The Surgical Management of Obesity

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INTRODUCTION

Obesity is a disease process that has reached epidemic proportions worldwide, with the highest prevalence in the United States, where nearly 40% of the adult population is obese and 5% is morbidly obese.

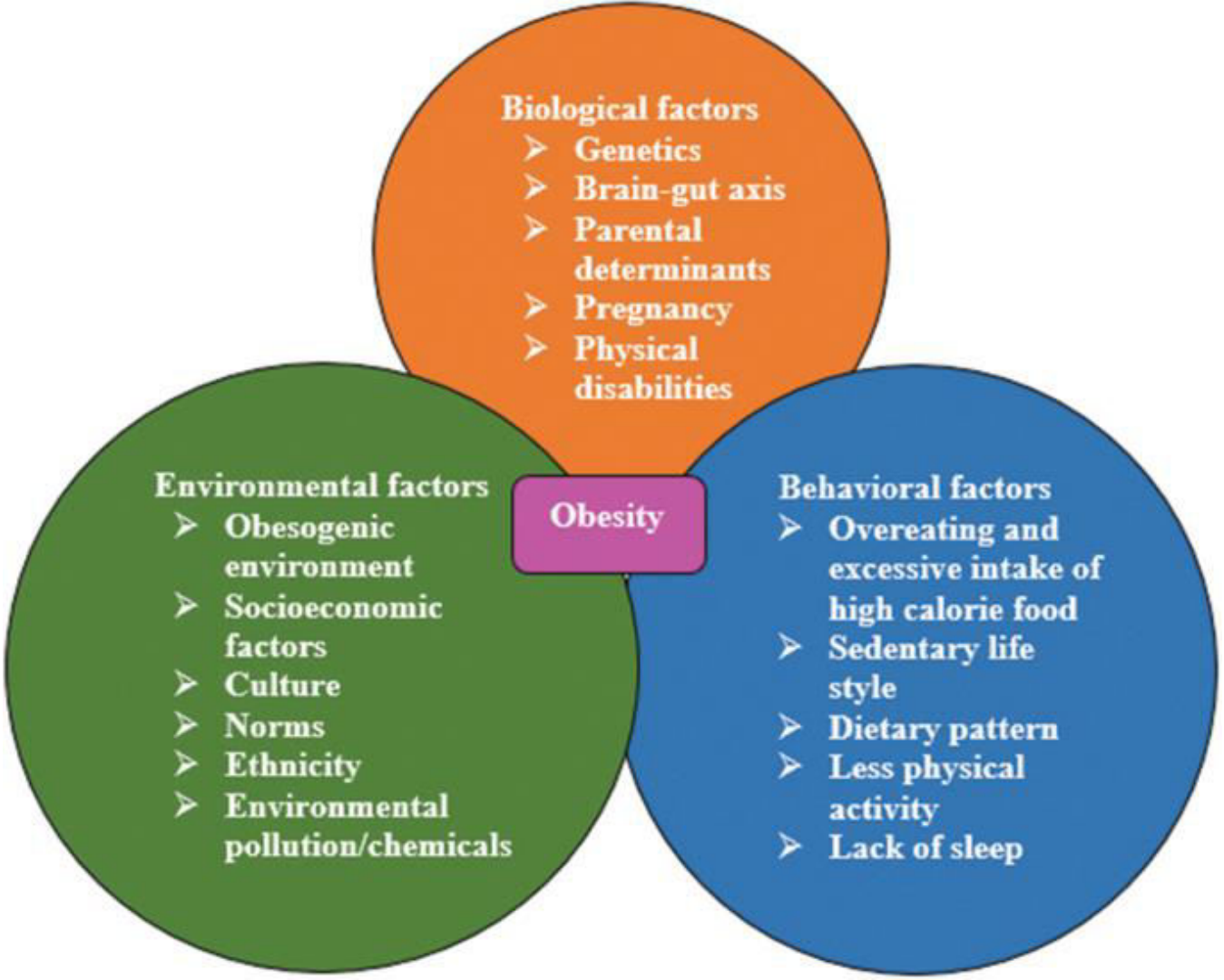
Severe or morbid obesity in adults is defined as a body mass index [BMI = weight (kg)/height (m2)] equal to or greater than 40

Etiology?

