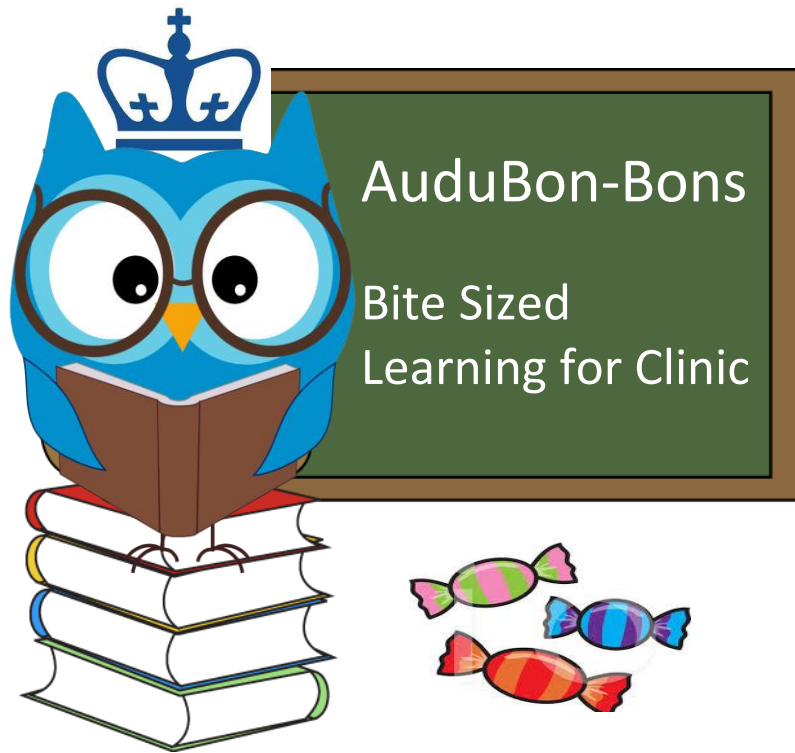


# Bariatric Surgery and Pregnancy



Week 31

Prepared by Annie Fu, MD

Reading Assignment:

ACOG Practice Bulletin 105: *Bariatric surgery and pregnancy*

# LEARNING OBJECTIVES



- Understand the effects of bariatric surgery on maternal and neonatal outcomes
- Understand nutritional issues specific to pregnancies after bariatric surgery
- Understand complications specific to pregnancies after bariatric surgery



# CASE VIGNETTE

- A 34 yo G2 P0010 woman at 14 weeks EGA presents for a new OB visit. She reports mild fatigue but is otherwise doing well.



# FOCUSED HISTORY

- PMH: **Obesity**; history of CHTN, DM2 (both resolved)
- PSH: **Roux-en-y gastric bypass (2017)**
- OBHx: 1 x VTOP
- GynHx: Denies
- FH: Obesity
- SH: No toxic habits
- Meds: Multivitamin
- All: NKDA



# PERTINENT PHYSICAL EXAM FINDINGS

- VS: Wt 98 kg, Ht 165 cm, **BMI 36.0**; BP 120/80, P 90, T 37.0
  - Gen: NAD, pale
  - HEENT: WNL
  - Chest: CTAB
  - CVS: RRR
  - Abd: Soft, NT, obese
  - GU: WNL
  
- Bedside U/S: SIUP @ 14 weeks, FHR 150s



# BARIATRIC SURGERY: BACKGROUND

- Patient population: BMI  $\geq$  40, or BMI  $\geq$  35 with comorbidities
- Procedure types:
  - **Restrictive:** gastric banding, sleeve gastrectomy
  - **Malabsorptive:** jejunioileal bypass, biliopancreatic diversion
  - **Both:** Roux-en-Y gastric bypass, duodenal switch
- Benefits of surgery likely related to weight loss
  - Reduced comorbid conditions, increased fertility
  - Rapid weight loss in the 1<sup>st</sup> 12-24 months



# BARIATRIC SURGERY: MATERNAL OUTCOMES

- Effects on maternal morbidity/mortality
  - Decreased rates of cHTN, gHTN, PEC, GDM, DM
  - Decreased average weight gain
  - Decreased risk of delivering LGA infant
  - Higher cesarean rates (similar to obese population, who are more likely to have a hx of CD)
  - Obesity can persist
  - Nutritional requirements differ



# BARIATRIC SURGERY: PERINATAL OUTCOMES

- Effects of neonatal morbidity/mortality
  - Limited data
  - Trend towards decreased macrosomia
    - Birth weight still dependent on maternal comorbidities (weight gain, DM, etc)
  - No increased risk of congenital anomalies, perinatal morbidity or mortality





# HOW LONG SHOULD YOUR PATIENT WAIT TO CONCEIVE AFTER UNDERGOING A BARIATRIC PROCEDURE?

- 12-24 months delay between surgery and conception
- Risks of early conception
  - Possible higher rates of PTD, NICU admission, SGA, IUGR (data inconsistent)
  - Weight gain during pregnancy and loss during postpartum period are variable
  - No effect on overall total weight loss for the patient



