Understanding Bariatric Surgery
Adjusting Gastric Bands

Alberta College of Family Physicians’ 60th Annual Scientific Assembly (ASA)

February 28, 2015

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Faculty/Presenter Disclosure

- **Faculty/Presenter:** Dr. Renuca Modi & Ms. Sue Yorke
- **Relationships with commercial interests:**
  - Grants/Research Support: Not applicable
  - Speakers Bureau/Honoraria: Not applicable
  - Consulting Fees: Not applicable
  - Other: Not applicable

Faculty/Presenter: Dr. Daniel Birch
- **Relationships with commercial interests:**
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  - **Other:** Member of Advisory Board or Equivalent for Johnson & Johnson, Bard Medical and Cook Medical
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  - Material/Learning Objectives and/or session description was developed and reviewed by a Planning Committee composed of experts/family physicians responsible for overseeing the program’s needs assessment and subsequent content development to ensure accuracy and fair balance.
  - The 60th ASA Planning Committee reviewed Sponsorship Agreements to identify any actual, potential or apparent influence over the program.
  - Information / recommendations in the program are evidence- and / or guidelines-based, and opinions of the independent speakers will be identified as such.
Objectives

• Managing The Bariatric Surgical Patient – Medical Model
  • Weight history
  • Medical History
  • Nutrition History
  • Activity Recommendations
  • Mental Health Evaluations
• Types of Bariatric Surgery
• Surgery Criteria
• Patient Selection
• Risks and Complications
• Hands-on workshop on Gastric Band Adjustments
Management of The Bariatric Surgical Patient

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Weight Loss History

• Highest recorded weight
• Initial weight
• Preoperative weight loss
  ➢ 5-10% with behaviour modifications
  ➢ 500-750 kcal deficit
  ➢ 1-2 lbs per week
• Weight loss trend since surgery
  ➢ % total body weight (based on initial weight)
  ➢ % excess weight loss (based on a BMI of 24.9 kg/m²)
• Review of previous band fills (date, volume) and response
Medical History

- Weight related comorbidities
  - Resolution or remission
  - Current status
  - Identify concerns or issues (C/S, BP readings, CPAP)

- ROS: GI
  - Nausea or vomiting
  - Reflux or heartburn
  - Intolerance to certain foods or textures
  - Abdominal pain/epigastric pain/RUQ pain
  - Bowel movements
Medical History

• Medication review
  ➢ Adjustment of any medications to date
    o Insulin
    o Oral hypoglycemic agents
    o BP meds
    o Coumadin, psychiatric meds, synthroid etc

➢ NO NSAIDS

➢ Contraception
Medical History

• Compliance with supplements

**RECOMMENDATIONS:**

➢ **Adjustable Gastric Band**
  - MVN daily
  - Calcium carbonate 500 mg BID
  - Vitamin D 1-2000 IU daily

➢ **Sleeve Gastrectomy or Gastric Bypass**
  - Prenatal MVN (extra folic a, B12, and iron)
  - Calcium citrate 1200-1500 mg divided BID- TID
  - Vitamin D 1-2000 IU daily
  - B12 and iron supplementation PRN based on labs
Medical History

• REVIEW LABS
  - Usually every 3-6 months first 12 months
  - Thereafter annually
  - Include Fe, B12, Ca, Vit. D, PTH, and total protein
Dietary History

• PROTEIN REQUIREMENTS
  ➢ 1.0-1.2 grams/kg IBW (BMI 24.9 kg/m²)
  ➢ 3-4 oz protein with each meal
  ➢ 1-2 oz for snacks

• FLUID RECOMMENDATIONS
  ➢ Non-caloric, non-carbonated
  ➢ 30-35 ml/kg IBW

• Intake generally reduced to 1200 kcal per day
• Can vary between 1000-1500 kcal/day
• Quantity of intake limited to <1 cup of solid food
Dietary History

• **RECOMMENDED**
  - 3 meals/1-2 snacks
  - Eat slowly, chew food well (20-30 min)
  - Separating solids and fluids (30 min)
    - Beverages/liquid foods should be consumed between meals and snacks

• **NOT RECOMMENDED**
  - Calorie dense foods
  - Increased frequency of eating/grazing pattern of intake
  - Liquid calories/carbonated beverages
  - Textures difficult to chew (sticky, doughy, stringy, tough)
• To achieve health benefits, adults aged 18-24 should accumulate at least 150 minutes of moderate-vigorous intensity aerobic physical activity per week, in bouts of 10 minutes or more

• It is also beneficial to add muscle and bone strengthening activities using major muscle groups, at least 2 days/week

