Objectives

• Discuss metabolic surgical approaches for obesity

• Overview of the selection process, the indications and contraindications for bariatric surgery

• Course of postsurgical care
Why *bariatric surgery* for Obesity?

<table>
<thead>
<tr>
<th>Treatment*</th>
<th>Timing (months)</th>
<th>Expected weight loss</th>
<th>Long-term Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>3-6</td>
<td>8-10% TBW</td>
<td>2-6%</td>
</tr>
<tr>
<td>Meal Replacement</td>
<td>3-6</td>
<td>10-16% TBW</td>
<td>2-6%</td>
</tr>
<tr>
<td>Medications</td>
<td>3-6</td>
<td>8-10% TBW</td>
<td>10% while on meds</td>
</tr>
<tr>
<td>Bariatric Surgery</td>
<td>8-12</td>
<td>50-70% EBW (~ 30-35% TBW)</td>
<td>65-85%</td>
</tr>
</tbody>
</table>
Bariatric Surgery
Most Effective Treatment for Morbid Obesity

• Decrease weight

• Improves or resolves obesity related comorbidities

• Extends life
Who can have Bariatric Surgery?

What is the patient’s BMI (in kg/m^2)?
Does clinical evidence exist confirming the presence of comorbidity?

BMI ≥ 35 with comorbidity
BMI ≥ 40

*BMI 30-34.9 with diabetes

Reference/s:[181] [182] [183] [184] [185] [189] [190] [191] [192] [193] [194] [509]
General Patient Selection Guidelines

• Indications
  – Age 21 - 65
  – Failed previous weight loss attempts
  – BMI \( \geq 40 \)
  – BMI \( \geq 35 \) with at least one of the following
    • Type 2 DM on insulin
    • OSA on CPAP
    • HTN on 3 meds
  – Acceptable surgical risk
  – Capable of giving informed consent
  – Willingness to make lifestyle change and commit to long term follow-up
  – Stable socioeconomic status and environment
General Patient Selection Guidelines

• Contraindications
  – Severe CHF
  – Unstable CAD (MI or stroke within last 6 months)
  – End stage lung disease
  – Active cancer diagnosis or treatment
  – Unstable mental health disorder
  – Current substance abuse
  – Cirrhosis with portal hypertension
  – No previous weight loss attempts
Brief History of Bariatric Surgery

• QMC 99% laparoscopic approach
Procedures Performed at QMC
Roux-en Y Gastric Bypass

- The “Gold Standard” of bariatric procedures
- Combination Procedure; Restrictive and Malabsorptive
- Considered surgical “Cure” for type 2 DM
RYGB: How it Works

- Restrictive
  - Decreases amount of food one can eat
- Malabsorptive
  - Decreases nutrient/calories absorption
Roux-en Y Gastric Bypass

• Indications
  – BMI $\geq 40$
  – BMI between 35-40 with:
    • Type 2 DM on insulin
    • OSA on CPAP
    • HTN on 3 meds
  – 100 or more lbs over ideal body weight
  – Procedure of choice for patients with Type 2 DM
  – PCOS
Roux-en Y Gastric Bypass

• Benefits
  – 65 – 80 % EBWL in 12-18 months
  – Sustained wt loss in 75% of patients
  – Resolution of co-morbidities
  – 89% reduction in mortality in 5 yrs following surgery
  – Improved quality of life
Roux-en Y Gastric Bypass

• Contraindications
  – Large liver
  – Central adiposity
  – Hx of previous bowel surgery, abd trauma
  – Disease which requires frequent use of steroids, NSAIDS
  – Mental health condition which requires control with Lamictal or abilify
Roux-en Y Gastric Bypass—Perioperative Risks

• Risks same as any major abdominal surgery 0.3% mortality
  - Bowel obstruction
  - PE
  - Incisional hernia
  - Wound infection

• Anastomotic leak
• GI Bleed
• Stenosis
Roux-en Y Gastric Bypass—Post Operative Risks

– Dumping syndrome
– Difficult to reverse; considered permanent
– Significant nutritional deficiencies and metabolic consequences if patient is non compliant with diet and vitamin/mineral supplements (osteoporosis, chronic anemia, vitamin B12 deficiency)
– Lifestyle change is critical to long term success
Vertical Sleeve Gastrectomy

• Fundus and greater curvature removed
• No decrease in nutrient absorption
• Metabolic effect
Sleeve Gastrectomy: How It Works

• Gastric restriction $\rightarrow$ early satiety
• Decreased ghrelin secretion $\rightarrow$ decreased appetite
• Rapid emptying of stomach and decreased SBTT $\rightarrow$ improved glucose homeostasis
• Increased secretion of gut hormones $\rightarrow$ improved glucose homeostasis
Sleeve Gastrectomy

• Increasing in popularity
  – positive effect on co-morbidities and wt loss
  – no foreign body
  – absence of malabsorption of nutrients (except for B-12)
  – metabolic effect
Sleeve Gastrectomy

• Indications
  – High risk patients
  – BMI > 60
  – Family Hx of gastric cancer, need for frequent EGDs
  – Inflammatory bowel disease
  – Hx of previous bowel surgery, abd trauma, or multiple abdominal surgical procedures
  – Potential transplant recipient (absorption of meds)
Sleeve Gastrectomy

• Indications
  – Disease process which requires frequent use of steroids, methotrexate (rheumatoid, arthritis, Lupus) or NSAIDS.
  – Mental Health condition which requires stabilization with Lamictal or Abilify
  – Unable to withstand nutritional deficiencies
Sleeve Gastrectomy

