Weight Management: Surgery in the Treatment of Obesity
Disclosures

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Objectives

• After this presentation, the learner will be able to:
  – Identify the indications for bariatric surgery
  – Describe the efficacy of different bariatric surgery interventions
  – Recognize short and long term complications of bariatric surgery
Mary’s Story

Gastric Bypass
May 2016

Consult Weight
286 lbs

Lost 33 lbs prior to surgery with SMWL & Pre-op Diet

At 3.5 years post op, now 179 lbs and counting
## Obesity in the U.S.

<table>
<thead>
<tr>
<th>Category</th>
<th>BMI Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>BMI &gt; 25 kg/m²</td>
</tr>
<tr>
<td>Obese</td>
<td>BMI 30 to 34.9 kg/m²</td>
</tr>
<tr>
<td>Severely Obese</td>
<td>BMI 35 to 39.9 kg/m²</td>
</tr>
<tr>
<td>Morbidly Obese</td>
<td>BMI more than 40 kg/m² or BMI 35 to 39.9 kg/m² with associated medical problems (diabetes, high blood pressure, etc)</td>
</tr>
<tr>
<td>Super Obese</td>
<td>BMI &gt; 50</td>
</tr>
<tr>
<td>Super Super Obese</td>
<td>BMI &gt; 60</td>
</tr>
</tbody>
</table>
Obesity Classes

- **BMI 18.5 - 24.9**: Normal Weight
- **BMI 25.0 - 29.9**: Over Weight
- **BMI 30.0 - 34.9**: Obesity Class I
- **BMI 35.0 - 39.9**: Obesity Class II
- **BMI 40.0 - 49.9**: Obesity Class III
NIH Criteria for Bariatric Surgery (1991)

- Morbid Obesity with BMI > 40
- Severe obesity with BMI > 35 and comorbidity due to obesity
  - Hypertension
  - Hyperlipidemia
  - Obstructive sleep apnea
  - Type 2 diabetes
  - Osteoarthritis
  -- PCOS
  -- CAD
  -- Depression
Other Criteria

• Failed medical weight loss

• All psychological and eating behaviors addressed
  – Binge eating
  – Emotional eating
  – Addictive behaviors
Surgical Weight Loss Strategies

• Weight loss surgery in the morbidly obese
  – The most effective approach for long-term weight loss

  – Improves health – significant reduction in co-morbidities

  – Reduces mortality
    – HR 0.75, p = 0.04

Question 1: Which of the following patients qualifies for bariatric surgery

- A. 35 yo woman BMI 46, no comorbidities
- B. 44 yo man BMI 35, diabetes, hypertension
- C. 69 yo woman BMI 55, CAD, HL, OSA, arthritis
- D. 54 yo man BMI 33, diabetes, hypertension, congestive heart failure, OSA
- E. All of the above
- F. All except D
Morbid Obesity is a Complex Disease

Obesity is a complicated disease. Many things contribute to being overweight:

1. Eating and exercise habits
2. Environmental issues
3. Genetic and metabolic factors

Needs a multidisciplinary solution
Health Risks and Increased Risk of Mortality

- Diabetes
- Hypertension
- Sleep apnea
- Depression
- Joint pain
- Infertility
- Cancer
- GERD
- Asthma

Weight Loss Strategies

• Diet, exercise, medications, behavior modification
  • Long term durability

• Weight loss surgery in the severely obese
  – The most effective approach for long-term weight loss(1)
  – Improves health – significant reduction in co-morbidities
  – Reduces mortality –2.9% vs 14.3% in surgery vs non-surgery group(2)

Mechanisms of Bariatric Surgery

• Restriction
  – Reduced portion size
  – Early satiety
  – Decrease hunger drive

• Malabsorption
  – Reduces calorie absorption
Current Surgical Options

• Restrictive operations
  – Sleeve gastrectomy
  – Adjustable gastric band
  – Endoscopic gastric balloon or sleeve gastroplasty

• Combined restrictive malabsorptive
  – Gastric bypass
  – Duodenal switch
Roux-en-Y Gastric Bypass

- First done in 1967.
- Laparoscopic – 1993
- Restriction and malabsorption
- Excellent weight loss
- 1-2% incidence of major complications
Roux-en-Y Gastric Bypass
Sleeve Gastrectomy

- Restrictive
- Decreases hunger
- 1-2% major complication rate
- Small intestines unaltered
- Can be converted in future if poor weight loss
Adjustable Gastric Band

- Creates a small “stomach pouch”
- Least amount of weight loss
- Largely abandoned in last 3-5 years
- Long term removal rates
- 50-50 operation
  - 50% excess weight loss
  - <50% long term success
Single Anastomosis Duodenal Switch

