Bariatric Surgery: Options and Complications

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IU Health Post-Op Modification of Co-Morbidities

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What are the surgical options?

• Adjustable Gastric Band (LAGB)

• Sleeve Gastrectomy (LSG)

• Roux en Y Gastric Bypass (LRYGBP)

• Duodenal Switch (BPD-DS)
Surgical Basics: LAGB

- OR Time approximately 1 hour
- Frequently outpatient stay
- No malabsorption
- Best for lower BMI, exercise ability
- Expect diet to be ½-1 cup per meal
- Fill (increase saline in band) when inadequate weight loss, early hunger between meals, larger portion sizes
Surgical Basics: LSG

Advantages
• 2/3 of stomach removed
• Reduced stomach capacity
• No adjustments
• OR Time approximately 1-2 hours
• Hospital stay = 1 - 2 days

Disadvantages:
• Potential for leak (at GE junction)
• Nutritional supplements required
• Insurance coverage varies
Surgical Basics: LRYGBP

Advantages:
• Greater excess weight loss
• Better long-term results
• Decreased hunger (feeling full)
• OR Time 2-3 Hours
• Hospital Stay 1-2 Days

Disadvantages:
• More complex operation
• Potential for leak
• Nutrient supplements required
Surgical Basics: BPD-DS

• Advantages
  – Greatest weight loss
  – Malabsorption of calories
  – Comorbidity resolution

• Disadvantages
  – Most complex operation
  – Malabsorption of nutrients
  – Highest risk for complications
  – Highest risk for nutritional deficits
What operation to choose?
Patient choice with physician input

• Most patients have an idea of what they want, but...
• Physician input and expertise is a must.
  – BMI – no band if BMI>50
  – GERD – prefer RYGBP if severe.
  – Prior surgical hx
  – IBD – prefer sleeve gastrectomy
  – Severe osteoporosis – prefer LSG
  – Tobacco use = NO SURGERY
Band Complications

• >30% of bands have required reoperation or removal
• Band Occlusion
• Band Slip – maladaptive eating, GERD, pain
• Band Erosion – Port site infection, wt regain
• Chronic complications – GERD, Esophageal dilation, failure
The Adjustable Gastric Band

• 45 yo female POD#1 s/p R knee arthroscopy with severe PONV; hx Realize Band 3 years ago, now with wretching, foaming at mouth

• Other possible symptoms
  – Severe Heartburn
  – Regurgitation
  – Intolerance to liquids
  – Chest Pain
• Remove fluid (safest to remove all), liquid diet x 48 hours, fu with bariatric surgeon
45 yo female with severe epigastric and left shoulder pain, difficulty swallowing, Temp 39.1
Band Erosion/Port Infection

- Rarely an emergency – Wt regain
- Can be removed endoscopically
- Consider transgastric removal if emergent.
RYGBP Complications

• Small Bowel Obstruction
  – Internal hernia until proven otherwise
• Marginal Ulcer – SMOKING, NSAIDS
  Acid-related
  – Bleeding
  – Perforation
• Nutritional Issues
  – Vitamins – MTV C Fe, B12, Calcium Citrate
• Gallstone disease
  – Actigall, cholecystectomy when indicated
SBO = Internal Hernia

• Mesenteric Defects
  – Peterson’s Defect
  – Jejunojejunostomy
• Symptoms – may be subtle
  – Left upper quadrant pain
  – Dry Heaves, bloating
  – Vomiting
• CT Findings
  – Mesenteric swirl, Dilated small bowel
• Low index of suspicion
Marginal Ulcer

• Symptoms – severe epigastric pain, esp with eating.

• Etiology
  – NSAIDS
  – TOBACCO USE
  – H Pylori

• EGD, BID PPI (open capsule), Carafate

• Perforation
  – Graham patch
Sleeve Gastrectomy Complications

- Leaks can be delayed (weeks)
- Stricture at Incisura angularis
- Prolonged postop nausea
- Vitamin Deficiencies (rare)
- Severe GERD
Nutritional Concerns

• Usual Daily Vitamin Regimen
  – Multivitamin with Iron
  – 1500mg Calcium Citrate
  – Monthly B12 Injections or weekly sublingual tabs
• B12, Fe Deficiency – anemias
• Calcium/Vit D – 2’ Hyperparathyroidism, Osteoporosis
• Protein – encourage 60-80 grams/day
• Micronutrient concerns – Vit A, Vit K, Thiamine, Zinc, Selenium
• Severe protein calorie malnutrition and fat soluble vitamin deficiency with BPD-DS
Bariatrics ≠ Complications

- Migraines: 57% resolved
- Pseudotumor Cerebri: 96% resolved
- Dyslipidemia/Hypercholesterolemia: 63% resolved
- Non-Alcoholic Fatty Liver Disease: 90% improved or resolved
  - Steatosis: 37% resolution of inflammation
  - Fibrosis: 20% resolution of fibrosis
- Metabolic Syndrome: 80% resolved
- Type II Diabetes Mellitus: 83% resolved
- Polycystic Ovarian Syndrome: 75% resolution of hirsutism
  - 100% resolution of menstrual dysfunction
- Venous Stasis Disease: 95% resolved
- Depression: 55% resolved
- Obstructive Sleep Apnea: 74-96% resolved
- Asthma: 82% improved or resolved
- Cardiovascular Disease: 82% risk reduction
- Hypertension: 52-92% resolved
- GERD: 72-98% resolved
- Stress Urinary Incontinence: 44-88% resolved
- Degenerative Joint Disease: 41-76% resolved
- Gout: 77% resolved
- Quality of Life: improved in 95% of patients
- Mortality: 89% reduction in 5-year mortality
Results
Diabetes

Hypertension

Sleep Apnea

![Graph showing resolution of sleep apnea over time with different procedures: LAGB, LapRYGBP, OpenRYGBP, and LSG. The graph indicates that LSG resolution is significantly different at the 0.05 level compared to other procedures.](image)
Hyperlipidemia
Diabetes and LSG/RGYGBP

- Resolution and improvement depends on severity and duration of diabetes
- Many leave hospital with little or no diabetic agents (prior to any weight loss)
- GBP Reverses inflammatory state associated with obesity (decreased CRP) and modifies a number of other factors: Ghrelin, GLP-1, Peptide YY, many others.
Diabetes

Perhaps a talk
For another day!
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