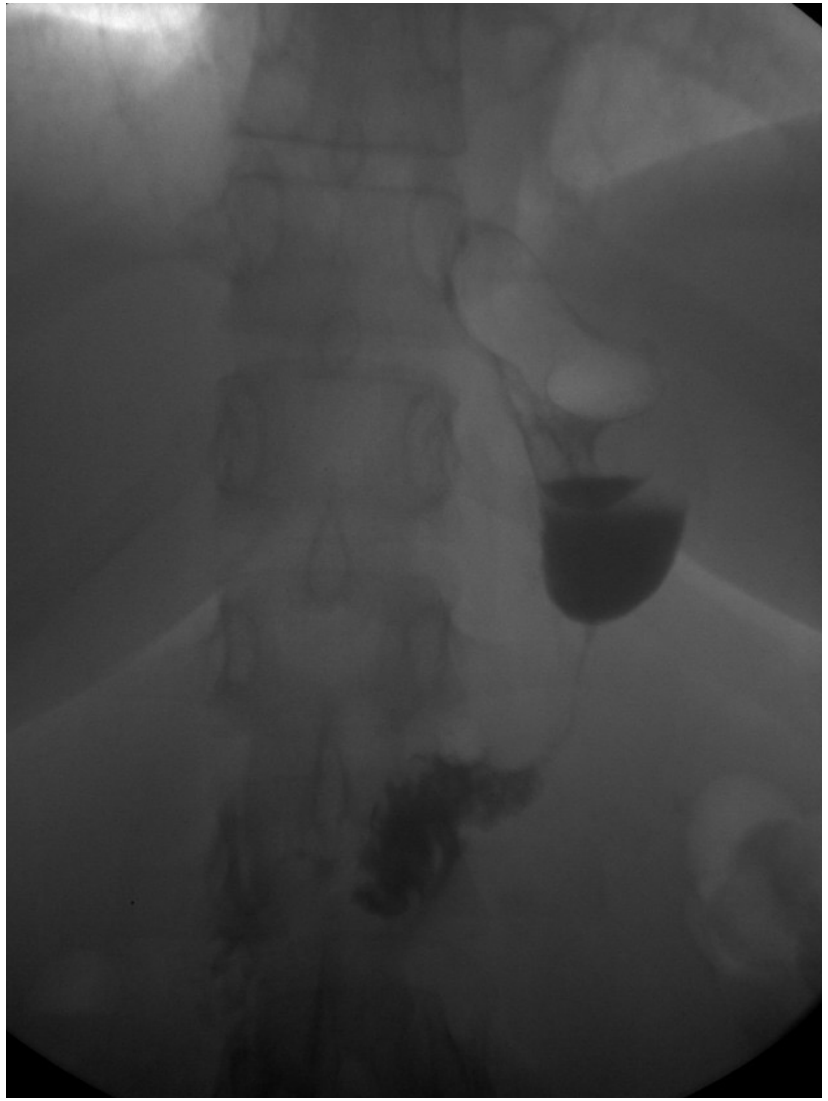
Gastric Sleeve Leak

- Typically occurs at 10-14 days from surgery
- Reported up to 55 days out
- Can be from early diet changes, distal obstruction, medications, etc
- Nearly all are at the GE junction
- Higher association with use of a **bougie <40 Fr**



Sleeve Stenosis





Laparoscopic Roux-en-Y Gastric Bypass

- Procedure with a long track record
- Very effective against type 2 diabetes
- Most effective anti-reflux operation
- Weight loss 25-35% total body weight*

  (60-75% *excess* body weight loss)
- Potential for ulcers with tobacco/NSAIDs
- Risk of bowel obstruction

