Symptoms and Complications

Symptoms after bariatric surgery should be taken seriously and promptly evaluated to rule out more serious conditions. In addition to surgical complications, bariatric surgery carries the risk of short-term food and/or liquid intake difficulties as well as long-term medical complications. Common symptoms and complications after surgery are presented in Table 11-6.

Table 11-6 Common Postoperative Side Effects/Complications (up to 6 months)

Complication	Possible Causes	Evaluation/Diagnosis	Treatment/Solution
Nausea/vomiting	1. Improper eating: associated with overeating, eating too quickly, or consuming foods high in fat or sugar 2. Bowel obstruction: presents with vague cramping and abdominal pain 3. Stomal stricture stenosis: presents with cramping and abdominal pain, and/or intolerance for solid food intake 4. Nausea: may be associated with cholelithiasis	1. Symptoms improve between meals; no abdominal pain 2. UGI series or CT with contrast 3. Upper endoscopy to evaluate for strictures and stenosis if vomiting is particularly severe or if problem develop 6 months or later post-surgery 4. Cholelithiasis work-up	1. Instruct patients to eat smaller portions, chew foods thoroughly, eat slowly, avoid consuming liquids and solid foods at the same time, introduce new foods one at a time, and avoid foods that precipitate symptoms. 2. Consult surgeon. 3. Consult surgeon. May need therapeutic dilation of stricture. 4. Cholecystectomy or nonsurgical treatment (e.g., Ursodiol 300 mg bid for first 6 months post-op or lithotripsy)
Diarrhea or frequent bowel movements	1. Pseudomembranous colitis: caused by C. difficile (usually occurs within the immediate post-operative period) 2. Steatorrhea: caused by decreased fat absorption after combined restrictive/malabsorptive procedure 3. Improper eating: excessive intake of simple sugars, fats, or food/drinks with laxative-like effects (excessive fiber/caffeine) 4. Lactose- intolerance	1. Test for C. difficile toxin 2. Malodorous, oily, floating stools 3. Diagnosis based on symptoms and/or intake record/reports to identify trigger foods or eating habits 4. First eliminate all milk and milk products from the diet for a short time to see if the symptoms resolve. Testing may be necessary to provide more information. The test commonly used for adults is the **Hydrogen Breath Test** which is used to measure the digestion of	1. Metronidazole or vancomycin 2. Decrease fat content in food 3. Eliminate dietary intake of simple sugars, fats, or food/drinks with laxative-like effects (excessive fiber/caffeine); eliminate known trigger foods; consume liquids separately from meals, wait at least 30 minutes before or after a meal before drinking liquids 4. Use lactase enzyme supplements and/or substitute Lactaid or soy-based products for regular dairy

Complication	Possible Causes	Evaluation/Diagnosis	Treatment/Solution
		lactose. This may not be well tolerated due to the fluid amount needed for testing.	products.
Constipation	1. Dehydration: from reduced fluid intake, diuretic use 2. Improper eating: low fiber diet, poor fluid intake	1 & 2. Diagnosis based on symptoms	Increase fluid intake, use stool softeners, discontinue diuretics, and/or increase dietary fiber
Dehydration	1. Improper eating/fluid intake 2. Vomiting and/or diarrhea	1 & 2. Diagnosis based on symptoms	Sip fluids constantly throughout the day; IV rehydration if necessary
Dumping Syndrome	Results from eating foods high in fat or refined or simple sugars; occurs in approximately 50% of all RYGB patients; symptoms resolve within 2 hours.	Diagnosis based on symptoms, which may include postprandial light-headedness, syncope, diaphoresis, abdominal cramping, nausea, vomiting, and/or diarrhea	Avoid foods that precipitate symptoms. Consult dietitian.
Postprandial abdominal pain	1. Food intolerance: common side effect experienced during the immediate post-op period 2. Cholelithiasis: present in approximately 30% of patients 6 months after surgery; associated with postprandial nausea, right upper quadrant pain, and nausea. Prophylactic cholecystectomy is sometimes performed before at time of surgery.	1. Pain is associated with eating red meats, milk products; pain in the epigastrium. 2. Cholelithiasis work-up.	1. Avoid foods that precipitate symptoms; consult dietitian. 2. Cholecystectomy or nonsurgical treatment. (e.g., Ursodiol 300 mg bid for first 6 months post-op or surgery/lithotripsy in symptomatic cases)[20]
GI Bleeding (melena, hematochezia, or hematemesis)	Bleeding at anastamosis: can occur in a variety of locations; gastrojejunal anastomosis, jejunal anastomosis, or at the edges of the remnant stomach or mesentery	CBC Upper endoscopy CT may be required Consider NSAIDS and/or ETOH use	Consult with surgeon Surgical re-exploration may be required If the surgery was recent, do not place a nasogastric tube without fluoroscopic or endoscopic guidance
Weight Regain	1. Liquids with meals. 2. Consuming of high-fat and/or high-sugar liquid calories 3. Eating too frequently during the day 4. Consuming larger portions of moist foods	1 – 4. Diagnosis based on weight gain and evaluation of dietary intake	1 – 4. Consult bariatric or registered dietitian to provide nutrition therapy and education, incorporating motivational interviewing techniques to support appropriate behavior change

