Complications After Bariatric Surgery

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Disclaimer

- This topic could be a 2-3 day course.

- Will focus on common clinical conditions seen by Primary Care Physicians in the office setting.

- Will also briefly mention leaks and ulcers.
Risk of surgery

**Risk of dying:** 0.1 – 0.4% (but can be as high as 10% or more)

**Complications:** 10 – 25% (most are minor, but some can be life-threatening)

- Leak
- Heart attack
- Stroke
- Blood clots
- Bleeding
- Infection
- Pressure sores
- Nerve damage

- Gallstones
- Marginal ulcer
- Anastomotic stricture / dilation
- Band erosion
- Band problems
- Access port problems
- Bowel obstruction (adhesions, internal hernias)
- Incisional hernias
- Nutritional deficiencies / anemia
- Weight regain
- Chronic nausea / vomiting
- Chronic abdominal pain
- Worsening of depression
Serious conditions that CANNOT be missed during the first 30 days after surgery

- Leaks
- DVT/PE
- MI/CVA
Leaks

NO LEAKS!
Leak

- Occur from dehiscence at the staple line or at one of the anastomoses (GJ or JJ)

- Typically presents within first 24-48 hours (but may present 5-10 days out)

- Signs and Symptoms
  - Tachycardia (HR > 120)
  - Often, unexplained tachycardia may be the only sign
  - Tachypnea, abdominal pain, hypotension, oliguria are usually late signs
  - Patient may complain of inability to get comfortable, anxiety or even feelings of impending doom
Leaks CONT

After gastric bypass,
- GJ anastomosis
- JJ anastomosis
- Gastric remnant staple line

After BPD/DS,
- sleeve staple line
- DI anastomosis
- Duodenal stump
- Small bowel-small bowel anastomosis

After sleeve,
- sleeve staple line
Leaks CONT

- Need to get to a hospital immediately (preferably one with bariatric surgeon on-call).

- Increasing risk of death with delay in time to diagnosis and definitive treatment.

- Diagnostic tests
  1) **UGI series with gastrograffin**
     (risk of aspiration pneumonitis and false negative rate significant)
  2) **CT scan with oral contrast (+/- IV contrast)**
  3) **Diagnostic laparoscopy**
Leaks CONT

- Treatment options include
  - Observation
  - Antibiotics
  - Drainage (percutaneous or surgical)
  - Surgical exploration
Deep venous thrombosis / Pulmonary embolus

- All post-op bariatric surgery patients are at risk

- All bariatric surgery patients are at high risk because of their weight

- Low threshold for pursuing diagnosis

- 3 things to keep in mind about anticoagulation in a obese patient:
  - Lovenox 1mg/kg SC BID (up to 150 kg, > 150 kg requires special titration)
  - Heparin gtt difficult to maintain within therapeutic range due to massive doses required
  - Coumadin dose requirements lower after malabsorptive procedures
Myocardial infarction / Stroke

- Patients at risk are those with underlying heart disease and/or poorly-controlled hypertension.

- Management similar to non-bariatric surgery patients, except the note about anticoagulation.

- **Worth mentioning that “benign” chest pain common in post-bariatric surgery patients:**
  - from sub-xiphoid port site (for liver retraction) and/or hiatal hernia repair
  - typically present immediately when patient wakes up in PACU
  - musculoskeletal in nature (and sometimes elicited by swallowing)
  - NOT associated with cardiopulmonary signs
THE MOMENT AFTER YOUR HEART ATTACK WHEN YOU REALIZE THAT YOU SHOULD HAVE GOTTEN A DOG
Less serious conditions that can present during the first 30 days after surgery
Nausea / Vomiting

- Common after the stapling bariatric procedures.
- Very common in the first 24-48 hours after surgery.
- Gets better over the next 1-3 weeks.

- **This is normal and is expected** occurring because the patient is learning to eat slow and eat less.

- **BUT can be a symptom of dehydration** Symptoms directly correlate with severity of dehydration. (#1 reason for re-admission after recent surgery).

- If chronic and/or recurrent, further work-up necessary. But worsening of depression is a diagnosis of exclusion.
Other complications (within 30 days of surgery)

- Incisional pain
  - Sub-xiphoid incisional pain = chest pain
  - Site of pain may be away from skin incision

- Gas pain
  - Intra-peritoneal and intra-luminal
  - Treatment: ambulation, Phazyme / Beano, time

- Infection
  - UTI > pneumonia > wound infection > intra-abdominal abscess (for laparoscopic procedures)
Worsening of their depression / mental health

- Unfortunately, not too uncommon

- May present with non-specific symptoms, typically GI-related (nausea / vomiting, abdominal pain, aches, etc)

- Diagnosis of exclusion

**Treatment:**
- Need referral back to psychologist / psychiatrist ASAP
- Supportive care from PCP and bariatric surgeon
Complications
(after 30 days)
Complications (after 30 days)