* MBSAQIP 2016-2020

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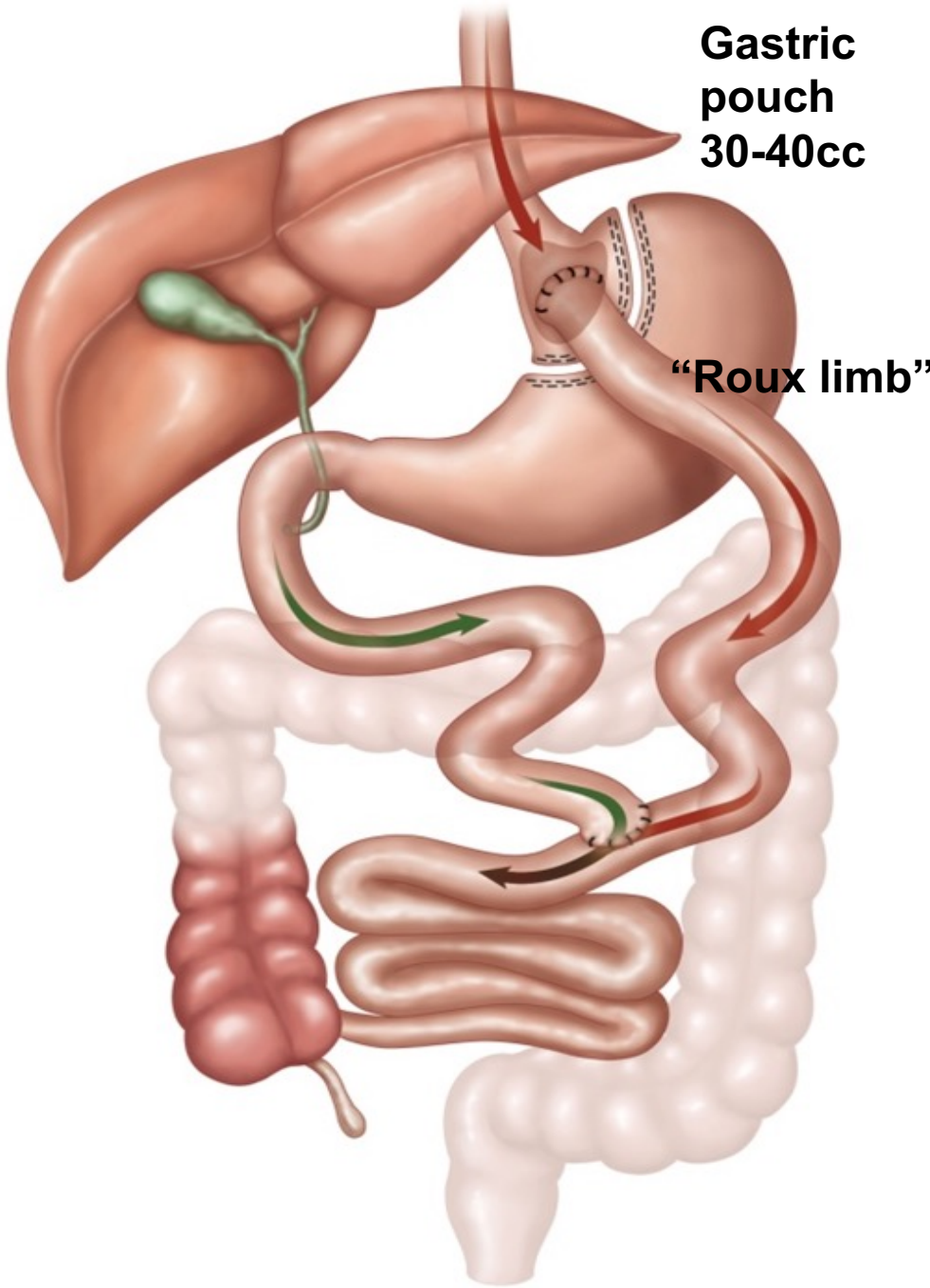
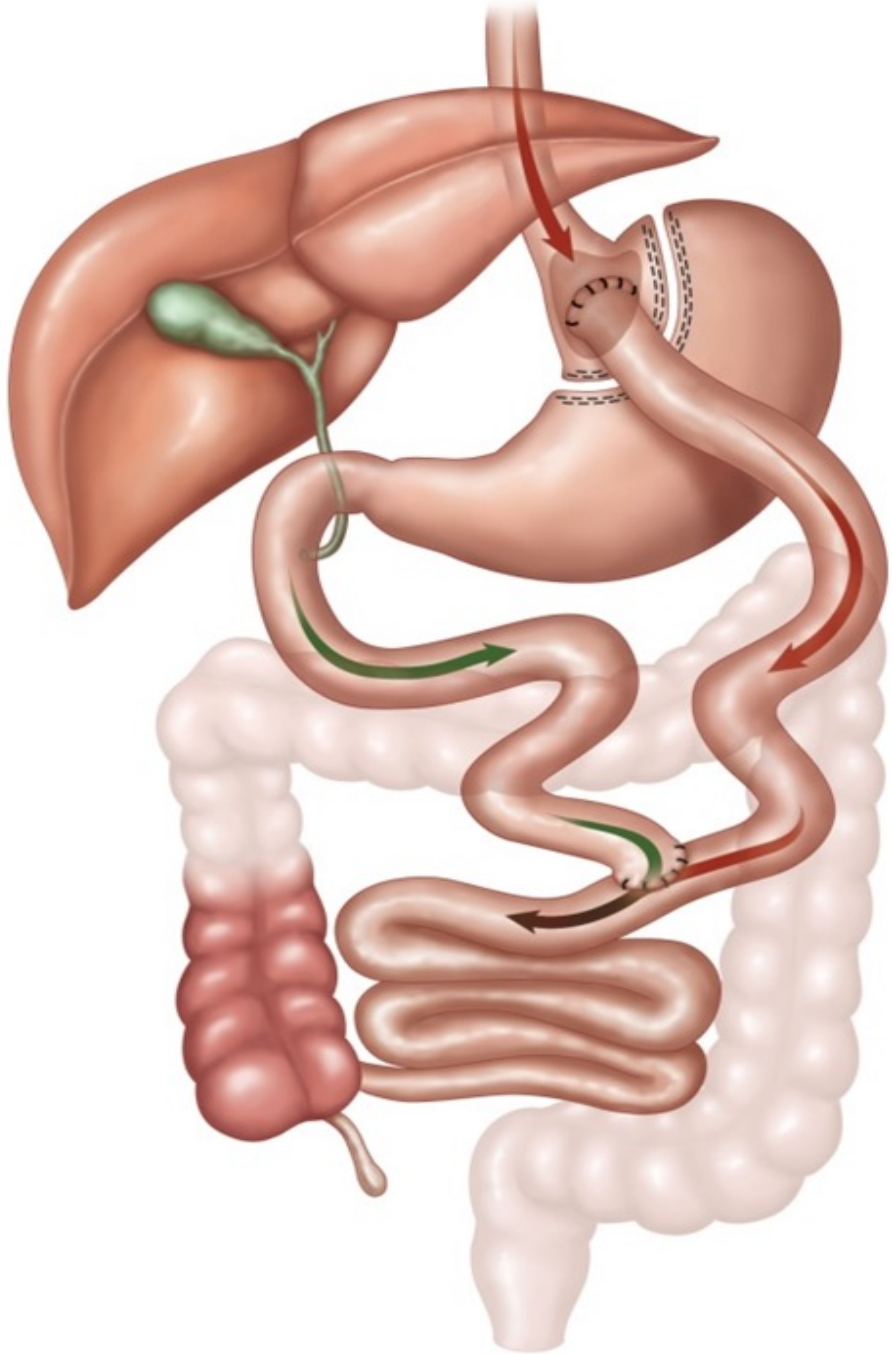