• More physical activity provides greater health benefits
## ACSM Position Stand

<table>
<thead>
<tr>
<th>Moderate Physical Activity For…</th>
<th>Will…</th>
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| A minimum of 150 minutes /week  | 1. Prevent significant weight gain  
2. Reduces chronic disease risk factors |
| 150 – 250 minutes /week         | 1. Prevent weight gain  
2. Promote modest weight loss with moderate diet restriction |
| Greater than 250 minutes /week  | 1. Clinically significant weight loss  
2. Enhanced prevention of weight regain |
Mental Health

- Emotional dysregulation can potentially lead to dysregulation of intake
- Assess and monitor Axis 1 Disorders
  - Major Depression (PHQ-9)
  - GAD
  - ADHD (ASRS-v1.1)
- Medical optimization key
- Social support for long term success
- Identify barriers, develop awareness and insight
Self Monitoring

• Food Journal
  ➢ Track calories, protein, fluid, emotions/triggers
  ➢ All-inclusive

• Activity Log
  ➢ Pedometer
  ➢ FITT (frequency, intensity, type, time)

• Weekly Weights

• Medical management
  ➢ Glucose monitoring
  ➢ Blood pressure
Laparoscopic Adjustable Gastric Band

- It is an inflatable silicone device that is placed around the top portion of the stomach, dividing it into **two parts**: a small upper pouch and a lower stomach.

- The pouch is the size of an egg or golf ball (~30 ml).

- It is a restrictive procedure.
Edmonton Outcomes LAGB

178 patients, BMI 44 kg/m²
OR time 56min, LOS 1.4d
Band migration rate 5.6%
Re-operation rate 4.6%

Laparoscopic Sleeve Gastrectomy

- The surgeon uses surgical staples to create a “sleeve” in the stomach.
- Approximately the size of a banana – 60 to 100 ml.
- No changes to the intestine, mainly restrictive only.
Edmonton Outcomes LSG

- 116 patients, BMI 44 kg/m²
- OR time 96min, LOS 2.4d
- 0 Leaks, 1 bleed, no mortality

Laparoscopic Roux-en Y Gastric Bypass (LRYGB)

- Surgical staples are used to create a small pouch (size of an egg or golf ball ~30ml).

- The middle part is then attached to the new pouch.

- The upper part is re-attached further down the intestine.

- Food now empties into the middle intestine completely bypasses the stomach and duodenum.
Edmonton Outcomes RYGB

293 patients, Initial BMI ~ 55kg/m², pre-op 50kg/m²
OR time 160min, Median LOS 3d
Anastomotic leak ~ 5%
Refined technique (stapled) 0%
Mortality 0.7%

Whitlock K, Gill R, Ali T, Shi X, Birch D, Karmali S. Early Outcomes of Roux-en-Y Gastric Bypass in a Publically Funded Obesity Program. In submission BJS.
Assessing Criteria for Bariatric Surgery

- Ages between 18 – 65 years old
- BMI ≥ 35 kg/m² with one or more obesity related co-morbidities
- BMI ≥ 40 kg/m²
- Non-smoker
- Non pregnant
- Stable Mental Health status
## A Decision Aid for Bariatric Surgery

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<th>Band</th>
<th>Sleeve</th>
<th>Gastric Bypass</th>
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<td>Safety</td>
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<td>Restricted Meds</td>
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<td>Long term data</td>
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<tr>
<td>Excess Weight Loss (EWL %)</td>
<td>40-50%</td>
<td>60%</td>
<td>60-70%</td>
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Adjustable Gastric Band
Mechanism of Action: LAGB

- It is a restrictive procedure
- The small pouch limits meal portion size
- Narrowing of the opening or stoma delays gastric emptying
- Satiety is prolonged

Deflated Fluid Filled
Naming conventions

- LAP BAND
- REALIZE Band, Swedish Adjustable Gastric Band VC (SAGB VC) and Curved Adjustable Gastric Band
- MIDBAND™
- Adjustable low pressure gastric band ADHESIX® BIORING®
- Adjustable low pressure gastric band SILIBAND®
- Adjustable low pressure gastric band HELIOGAST HAGA
Gastric Band Adjustments

• Band adjustment starts 4 to 6 weeks post-op.

• Can be performed by a surgeon or trained nurse in the Bariatric Specialty Care clinic.

• Occurs every 4 to 6 weeks as needed for the first year or two.