• Newer operation
• High rates of weight loss / co-morbidity resolution
• Similar complications to gastric bypass
• Awaiting long term data
<table>
<thead>
<tr>
<th></th>
<th>Duodenal Switch</th>
<th>Gastric Bypass</th>
<th>Sleeve Gastrectomy</th>
<th>Lap Band</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Follow Up</strong></td>
<td>3 years</td>
<td>30 years</td>
<td>10 year</td>
<td>10 year</td>
</tr>
<tr>
<td><strong>% EWL</strong></td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td>80-90%</td>
<td>70-80%</td>
<td>60-70%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Diabetes Resolution</strong></td>
<td>&gt;90%</td>
<td>70-90%</td>
<td>50-60%</td>
<td>30-40%</td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td>0.5%</td>
<td>0.13%</td>
<td>0.6%</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Major Complication</strong></td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Bariatric Surgery in US
2015 – 196,000 operations

- Sleeve gastrectomy 53.8%
- Gastric bypass 23.1%
- Gastric band 5.0%
- BPD-DS 1.0%
- Revisions 13.6%
- Other 3.2%
Gastric Balloon

- FDA approved
- Inserted during endoscopy
- Removed in 6 months
- Low complication rate
- 30% excess weight loss in short term
- Not currently covered by insurance
Endoscopic Sleeve Gastroplasty

- Endoscopic suturing of the stomach (similar to a sleeve)
- Low complication rate
- 6 month weight loss
  - 40-50% excess weight
- Not covered by insurance
Question 2: Which of the following operations will result in > 50% Excess Weight Loss?

• A. Gastric Bypass
• B. Sleeve Gastrectomy
• C. Duodenal Switch
• D. Gastric Balloon Placement
• E. All except D
Bariatric Surgery Trends: Utilization

Changes in Utilization of Bariatric Surgery in the United States From 1993 to 2016

Guilherme M. Campos, MD, PhD, Jad Khoraki, MD, Matthew G. Browning, PhD, Bernardo M. Pessoa, MD, Guilherme S. Mazzini, MD, PhD, and Luke Wolfe, MS

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Bariatric Surgery Trends: Utilization

• Adult eligibility for bariatric surgery

• 1993: 11,775,017 (6.4% of US population)

• 2004: 19,027,087 (9.9%)

• 2016: 32,420,287 (14.7%)
Bariatric Surgery Risks

- Leak
- Bleeding
- Stricture or obstruction
- Blood Clots (DVT / PE)
- Wound infection, abscess
- Ulcers
- Nutritional deficiencies
- Post prandial hypoglycemia
Bariatric Surgery Trends: Safety
Question 3

- True or False: Laparoscopic gastric bypass carries a higher risk of anastomotic leak and other complications than laparoscopic sigmoid resection for diverticulitis

- A. True
- B. False
NorthShore Bariatrics

- American College of Surgeons Center of Excellence for Bariatric Surgery
- Preferred provider for various private insurance companies
NorthShore Bariatric Surgery Program

Pre-operative Process

- Consultation with surgeon and bariatric nurse
- Initial evaluation
  - Blood work – vitamins, blood counts
  - Possible sleep study
  - Possible diabetes nurse educators
- Insurance verification / requirements
NorthShore Bariatric Surgery Program

Pre-operative Preparatory Program

• Same process regardless of operation
• Medically-supervised weight loss
  – At least 2 months – may be longer (insurance)
  – Weight loss goal
• Psychiatric evaluation
• Dietitian evaluation and education
NorthShore Bariatric Surgery Program

Pre-operative Preparatory Program

• Attend support group
• Smoking / drug cessation
  – Testing
• Improvement in HgbA1C
  – < 7.0 %
• Insurance approval
  – 3-6 weeks after submitted
NorthShore Bariatric Surgery Program

Pre-surgical Requirements

• History and physical
• Labs
• EKG and possible cardiac clearance
• Endoscopy (bypass only)
• Two – six week liquid diet and fresh, raw veggies
NorthShore Bariatric Surgery Program

Day of Surgery

- Day of surgery admission
- Surgery 1.5 – 3 hours depending on case
- Admission to surgical unit (no ICU)
- Begin liquid diet Post Op Day # 1
- Hospital stay 1-2 nights average
NorthShore Bariatric Surgery Program

Follow up

- Post-operative office visits
  - 2 weeks, 6 weeks, 3 months, 6 months
- Band adjustments
- Interval laboratory testing
- Dietary follow up required
- Once stable, yearly for life
Summary

- Surgery is the most effective treatment for morbid obesity
- It reduces health risks and increases longevity, while having very low risk
- Comprehensive program design and long term follow up are critical to success