Laparoscopic Roux-en-Y Gastric Bypass

- Pros:
  - Long track record
  - Decreases hunger
  - Improves metabolism
  - Great impact on
    - Type 2 diabetes mellitus
    - Metabolic syndrome
- Cons:
  - Possibility of internal hernia / bowel obstruction
  - Potential for development of “marginal ulcers”
  - Decreased absorption of vitamins / nutrients
  - Involves 2 bowel connections
  - No NSAIDS
- Ideal for:
  - Patient with type 2 diabetes
  - Patients with obesity and reflux (GERD)



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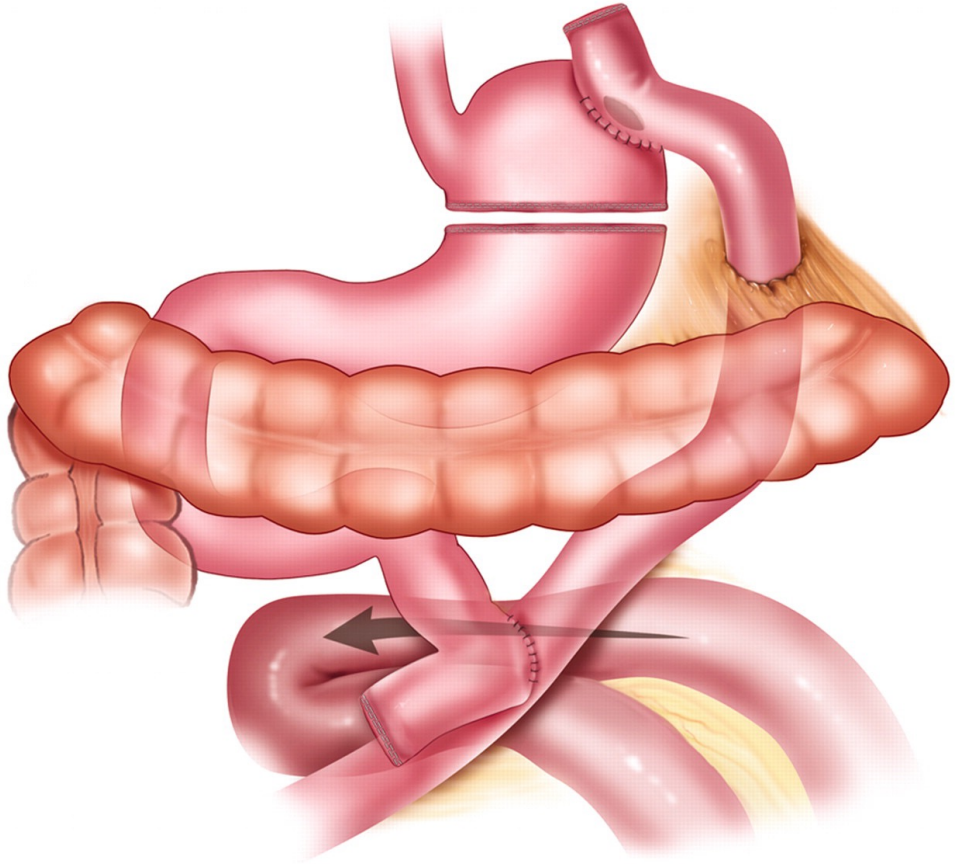
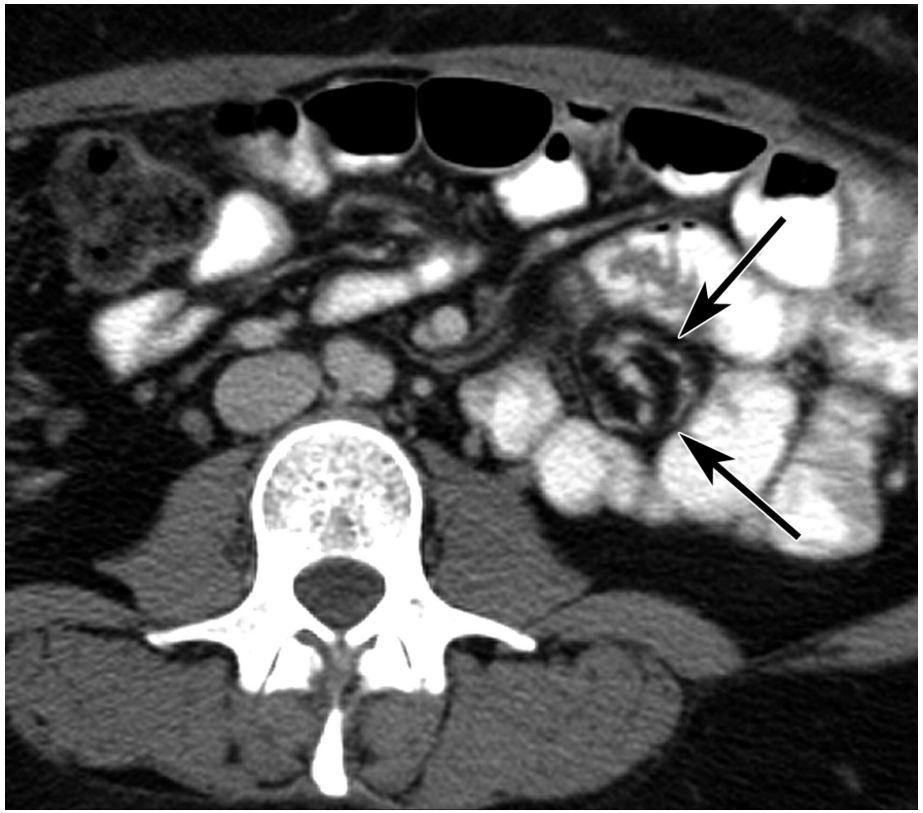
Internal hernia