Table 11-4 Potential Complications and Medical Considerations

Disease/Condition	Issues	Assessment/Surveillance	Medical / Medication Considerations
Diabetes mellitus	Medication requirements are reduced drastically during the postoperative period as a result of decreased weight and calorie restriction. Patients are typically discharged on sliding scale insulin for their diabetic medication regimen, and some patients with type 2 diabetes may be able to completely discontinue their diabetic medications soon after surgery.	Educate patients about symptoms of hypoglycemia, especially those taking sulfonylureas or thiazolidinediones.	In the immediate post-operative period, patients should be managed on sliding scale insulin with frequent glucose monitoring. Avoid oral hypoglycemics if at all possible due to rapidly changing insulin requirements. If an oral hypoglycemic agent is used, metformin is a better alternative than sulfonylurea or thiazolidinediones. Oral hypoglycemics are resumed when needed after the post-surgical diet has been stabilized.
Hypertension	Blood pressure tends to improve in the immediate post-operative period, requiring an initial decrease in medications; however, reductions may not be sustained in the long term.	Patients should be monitored closely for signs of hypotension during the initial post-op diuresis that occurs. Periodic long-term surveillance of blood pressure is required.	Discontinue any previously prescribed diuretics during the immediate postoperative period due to the increased risk of dehydration. After initial post-op period, increase or restart medications if blood pressure is not under control.
Pain	Pain management for chronic conditions is often still required. Bariatric surgery reduces medication options because NSAIDS and aspirin should be avoided permanently to reduce risk of GI bleeding. Enteric-coated baby aspirin can be allowed prophylactically for coronary heart disease, if tolerated. This is less of a concern with the Lap Band.	Monitor pain and assess for inadvertent aspirin or NSAID use. Consider non-pharmacologic pain management alternatives.	Acetaminophen, opioids, and tramadol are possible medication alternatives. Clinicians should seriously weigh the risks and benefits of restarting NSAIDS or aspirin after surgery.
Osteoporosis	Bariatric patients are at increased risk due to reduced calcium absorption and increased bone resorption, which often leads to secondary hyperparathyroidism.	If alkaline phosphatase is elevated, parathyroid hormone level should be checked and a DEXA bone density scan should be considered. Assess 25-hydroxy vitamin D levels, PTH, and alkaline phosphatase annually.	Avoid oral bisphosphonates if possible because the reduced pouch size increases the risk of ulceration. Alternative treatments for osteoporosis in this population include raloxifene for women and calcitonin for the general population.

Disease/Condition	Issues	Assessment/Surveillance	Medical / Medication Considerations
Oral Thrush	Oral thrush infections can occur after bariatric surgery when the immune system is weakened and oral intake is minimal. Additional risk factors include: wearing dentures, having other health conditions, such as diabetes or anemia, taking certain medications, such as antibiotics, or oral or inhaled corticosteroids and having a dry mouth for an extended period of time (xerostomia).	Signs and symptoms may develop suddenly and can include: Creamy, white lesions on your tongue, inner cheeks and sometimes on the roof of your mouth, gums and tonsils Lesions with a cottage cheese-like appearance Pain Slight bleeding if the lesions are rubbed or scraped Cracking at the corners of mouth Reports of a cottony mouth feeling Loss of taste	Instruct and encourage patient to: Hydrate between meals Practice good oral hygiene. Brush at least twice a day and floss at least once. Replace toothbrush frequently until infection clears up. Avoid mouthwash or sprays — they can alter the normal flora in the mouth. Use warm saltwater rinses. Dissolve 1/2 teaspoon (2.5 milliliters) of salt in 1 cup (237 milliliters) of warm water. Swish the rinse and then spit it out. Treat patient with an antifungal medication, which is available in several forms, including lozenges, tablets or a liquid.
Obstructive sleep apnea	Sleep apnea is a common comorbidity in overweight/obese patients that often improves with weight loss.	Patients who use CPAP or BiPAP can undergo a repeat sleep study at 6 months post-surgery to titrate pressure or discontinue.	Treat patient according to results from repeat sleep study.
Excess Skin	This is a common problem after significant weight loss. Excess skin is usually a cosmetic issue; however, in some cases, skin ulceration or infection may result. Excess skin can have a considerable impact on function and quality of life.	Evaluate for skin ulceration and infection and degree of impairment, or see if patient is having difficulty walking or moving because of excess skin.	Good hygiene practices, topical and/or oral anti-bacterials, and anti-fungals when needed. Consider for excess skin removal on a case-by-case basis.