• Benefits
  – 50-70% EBWL over 1-2 yrs
  – Stomach is reduced in size but otherwise functions normally, near normal absorption of meds
  – Minimizes ulcer formation
  – Minimizes anemia, intestinal obstruction, osteoporosis, and protein and vitamin deficiency.
  – No dumping
Vertical Sleeve Gastrectomy

• Disadvantages
  – Potential for inadequate weight loss or weight regain
  – High BMI patients may need second stage procedure
  – Risk of serious leaks due to long staple line
  – High sugar and fatty foods can be absorbed and may slow wt loss or → wt regain
  – Long term outcomes not proven
## Bariatric Surgery Trends

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>158,000</td>
<td>173,000</td>
<td>179,000</td>
<td>193,000</td>
<td>196,000</td>
</tr>
<tr>
<td><strong>RYGB</strong></td>
<td>36.7%</td>
<td>37.5%</td>
<td>34.2%</td>
<td>26.8%</td>
<td>23.1%</td>
</tr>
<tr>
<td><strong>Band</strong></td>
<td>35.4%</td>
<td>20.2%</td>
<td>14%</td>
<td>9.5%</td>
<td>5.7%</td>
</tr>
<tr>
<td><strong>Sleeve</strong></td>
<td>17.8%</td>
<td>33%</td>
<td>42.1%</td>
<td>51.7%</td>
<td>53.8%</td>
</tr>
<tr>
<td><strong>BPD/DS</strong></td>
<td>0.9%</td>
<td>1%</td>
<td>1%</td>
<td>0.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>Revisions</strong></td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>11.5%</td>
<td>13.6%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>3.2%</td>
<td>2.3%</td>
<td>2.7%</td>
<td>0.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td><strong>Balloons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>~700 cases</td>
</tr>
<tr>
<td><strong>V-Bloc</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18 cases</td>
</tr>
</tbody>
</table>
## Health Benefits Shown in Clinical Trials

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Type 2 DM</th>
<th>HTN</th>
<th>↑ Cholesterol</th>
<th>OSA</th>
<th>Surgery Time</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGB</td>
<td>59% resolved</td>
<td>56% resolved</td>
<td>36% resolved</td>
<td>45% resolved</td>
<td>1- 2.5 hrs</td>
<td>1-3 days</td>
</tr>
<tr>
<td>Sleeve</td>
<td>81% resolved</td>
<td>78% resolved</td>
<td>67% resolved</td>
<td>80% resolved</td>
<td>1.5 - 3.5 hrs</td>
<td>2-12 days</td>
</tr>
<tr>
<td>RYGB</td>
<td>78% resolved</td>
<td>66% resolved</td>
<td>61% resolved</td>
<td>76% resolved</td>
<td>2-3.7 hrs</td>
<td>2-8 days</td>
</tr>
</tbody>
</table>
Survival Advantage after bariatric surgery

$P = 0.04$
# Health Benefits Shown in QMC 1 Year Post-Op

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Type 2 DM</th>
<th>HTN</th>
<th>↑ Cholesterol</th>
<th>OSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeve N=10</td>
<td>0% resolved</td>
<td>50% resolved</td>
<td>50% resolved</td>
<td>33% resolved</td>
</tr>
<tr>
<td>RYGB N=86</td>
<td>62% resolved</td>
<td>38% resolved</td>
<td>72% resolved</td>
<td>51% resolved</td>
</tr>
<tr>
<td></td>
<td>18% Insulin ↓ Non-insulin</td>
<td>25% ↓ # meds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FY 2016
Surgical Morbidity and Mortality

• Progressive decline in overall mortality and morbidity
  – 79% reduction in mortality between 1998-2004
  – mortality 0.3 %
  – Complications 10.7%
  – Major Complications 4.1 %

– 2010 Longitudinal study BOLD database
  • As safe as gallbladder surgery
CWMP Philosophy

- Bariatric Surgery is a tool
- Healthy diet and exercise required for long term success
- No one procedure fits all
- Comprehensive pre-op evaluation and assessment = ↓ mortality, morbidity
- Nutrition counseling, cognitive behavioral therapy, group support with peers
- Regular postsurgical follow up visits
CWMP Process

• Initial intake includes visits with MD, Dietician, Psychologist, and Physical Therapist
• At minimum 3 visits prior to clearance for surgery
• Average time from initial visit until surgery 3-6 months
Postoperative Visits

- One week
- One month
- Two months
- Three months
- Six months
- One year
- Annual visits for the next four years
Postsurgical Visit: Bariatrician

- Surgical wound healing
- Management of comorbid conditions
- Progress with weight loss
- Lab work completed:
  - CBC
  - Ferritin, iron, iron saturation
  - Comprehensive metabolic profile
  - Intact parathyroid hormone
  - RBC folate
  - Vitamins A, B1 (thiamine), B12, and 25 hydroxy Vitamin D
Postsurgical Visit: Dietitian

• Assess nutrition status, including:
  – Meeting individual protein and fluid needs
  – Food tolerance and diet progression
  – Compliance with bariatric supplements

• Encourage consistent practice of healthy nutrition habits and varied, balanced diet
Postsurgical Visit: Behavioral Health

• Monitor health behaviors and lifestyle changes
  – Adjustment with rapid weight loss
  – Changes in mood or functioning
  – Assess for maladaptive behaviors related to:
    • Transfer of addiction
    • Regression with health habits
    • Body image concerns
    • Unexpected changes with interpersonal relationships
Referral Process

• Send orders on Carelink
• Fax last progress note that includes height, weight, BMI and problem list

• Once the referral is initiated, we will contact the patient and have them attend an information session then schedule their initial visit