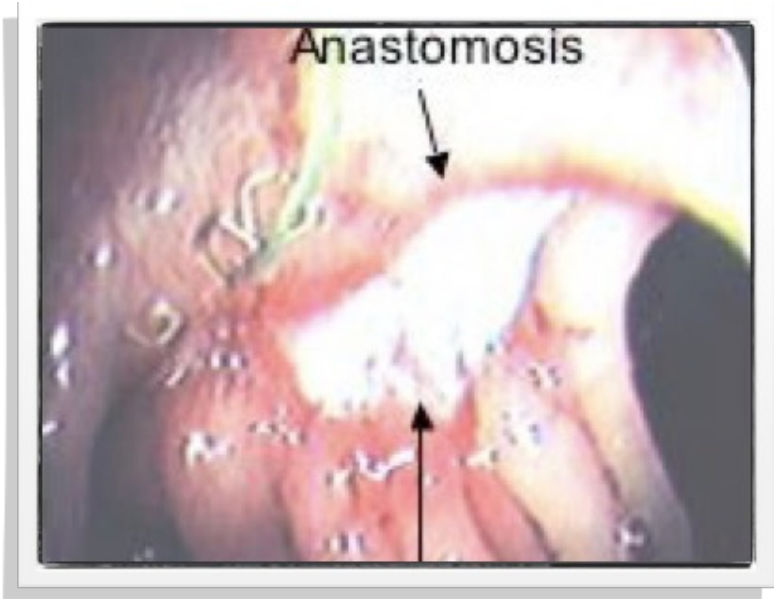


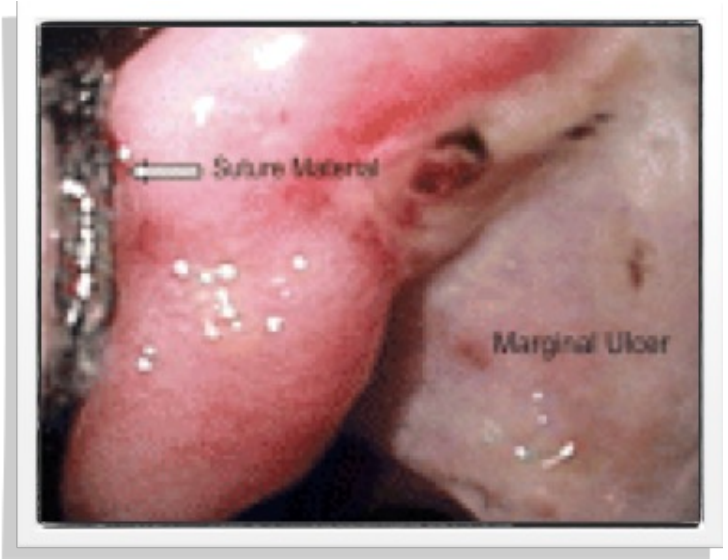
Marginal Ulcer

- The nature of the Gastric Bypass is Ulcerogenic

- 8% of GBP patients develop Ulcer
  - 95% Occur within the first year

- NSAIDs, Smoking, Steroids, Suture Material, G-G Fistula





Bilio-pancreatic Diversion with Duodenal Switch

- Similar to a gastric bypass but with
  - Sleeve-like pouch
  - Longer bypassed intestinal segment
- A more complex technical and longer surgery
- Excellent sustainable weight loss results
  - 45-50% total body weight loss

    (80-90% *excess* body weight loss)
- Highly effective in resolution of type 2 diabetes and other medical problems
- Risk of vitamin, nutrient deficiencies