The etiology of morbid obesity is poorly understood with debate as to the role of genetic, psychosocial, and environmental influences.

Obesity is a disease, we don’t blame the patients!

It’s not as simple as eating less = losing weight


Biological factors
Genetics
Brain-gut axis
Parental determinants
Pregnancy
Physical disabilities
Environmental factors
Obesogenic environment
Socioeconomic factors
Culture
Norms
Ethnicity
Environmental pollution/chemicals
Obesity
Behavioral factors
Overeating and excessive intake of high calorie food
Sedentary life style
Dietary pattern
Less physical activity
Lack of sleep

TREATMENT

A. Medical Therapy

Medical therapy including physician-guided weight loss or pharmacotherapy has **limited short-term** and nearly **no proven long term success**.

In patients with BMI less than 27, lifestyle changes alone may be sufficient

In patients with BMI greater than 27, pharmacotherapy is second-tier therapy used in combination with lifestyle changes

Currently, **sibutramine**, a presynaptic norepinephrine and serotonin reuptake inhibitor that functions as an appetite suppressant, and **orlistat**, a lipase inhibitor that reduces lipid absorption, are the only approved drugs for weight loss treatment.

B. Bariatric surgery

It’s the most effective approach for achieving durable weight loss in the morbidly obese with confirmed superiority to nonsurgical approaches in achieving and maintaining weight reduction in the morbidly obese patients

Indications:

- Patients who have failed intensive efforts at weight control using medical means are candidates for bariatric surgery if they have a BMI index greater than 40 or greater than 35 with weight-related comorbidities.
- Patients who have a BMI index greater than 30 with poorly controlled diabetes or metabolic syndrome may be offered bariatric surgery

Preoperative evaluation

A bariatric multidisciplinary team including primary care physicians, dietitians, physical therapists, anesthesiologists, nurses, and psychiatrists or psychologists evaluates a patient's weight history, dietary habits, motivation, social history, and comorbid medical conditions prior to surgery

Benefits of bariatric surgery:

- **Hypertension** completely resolves in 62% of patients and resolves or improves in 79% (Surg Obes Relat Dis. 2009;5(3):387–405).
- **Diabetes** is completely resolved in 77% of patients and resolves or improves in 86% (JAMA. 2017;317(6):635–636).
- **Obstructive sleep apnea** resolves or improves in 85% of patients and hyperlipidemia improves in 70%.
- The **quality of life** is markedly better.
- Reduced **mortality rates** in morbidly obese patients

Types of bariatric surgeries:

- **Restrictive procedures**, which limit the amount of food that can be ingested

- **Malabsorptive procedures**, which limit the absorption of nutrients and calories from ingested food by bypassing predetermined lengths of small intestine