• Usually adjustment of 0.25 - 1ml of saline / appointment.
Needs Adjustment

- Hungry
- Eating big meals
- Looking for food
- Satiety that does not last beyond 2 hours
Adjustment is “Too Tight”

• Symptoms
  • Reflux
  • Weight gain due to maladaptive eating
  • Vomiting
  • Chest pain with food/fluids
  • Increased hunger
  • Increased saliva

• Treatment
  • Deflate band according to tolerance and re-educate
Optimal Zone

• Early and prolonged satiety
• Small meals satisfy
• Satisfactory weight loss or maintenance
ADD FLUID

OPTIMAL ZONE

REDUCE FLUID

Hungry
Big meals
Looking for food

Early and prolonged satiety
Small meals satisfy
Satisfactory weight loss or maintenance

Difficulty swallowing
Reflux - heartburn
Night cough
Regurgitation
Poor eating behaviour
A Well-Adjusted Band

- Good weight loss
  - 1.5 – 2.0 lbs per week

- Able to eat most solid foods
  - EXCEPTIONS – thick breads, thick meats, stringy vegetables
  - Must thoroughly chew food and eat slowly
  - Comfortably eat a small, healthy solid meal

- No limitations of non-calorie liquids
  - Except during meals – drink 30 minutes before and after meals no fluids during meals.
Risks and Complications

- Migration of implant (band erosion, band slippage, and port displacement)
- Gastroesophageal reflux disease (GERD)
- Port-site infection
- Band leak
- Port disconnection and tubing kinking
- Dysphagia
Band Slippage

Signs & Symptoms:

- Regurgitation
- Dysphagia
- Reflux
- Pain/ discomfort
- Possible excessive weight loss
Good Gastric Band Position
Band Slippage

Frequently occurs posteriorly of the gastric pouch
Treatment Options

- To deflate the band once slippage is warranted.
- To correct the slippage including saving the band and reposition.
- To surgically remove the band and replace a new one.
Band Erosion

- Local ischemia due to band’s pressure to the gastric wall.
- Due to gastrogastric over-suturing the buckle of the band.
- Band eventually migrates into the stomach.
Band Erosion

Signs & Symptoms:

- Unspecific abdominal pain
- Hematemesis
- Melena
- Failure to lose weight
Band Erosion
Treatment Options

• Band removal endoscopically if band migrated into the stomach fully.

• Primary repair with immediate replacement without full migration.

• Removal of band with repair.

• Conversion to an alternate bariatric surgery.
Port Complications

• Flipped port due poorly secured ports.

• Inability to access gel chamber.

• Leak from puncturing the connecting tube.

• Damage of sealing gel due to multiple punctures of port.

• Port site infection / contamination from port access.
Port Complications

Signs & Symptoms:

• Loss of feeling fullness or satiety after few days of an adjustment.

• Weight regain.

• Lack of weight loss.

• Redness around port site.
Port Complications
Treatment Options

- Require operative intervention to untwist the flipped chamber.
- To re-suture the base plate securely to the fascia.
- Removal and replacement of a new system.
Alberta Bariatric Specialty Clinic

North Zone
Bariatric Specialty Clinic – Grande Prairie

Edmonton Zone
Weight Wise Adult Bariatric Center – Royal Alexandra Hospital, Community Service Center

Central Zone
Bariatric Specialty Clinic– Red Deer Regional Hospital
Alberta Bariatric Specialty Clinic

**Calgary Zone**
Weight Management Program – Richmond Road Treatment and Diagnostic Center

**South Zone**
Bariatric Specialty Clinic – Medicine Hat, River Heights Professional Center
ASMBS guidelines

Gastric band adjustment credentialing guidelines for physician extenders


\textsuperscript{a}Chair, American Society for Metabolic and Bariatric Surgery Clinical Issues and Guidelines Committee, Gainesville, Florida
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Nutrition Guideline:
Bariatric Surgery for Adults
Applicable to: Nurses, Physicians and Other Health Professionals

Recommendations

- Bariatric surgery may be appropriate for well-informed and motivated adults with a BMI \( \geq 35 \) kg/m\(^2\) with at least one obesity-related co-morbidity, or BMI \( \geq 40 \) kg/m\(^2\) with or without obesity-related co-morbidities and acceptable operative risks.
- Surgical intervention requires a specialized interdisciplinary team (surgical, medical, behavioural, and nutritional) which, in conjunction with the client’s primary care providers, assesses, treats, monitors and evaluates the individual both before and after bariatric surgery.
- Nutrition assessment by a registered dietitian is recommended prior to bariatric surgery as part of a comprehensive obesity treatment plan.
- The most important outcomes of bariatric surgery include improvement or resolution of co-morbid conditions, reduction of chronic disease risk, and improved quality of life.
Questions