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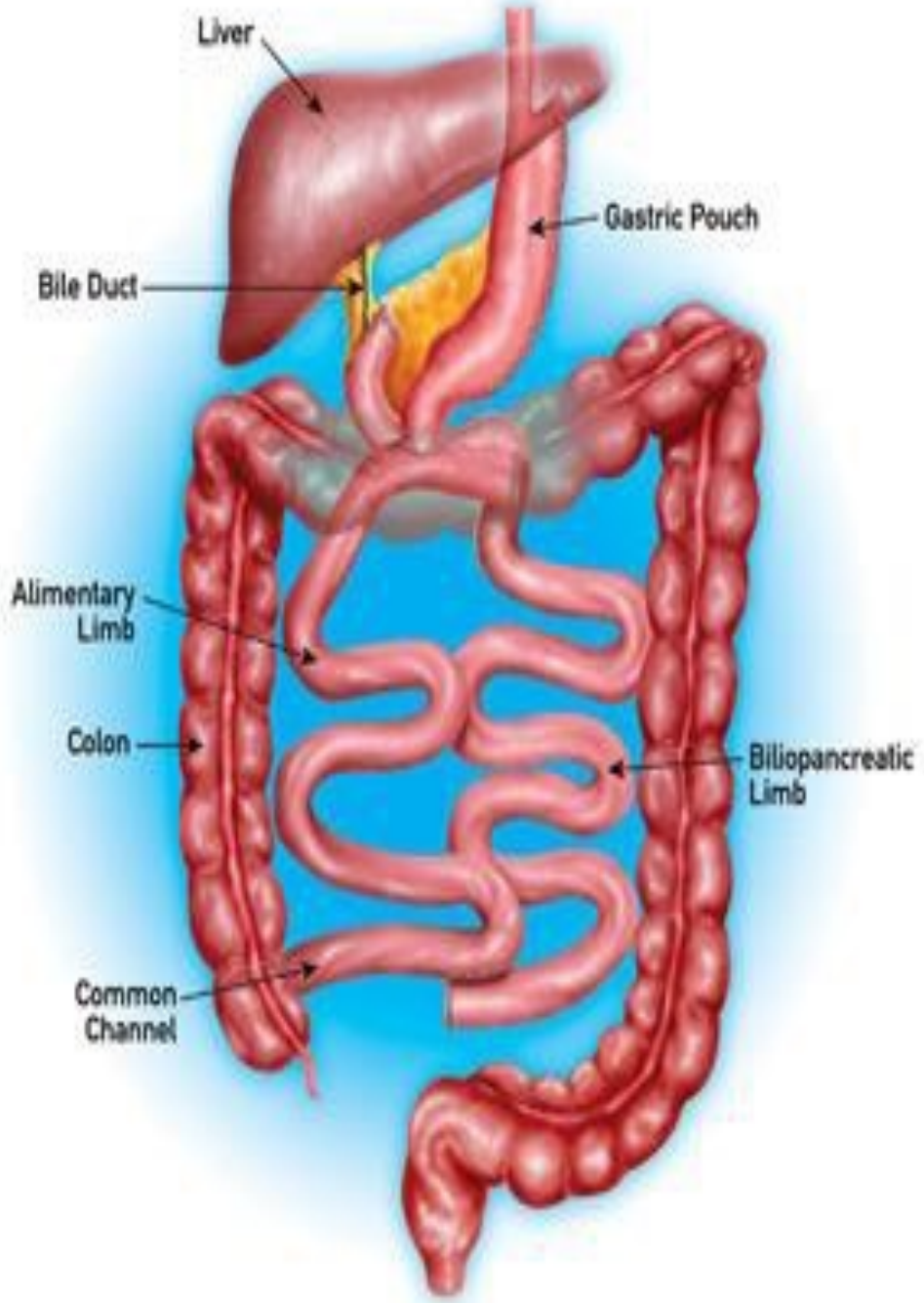
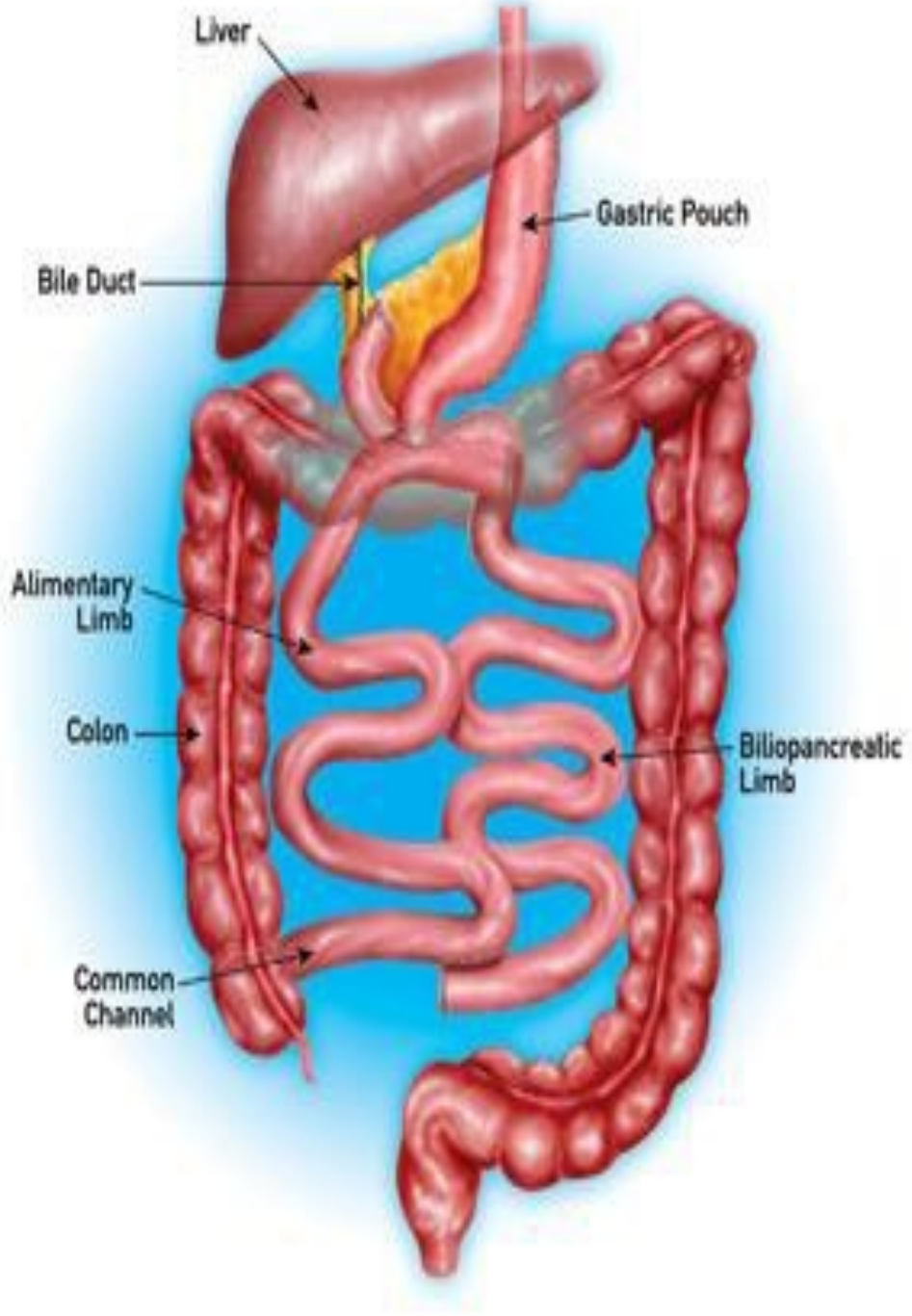