TABLE 19-2 Bariatric Surgical Procedures

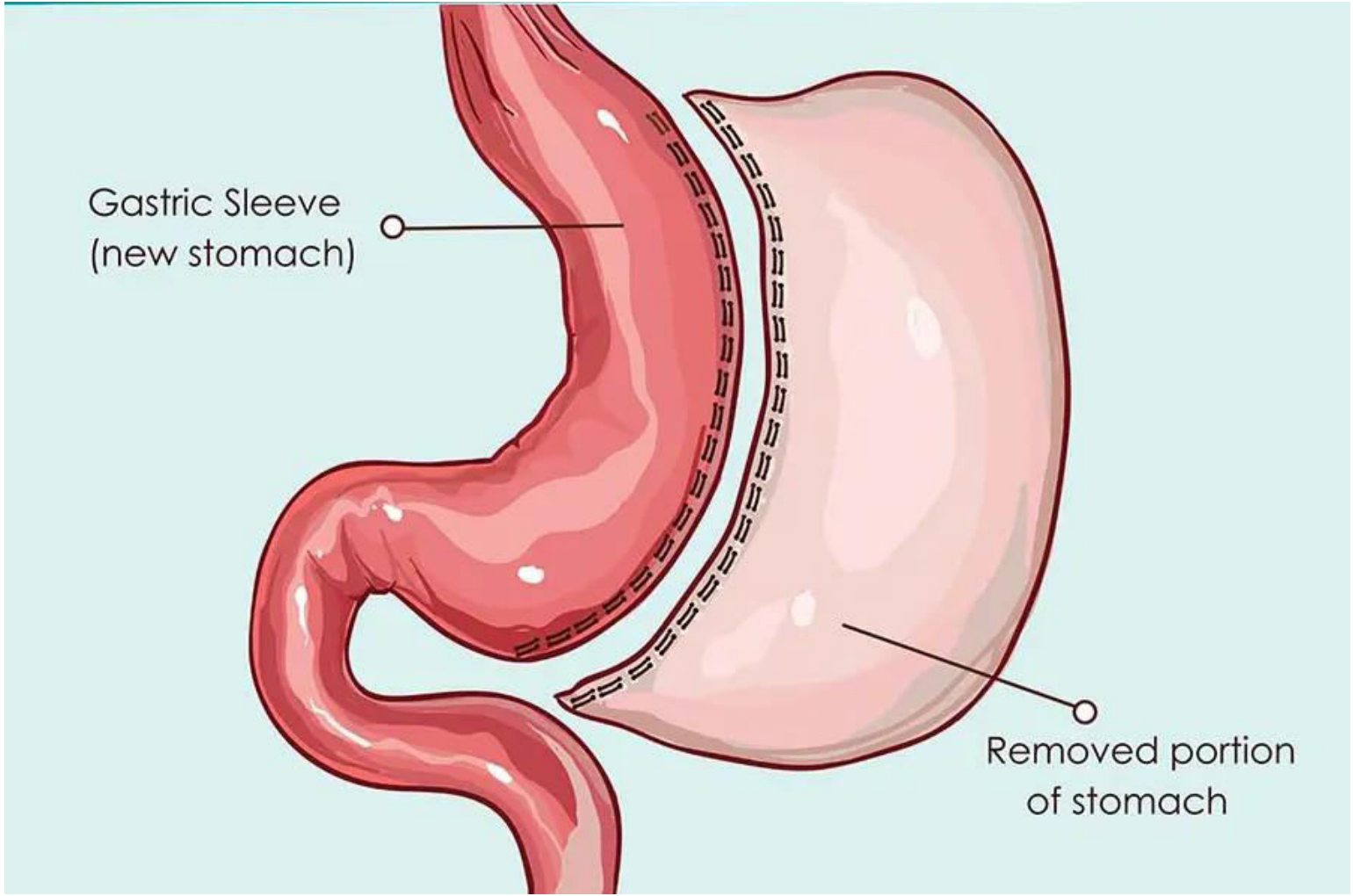
Restrictive Procedures
Adjustable gastric banding (AGB) Laparoscopic sleeve gastrectomy (LSG)
Restrictive and Malabsorptive Procedures
Roux-en-Y gastric bypass (RYGB)
Primarily Malabsorptive Procedures
Biliopancreatic diversion (BPD) Duodenal switch (DS)

Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass

Laparoscopic Sleeve Gastrectomy

1. Benefits: technical simplicity, pylorus preservation leads to no risk of dumping syndrome, low risk metabolic disturbances.