- Marginal ulcer (after Roux en Y gastric bypass)
- Dumping syndrome (after Roux en Y gastric bypass)
- Esophageal reflux (after sleeve or BPD/DS)
- Gallbladder problems (gallstones and dyskinesia)
- Anastomotic stricture / dilation
- Incisional hernias
- Nutritional deficiencies / anemia
- Weight regain
- Chronic nausea / vomiting
- Chronic abdominal pain
- Worsening of depression
Gallbladder problems

- 20% or more of patients will have gallbladder problems after surgery (due to weight loss)

- May present with typical symptoms, but atypical presentation not uncommon (new development of more gas, nausea, and/or epigastric discomfort)

- Work-up similar to non-bariatric surgery patient:
  1) RUQ U/S
  2) HIDA study (biliary dyskinesia common)

- Recommend referral back to bariatric surgeon (more familiar with anatomy and opportunity for 2nd look)
Reflux

- Common complaint
- Dyspepsia vs true reflux
- History will point towards etiology
  - for gastric bypass, usually dietary non-compliance
  - for gastric band, dietary non-compliance or too tight
  - for sleeve, may be de novo vs worsening of preexisting

- If initial Tx fails, needs diagnostic evaluation by a bariatric surgeon (NOT gastroenterologist)
Small bowel obstruction

- Clinical presentation typical (except abdominal distension may be more subtle)

- Every small bowel obstruction should be considered an internal hernia until proven otherwise.

- Sequence of diagnostic tests and events:
  - STAT KUB → if shows SBO, then call bariatric surgeon → ask if they want another imaging study or pre-op for surgery

- Causes of SBO:
  - post-surgical adhesions
  - internal hernia
Marginal Ulcers
**Ulcers**

- **Peptic ulcers** = ulcers that occur in the distal gastric antrum or duodenum

- **Marginal ulcers** = anastomotic ulcers
  - Mucosal erosion on the intestinal side of the GJ anastomosis
  - Most occur in the first few months of surgery \(^2\)
  - Incidence: 3 - 5% (laparoscopic RYGB)
    - 5 - 15% (open RYGB)
    - 0 - 2% (BPD/DS or sleeve)

Marginal ulcers CONT

- Risk factors (Patient):
  - NSAID, steroids, immunomodulators
  - cigarette smoking
  - diabetes
  - stress?
  - gastro-gastric (GG) fistula

- Risk factors (Intra-operative):
  - use of non-absorbable sutures at the GJ anastomosis
  - tension and/or ischemia at the GJ anastomosis
  - creation of a “larger” gastric pouch
Marginal ulcers CONT

- Clinical presentation:
  - Nausea / vomiting (food intolerance)
  - Abdominal pain (epigastric pain +/- radiation to back)
  - GI bleeding (hematemesis or occult LGIB, anemia)

- Diagnosis:
  - Upper GI series
    - not sensitive for detecting most ulcers
    - but, helpful to evaluate for GG fistula
  - Upper endoscopy
Marginal ulcers CONT

- **Treatment:**
  1) Remove offending agent(s)
  2) Medications (our “triple” therapy)
      - PPI
      - misopristol
      - sucralfate
  3) Test for H pylori and treat if (+)
  4) TIME and MORE TIME

- **Prognosis:**
  - Good
    < 10% of patients requiring surgical revision
  - Not good for ulcers secondary to ischemia or GG fistula
  - Follow-up endoscopy needed to document healing
Patients with adjustable gastric bands
Evaluating patients with Adjustable Gastric Band

- These patients can be treated like a “regular” patient except they have a foreign device in their body that restricts how fast/how much they eat/drink.
- Any abdominal pain and/or GI-related symptoms should be evaluated by a bariatric surgeon first (before referral to other specialists).
  - epigastric pain / reflux → is this gastritis or band erosion, slippage, band too tight, dysmotility?
  - lower abdominal pain → is this constipation, diverticulitis, or IBS; or something related to the band (catheter)?
Normal UGI series

Any upper GI symptoms, especially acute and/or severe needs evaluation by bariatric surgeon
Band Erosion
Band Slippage

A

B

Concentric pouch dilation

Flipped Port
Port / Catheter malfunction

Disconnected catheter

Fractured catheter
They need to be seen by a bariatric surgeon regularly to make sure their esophagus, stomach, and band are OK (preferably, annually)

- esophageal dilation / dysmotility
- gastric pouch dilation
- gastric prolapse
- band erosion
- port infection / leak
Complications after bariatric surgery are not uncommon.

Fortunately, most are not serious.

Education on minimizing NSAID use and smoking in to minimize risk of marginal ulcers.

Always have a low threshold to contact a bariatric surgeon (even for curbside consults) even for GI-related issues and general surgery related issues.
How do you contact us?

- Duke Metabolic and Weight Loss Surgery Group
  - Daniel Guerron
  - Kunoor Jain-Spangler
  - Dana Portenier
  - Keri Seymour
  - Ranjan Sudan
  - Jin Yoo

- Call 919-470-4000 and ask for the “bariatric surgeon on-call”

- For non-urgent calls, you can ask specifically for the surgeon you want to contact (or call them directly on their cell phone)