Bilio-pancreatic Diversion with Duodenal Switch

- Pros:
  - Excellent impact on
    - Type 2 diabetes mellitus
    - Metabolic syndrome
  - Excellent sustainable weight loss
  - Tolerant of NSAIDs
- Cons:
  - More technically complex, longer surgery
  - Decreased absorption of vitamins, nutrients
  - Possibility of internal hernia, bowel obstruction
  - Increased number of bowel movements
- Ideal for:
  - May be performed after Sleeve Gastrectomy
  - Seconds stage in patients with super morbid obesity



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Single Anastomosis Duodeno-ileal Bypass with Sleeve Gastrectomy (SADI-S)

- Highly effective for type 2 diabetes, comorbid conditions
- Less risk for future bowel obstructions and internal hernias
- May be performed after a sleeve gastrectomy
- Weight loss 45-50% Total Body weight
  - 80-90% *excess* body weight

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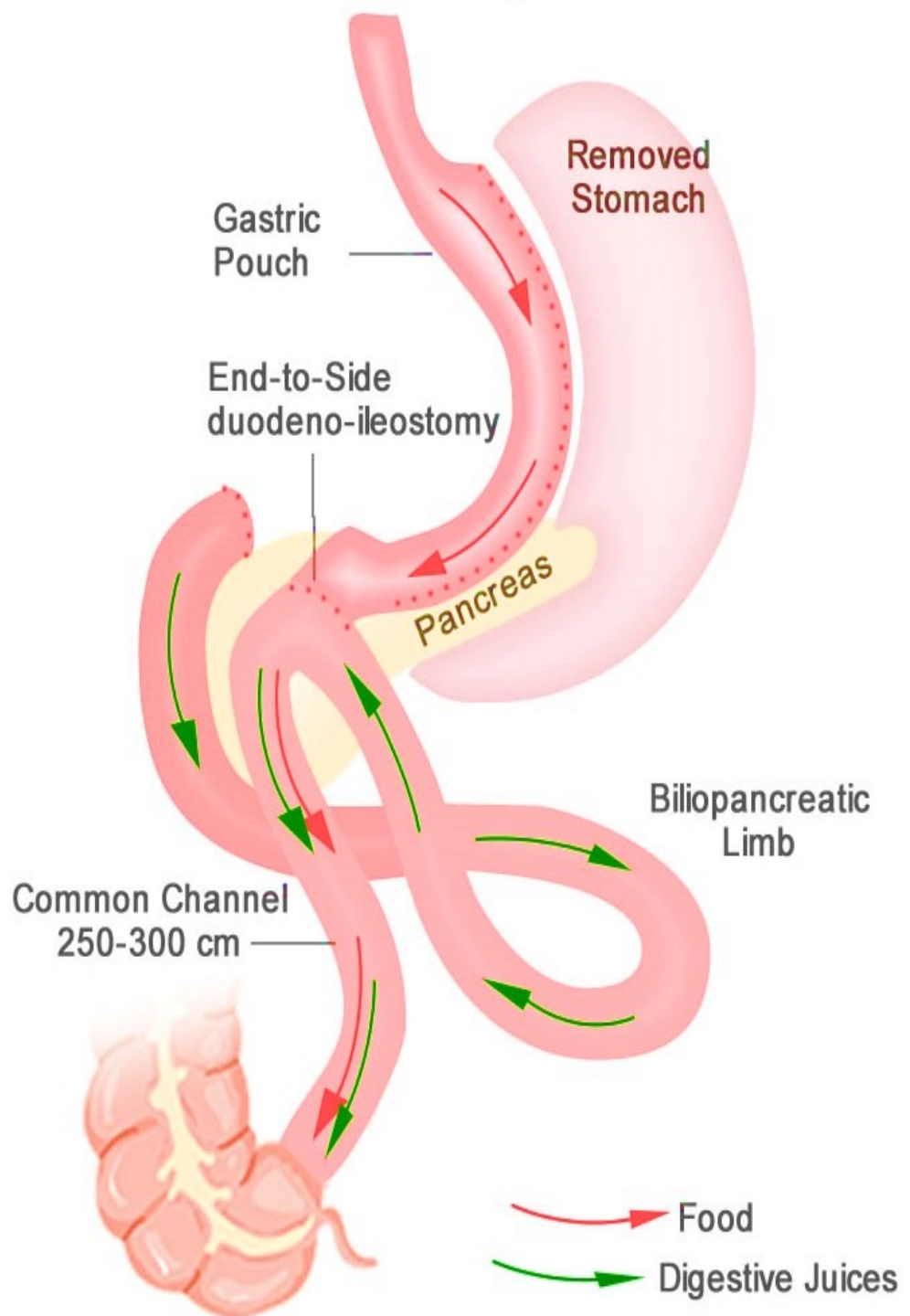
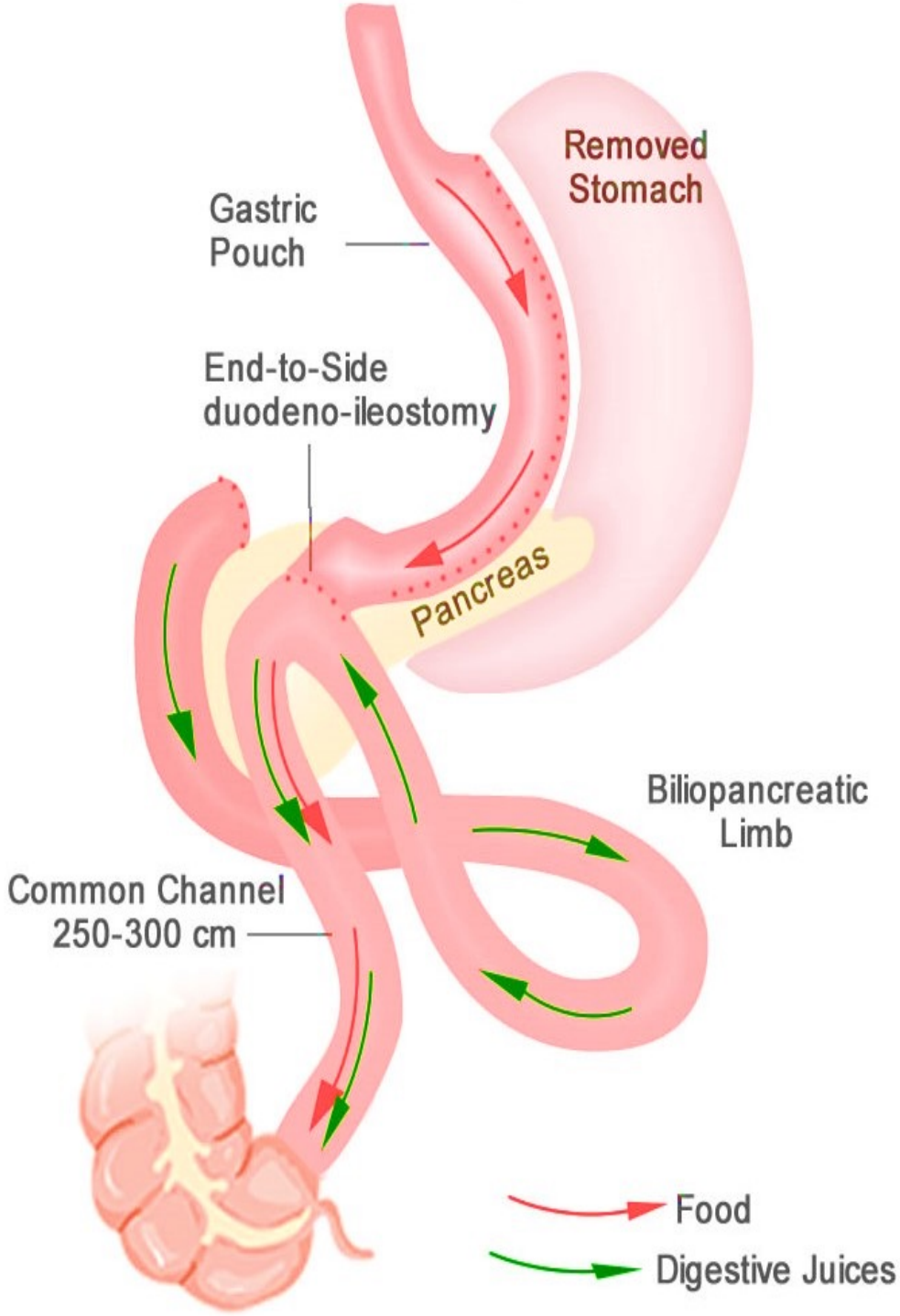