2. Risks: leak from gastric staple line, reflux, gastric outlet obstruction due to stenosis, increased reflux.

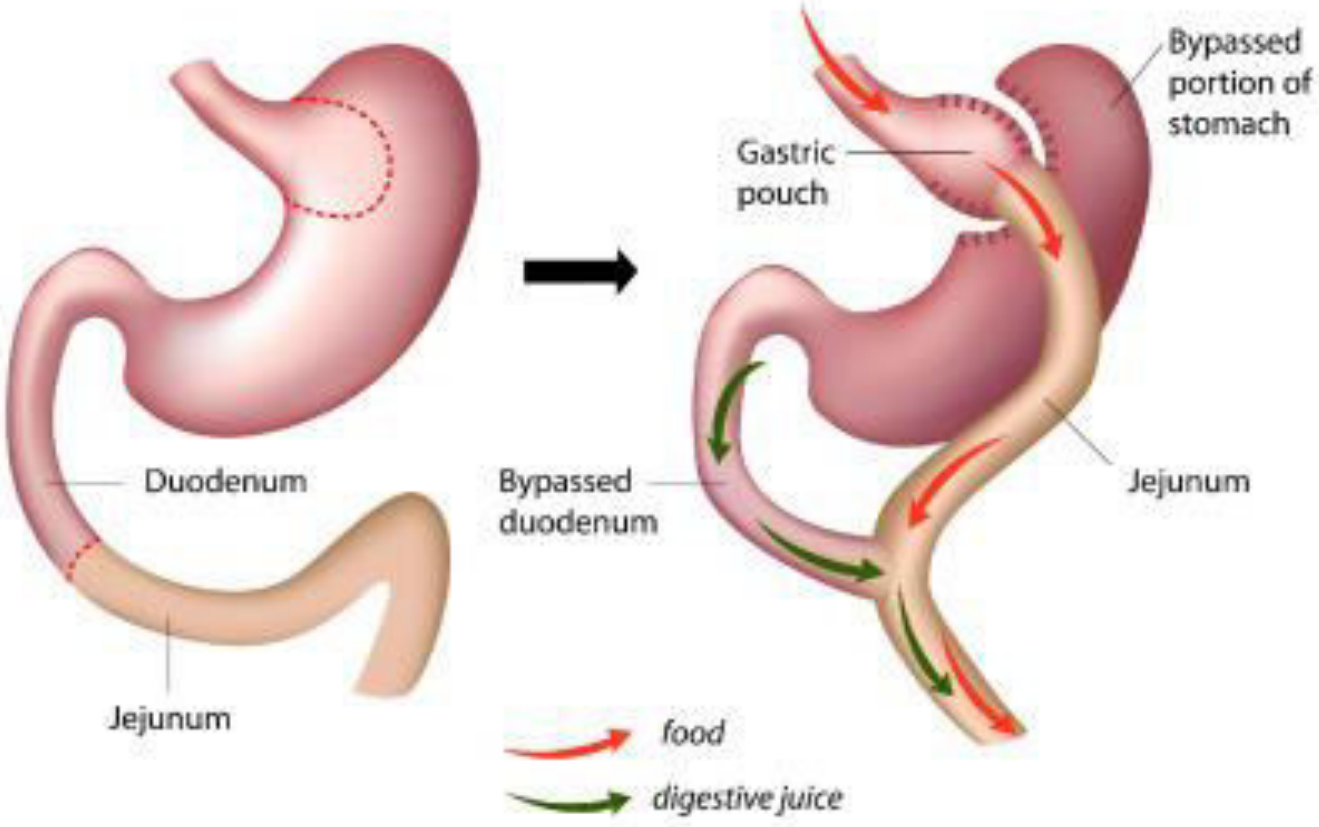

Gastric Sleeve
(new stomach)
Removed portion
of stomach

Roux-en-Y Gastric Bypass

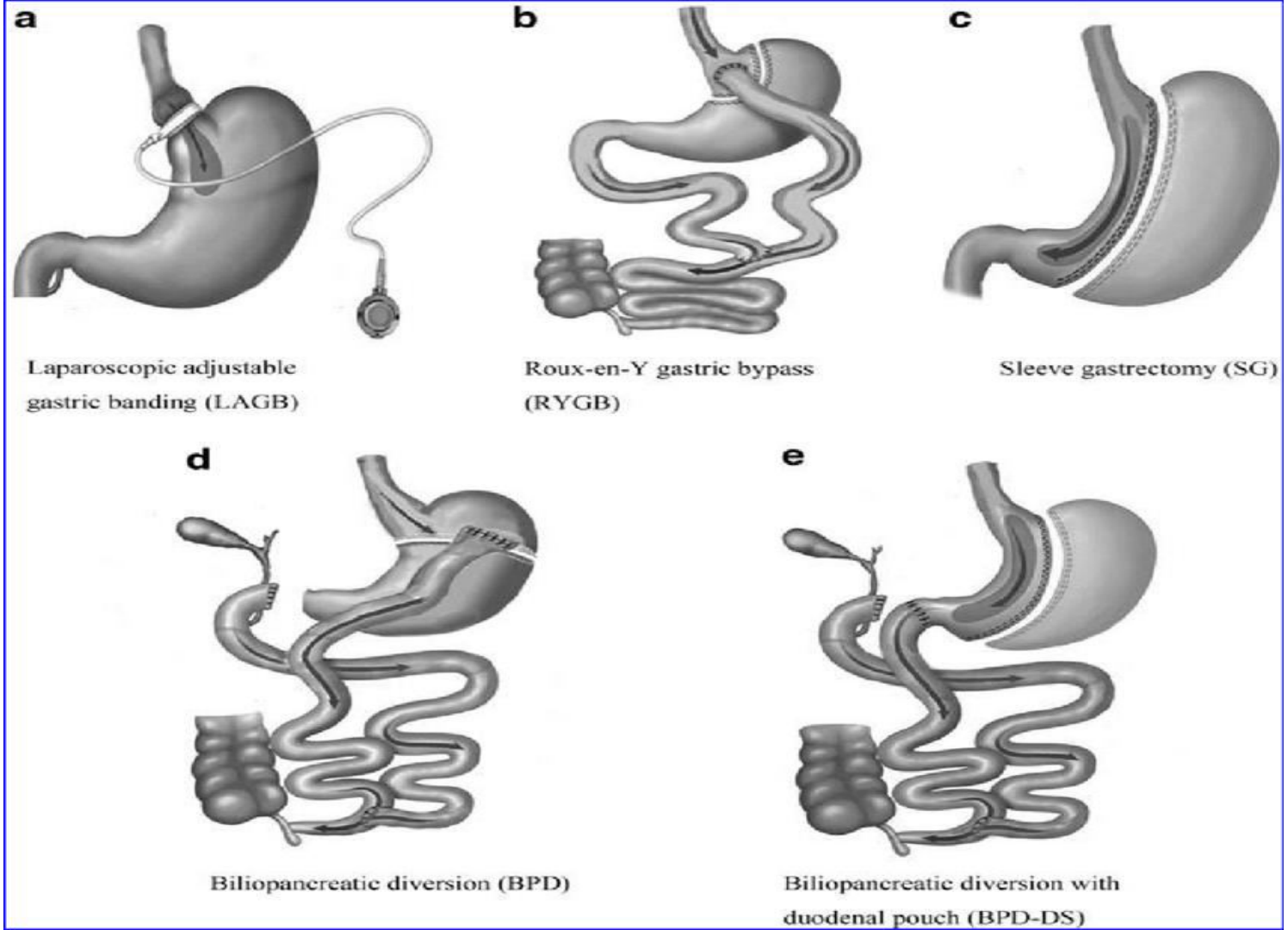
1. Benefits: increased weight loss versus restrictive procedures, improved gastric reflux.

