Care of the Post-Bariatric Surgery patient:
What I should know even if I am not a bariatric surgeon.

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Objectives:

- List the indications and contraindications of a bariatric surgery.
- Describe the different types of bariatric surgeries and their specific most common medical and surgical complications.
- Understand the specificities (clinical presentation and management) of a bariatric surgery patient admitted to the hospital

Why is this important?

- > 1.5 million surgeries performed in US since 1992
- Hospitalists and other non-bariatric surgery clinicians are often the first responders

Which patients are surgical candidates?

- BMI > 40 Kg/m^2
- BMI 35-40 Kg/m^2 + 1 serious comorbidity*
- Controversial: BMI 30-35 Kg/m^2 + serious comorbidity (ies), evidence lacking

* Serious comorbidities: DM, HTN, hyperlipidemia, but also obstructive sleep apnea, asthma, poor quality of life...

Which patients are *not* surgical candidates?

- Psychiatric diseases: bulimia nervosa/binge eating, untreated major depression, psychosis
- Substance abuse: alcohol, drugs
- Extremes of age (controversial): <18 years, >65 years
- Prediction of future non-compliance (patient currently not compliant with physicals, Pap exam, medications, dietary restrictions etc).
- Medical contraindication: cardiac, coagulopathy etc.

Bariatric surgical techniques in 2015

- Restrictive: Laparoscopic adjustable gastric band, Sleeve gastrectomy
- Restrictive + Malabsorptive: Roux-en-Y gastric bypass, Biliopancreatic diversion with duodenal switch

Laparoscopic adjustable gastric band:

- Tight adjustable band around the entrance of the stomach, creating a 20 ml gastric pouch
- The least invasive, adjustable and reversible but the least effective
- Complications: band slippage or infection, esophageal dilation, GERD

Sleeve gastrectomy

- Most of the stomach is removed, a sleeve remains to connect the esophagus to the duodenum
- Complications: early (leak), late (stricture).

Roux-en-Y gastric bypass

- Most of the stomach is resected and a pouch is created. A jejunal limb (called Roux) is sutured to the gastric pouch and to the jejunum. Food bypasses the duodenum.
- Surgical Complications: early (leak; infection), late (stricture; obstruction; internal hernia).

Biliopancreatic diversion with duodenal switch

- Ilium transected around 100 cm before the ileo-cecal valve and attached to the duodenum just distal to the pylorus. Food then bypasses the duodenum, jejunum and the proximal ileum. A biliopancreatic limb is sutured to the ileum.
- Most effective (most weight loss), procedure with the highest risk of complications.

A late surgical complication might present as a medical one:

- Vomiting is less frequent post-bariatric surgery
- Physical exam can be misleading due to altered anatomy
- Naso-gastric tube will not decompress the exclude stomach and upper endoscopy will not visualize it

Medical complications:

- Increased risk of gallstones. ERCP very difficult to perform due to altered anatomy.
- Dumping syndrome (see case below)
- Excessive weight loss due to anorexia, short bowel syndrome, bacterial overgrowth
- Vitamin deficiency: consider a banana bag if pt admitted with vomiting, to avoid Wernicke's encephalopathy
- Iron deficiency anemia: reduced gastric acidity that normally converts ingested ferrous (Fe^{2+}) to the absorbable ferric (Fe^{3+})
- Fracture, osteomalacia: check calcium and vitamin D before starting bisphosphonates.

Specific considerations for medications in a post-bariatric (malabsorptive) surgery patient:

- Unpredictable post-op levels: antidepressants, oral contraceptives, immunosuppressive.
- Avoid long acting (extended release) medications
- Avoid medications requiring gastric acid (use calcium citrate instead of carbonate)
- Anticipate a rapid improvement of DM and anticipate hypoglycemia

Case: John, 40 yo male admitted to the observation unit for hypoglycemia due to a sulfonylurea.

- 40 yo male, 8 months post-Roux-en-Y, takes glipizide for DM type 2.
- Comes to the ER with weakness, one hour after dinner, glucose is 40.
- His sugars have been unpredictable with peaks and lows. Often after eating he has been feeling dizzy, bloated with abdominal cramps.

Discussion of the case:

- Accurate diagnosis is dumping syndrome rather than glipizide induced hypoglycemia.
- Pathophysiology: ingestion of large amounts of sugar → unregulated emptying by gastric pouch → osmotic fluid shifts (thus the GI symptoms) and hormonal surges (thus the hyper/hypoglycemia).

Clinical Pearls

- In Laparoscopic Adjustable Gastric Band, esophageal dilation due to a tight band could mimic the appearance of achalasia on a barium swallow and is therefore named 'pseudoachalasia syndrome'. It can also cause esophageal spasms giving the appearance of a Nutcracker esophagus on a barium swallow.
- CT scan after Roux-en-Y requires oral contrast, in order to differentiate between the Roux and the excluded limb
- Surgical exploration might be necessary to rule out post-op complications. Eg, A CT scan as well as an upper GI series can be read as normal and miss a post-Roux-en-Y internal hernia that would only be detected during surgical exploration.
- The rapid improvement of the DM days after a Roux-en-Y is not due to weight loss but to hormonal changes (gut hormones such as peptide YY play an important role in glucose metabolism)
- Ursodiol is often prescribed for 6 months post-op as it was shown to markedly reduce the risk of cholelithiasis.
- Bacterial overgrowth is often due to decreased gastric acidity and narcotics that can slow the transit. Change in diet (less sugars and fiber, more fat) can help.

<u>Take home points:</u>

- Hospitalist and PCP key player in (co)managing post bariatric surgery patients.
- Clinical diagnoses might not follow the textbook: Low threshold for surgical involvement.

Suggested reading: J Hosp Med. 2012 Feb;7(2):156-63. doi: 10.1002/jhm.939. Epub 2011 Nov 15.