Single Anastomosis Duodeno-ileal Bypass with Sleeve Gastrectomy

- Pros:
  - Excellent impact on
    - Type 2 diabetes mellitus
    - Metabolic syndrome
  - Excellent weight loss
- Cons:
  - Newer procedure
  - Decreased absorption of vitamins, nutrients
  - Bowel connection
  - Increased number of bowel movements
- Ideal for:
  - May be performed after Sleeve Gastrectomy
  - Patients with super morbid obesity (2nd-stage)



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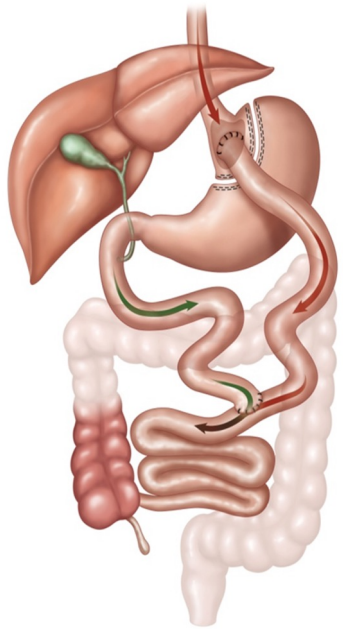
The Big Three

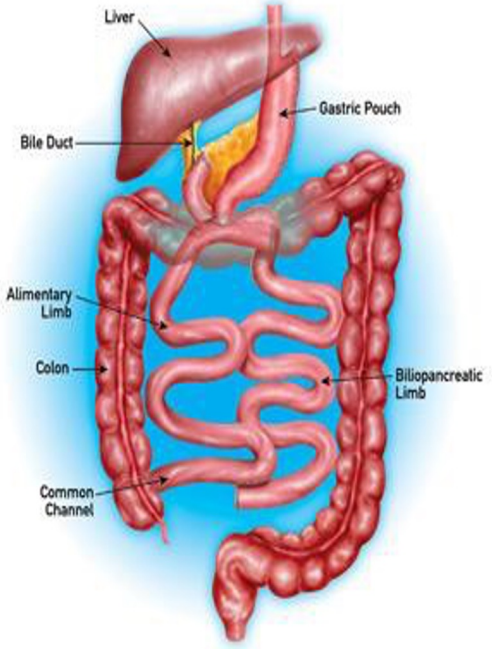
Roux-en-Y Gastric Bypass

(RYGB)



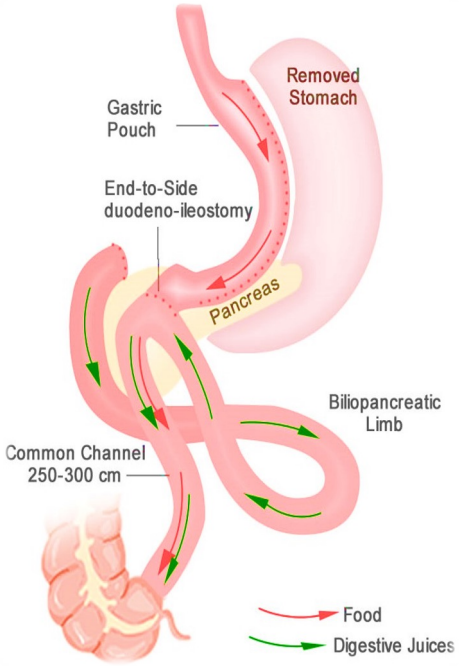
Bilio-pancreatic Diversion with Duodenal Switch