2. Risks: G-J stenosis, malabsorption leading to nutritional deficiencies (primarily iron and B12 deficiencies), marginal ulcer risk, internal limb obstruction, anastomotic leak.

Roux-en-Y Gastric Bypass (RNY)




Upper Stomach
MakeAGIF.com

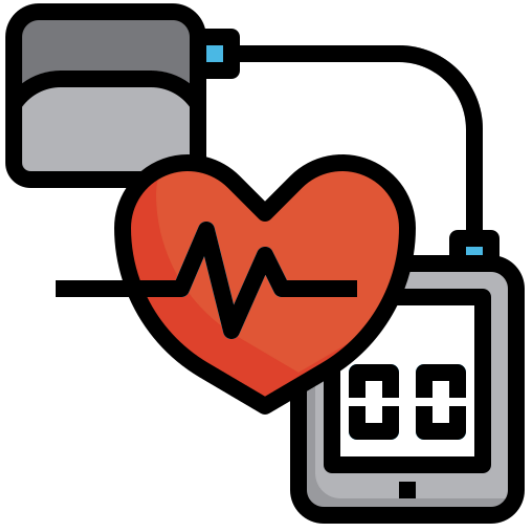

a
b
c
Laparoscopic adjustable gastric banding (LAGB)
Roux-en-Y gastric bypass (RYGB)
Sleeve gastrectomy (SG)
d
e
Biliopancreatic diversion (BPD)
Biliopancreatic diversion with duodenal pouch (BPD-DS)