# NUTRITIONAL ISSUES IN PREGNANCIES FOLLOWING BARIATRIC SURGERY

- Micronutrient deficiencies
  - Vitamin B12, Vitamin D, iron, folate, calcium
- Protein deficiency
- How do you manage?
  - Nutrition consult
  - Recommended weight gain per Institute of Medicine recommendations based on pre-gestational BMI
  - Micronutrient labs + CBC + ferritin every trimester
    - Supplementation as indicated
      - Vitamin B12 1000 mcg IM weekly
      - Vitamin D 400 IU QD
      - Iron 65 mg QD
      - Folate 800 mcg QD
      - Calcium citrate 1200 mg QD
  - Protein intake of 60 gm daily recommended
  - “Active band management” to improve PO intake, relieve nausea/vomiting



# HOW DO YOU SCREEN/MANAGE GESTATIONAL DIABETES IN PREGNANCIES FOLLOWING BARIATRIC SURGERY?

- Oral glucose challenge test?
- Risk of dumping syndrome in women who have had malabsorptive procedures
  - Dumping syndrome: following the ingestion of refined sugars, rapid fluid shifts into bowel lead to small bowel distention, n/v, diarrhea; possible hyperinsulinemic milieu and thus hypoglycemic state
- Recommendation
  - Consider 1 week of fasting and 2-hour post-prandial POCs in this who have had malabsorptive procedures
  - Normal 1-hr GCT for those who underwent restrictive procedures
- GDM/DM Treatment
  - Oral agents may not be well-absorbed; insulin may be preferable



# OTHER CONCERNS

- Postoperative complications
  - Bowel obstruction, anastomotic leak, gastric erosion, herniation, band erosion, band migration, GI hemorrhage
  - Abdominal pain, nausea, vomiting are not benign\*
  - Early consultation/co-management with bariatric surgeon
  - PPI to prevent erosion if indicated
- Oral medications
  - No extended-release preparations of medications after malabsorptive procedures (oral solutions/rapid-release formulations instead)
  - Avoid NSAIDs
- Contraception
  - Oral formulations not absorbed well
  - Use nonoral contraceptive methods



# HOW WILL YOU MANAGE THE PATIENT?

- Lab work: micronutrient labs, prenatal labs, including ferritin; early screening for GDM due to obesity
  - GDM screening method?
    - 1 week of fasting/2 hr PP POCs
- Early involvement of bariatric surgeon
- Nutrition consultation
- Antepartum testing due to obesity, growth ultrasounds to assess fetal growth



# BILLING AND CODING

- Diagnoses:
  - O99.84: Bariatric surgery status complicating pregnancy, childbirth, and the puerperium
  - D51.0: Vitamin B12 deficiency
  - O99.210: Obesity complicating pregnancy



# BILLING AND CODING

CPT Code: New outpatient visit

- At least 99203 (higher if attending sees patient with you)

CPT Code: Established outpatient visit

- At least 99213 (higher if attending sees patient with you)

## NEW PATIENT VISIT

CPT Code	99201	99202	99203	99204	99205
<b>Required Key Components *(3/3 required)</b>					
<b>History and Exam</b>					
• <i>Problem-Focused</i>	X				
• <i>Expanded Problem-Focused</i>		X			
• <i>Detailed</i>			X		
• <i>Comprehensive</i>				X	X
<b>Medical Decision Making (complexity)</b>					
• <i>Straightforward</i>	X	X			
• <i>Low</i>			X		
• <i>Moderate</i>				X	
• <i>High</i>					X
<b>Contributory Factors</b>					
<b>Presenting Problem (Severity)</b>					
• <i>Self-Limited or Minor</i>	X				
• <i>Low to Moderate</i>		X			
• <i>Moderate</i>			X		
• <i>Moderate to High</i>				X	X
<b>Counseling</b>					
<b>Coordination of Care</b>					
<b>Typical Face-to-Face Time (Minutes)</b>	10	20	30	45	60

## ESTABLISHED PATIENT VISIT

CPT Code	99211	99212	99213	99214	99215
<b>Required Key Components **(2/3 required)</b>					
<b>History and Exam</b>					
• <i>Problem-Focused</i>	N/A	X			
• <i>Expanded Problem-Focused</i>			X		
• <i>Detailed</i>				X	
• <i>Comprehensive</i>					X
<b>Medical Decision Making (complexity)</b>					
• <i>Straightforward</i>	N/A	X			
• <i>Low</i>			X		
• <i>Moderate</i>				X	
• <i>High</i>					X
<b>Contributory Factors</b>					
<b>Presenting Problem (Severity)</b>					
• <i>Minimal</i>	X				
• <i>Self-Limited or Minor</i>		X			
• <i>Low to Moderate</i>			X		
• <i>Moderate to High</i>				X	X
<b>Coordination of Care</b>					
<b>Typical Face-to-Face Time (Minutes)</b>	5	10	15	25	40

# EVIDENCE

- Bariatric surgery and pregnancy. ACOG Practice Bulletin No. 105. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;113:1405–13.
- Weight gain during pregnancy. Committee Opinion No. 548. American College of Obstetricians and Gynecologists. Obstet Gynecol 2013; 121:210-2.
- Slater C et al. Nutrition in pregnancy following bariatric surgery. Nutrients 2017; 9(12): 1338.
- Ouyang D et al. Fertility and pregnancy after bariatric surgery. UpToDate 2019. <https://www.uptodate.com/contents/fertility-and-pregnancy-after-bariatric-surgery>