(BPD-DS)



Single Anastomosis Duodeno-ileal Bypass w/ Sleeve Gastrectomy

(SADI-S)



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The Big 3 Comparison

Anastomotic complication, range (% of patients)	Procedure		
	RYGB	BPD-DS	SADS
Leak	.1–5.6	.5–6	.6
Volvulus	2–17	-	0
Internal hernia	.5–16	.4–18	0
Ulcer	.6–20	.2–1.9	.1
Stricture	.4–23	1.9–2.3	.3*
Bile reflux	.9	-	.1

Surve et al., SOARD, 2018

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Surgery Process

- Preparing takes 1-3 months
- Insurance may require more time
- Most go home in 1-2 days and some same day
- Back to work in 1-3 weeks

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Program Progression

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Outcomes

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Long-Term Mortality

Retrospective cohort study

9949 gastric bypass patients

9628 obese controls (driver's license apps)

Mean f/u 7.1 years

37.6 vs 57.1 deaths/10,000 py ($p<0.001$) **[40% reduction in surgery group from all causes]**

Cancer 60%, DMII 92%, CAD 56%

Long-Term Mortality

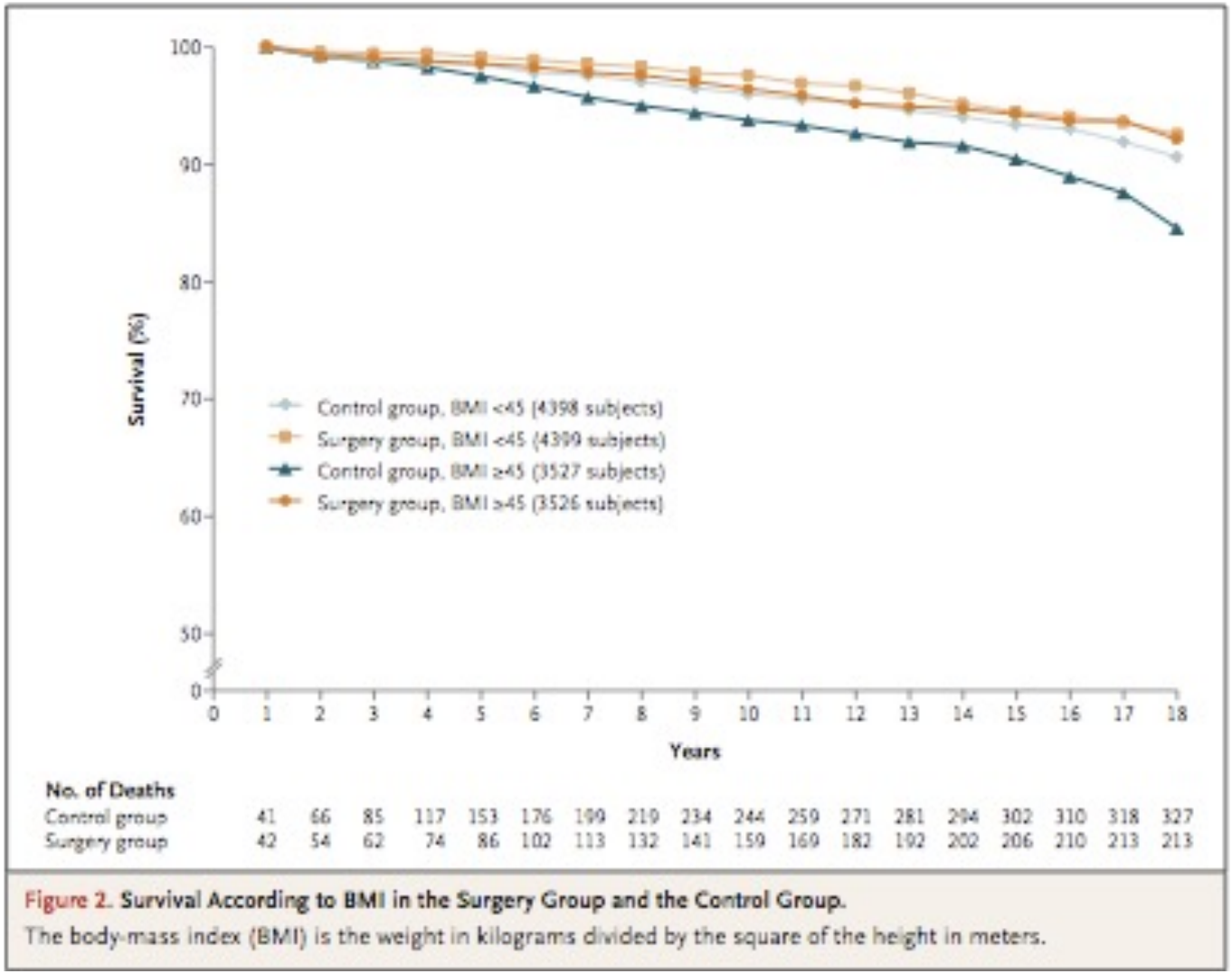

Figure 2. **Survival According to BMI in the Surgery Group and the Control Group.**
The body-mass index (BMI) is the weight in kilograms divided by the square of the height in meters.

Adams et al NEJM Aug 2007

Wrap Up

Obesity is epidemic

Surgical weight loss is safer than ever
- durable results

Only 1% of appropriate candidates ever undergo weight loss surgery

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Thank you!

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