Post operative care

- Postoperative analgesia
- Frequent measurements of intake and output
- Monitoring for tachycardia which can be the only evidence of postoperative **leak** in this population
- Gradual advancement of diet from NPO to a high-protein liquid diet.
- Early ambulation is highly encouraged and mechanical and pharmacologic venous thromboembolism prophylaxis is recommended for all patients due to high risk of deep venous thrombosis.

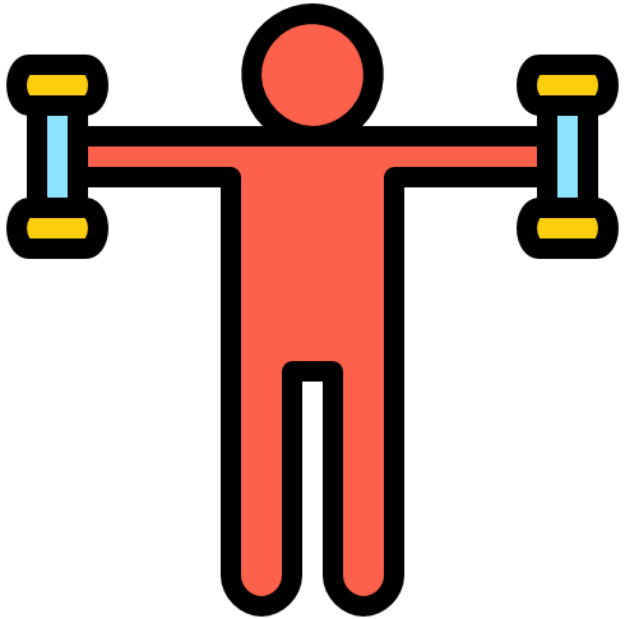
Post operative care

- Careful monitoring of postoperative blood pressure and blood glucose measurements
- NSAIDs should be avoided following many types of bariatric surgery due to its association with marginal ulcers and perforations.
- Close follow-up for adequate weight loss, improvement or resolution of comorbidities, in addition to close metabolic and nutritional monitoring is crucial.



Post operative care

- All patients should be encouraged to engage in physical activity for at least 30 minutes daily
- Take smaller more frequent meals chewed thoroughly, and avoid high-fat or high-sugar liquids which could precipitate dumping syndrome and impede weight loss.
- Lifelong nutritional supplementation with multivitamins, iron, calcium, vitamin D, and vitamin B12 is indicated



COMPLICATIONS

- Dumping syndrome
- Anastomotic leaks
- Small bowel obstructions
- Gallstone formation
- Nutritional deficiencies

Dumping syndrome

Dumping syndrome results from patients' inability to regulate gastric emptying of simple carbohydrates or other osmotic loads.

Patients usually complain of sweating, dizziness, palpitations, abdominal pain, nausea, vomiting, and/or diarrhea.

Treatment may involve dietary measures including high-protein diets, acarbose and somatostatin analogues, or surgical reintervention for refractory cases

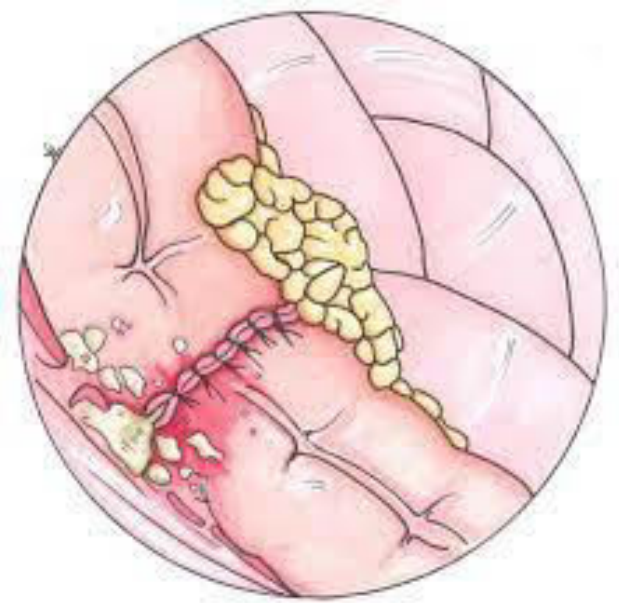
Anastomotic leaks

A serious complication associated with high morbidity and mortality rates.

Clinical findings include tachycardia, leukocytosis, and fever.

Typical findings of peritonitis and sepsis may be absent until late in the patient's clinical course.

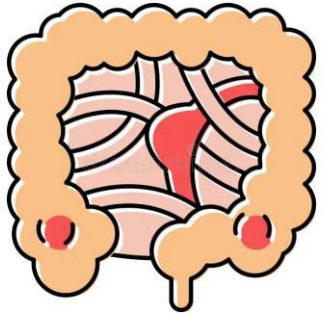
Management of leaks is time dependent and can include surgical closure of the defect, drainage, or placement of an intraluminal stent.



Small bowel obstructions

It typically presents with abdominal pain, nausea and vomiting, and minimal bowel function.

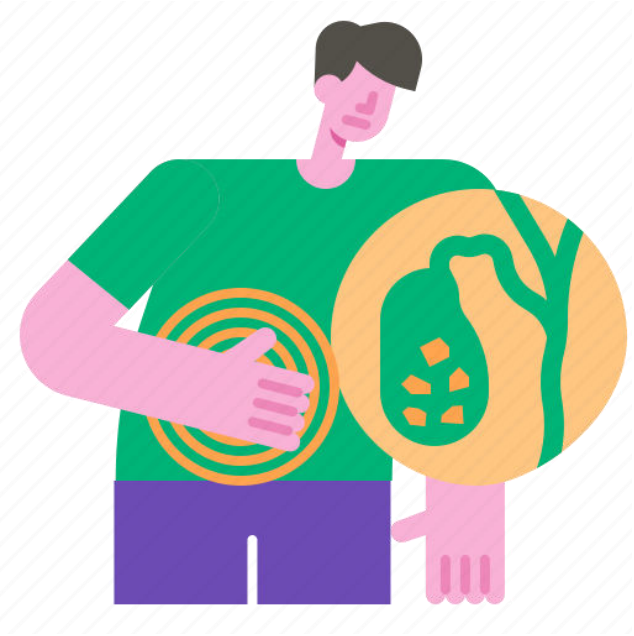
Etiologies include edema and/or hematoma in the **early postoperative** period and adhesions, abdominal wall hernias, intussusceptions, and internal hernias in the **late postoperative** period.



Treatment of obstruction in an unstable patient is prompt surgical exploration

Gallstone formation

is a common late complication following bariatric surgery. Therefore, regular use of ursodeoxycholic acid during the rapid weight loss period is recommended



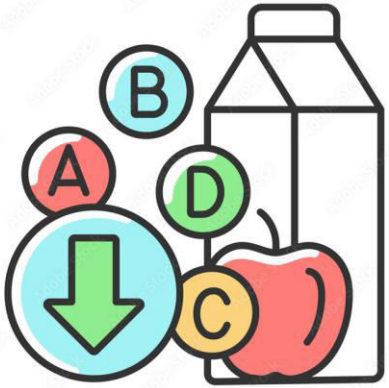
Nutritional deficiencies

Are a risk after any procedure with a malabsorptive component and the risk increases with the amount of small intestine bypassed.

The most common post op deficiencies seen are iron and B12 deficiency.

However, folate deficiency and calcium deficiencies are also seen.

All patients require careful postoperative monitoring and lifelong supplementation.



Thank you

Resources

The Washington Manual of Surgery 8th ed