Bariatric Surgery: A Brief Primer for Primary Care Physicians

By Christina M Frichtel, DO

Abstract

Bariatric surgery is on the rise as treatment for the increasing number of obese patients in the US population. As this procedure becomes more common, primary care physicians are assuming increased responsibility not only for preoperative selection and education of bariatric surgery candidates but also for their postoperative care and monitoring—two factors necessary for a successful surgical outcome. This article highlights some issues relevant for primary care physicians and reports an illustrative case of a postoperative complication of bariatric surgery.

Introduction

The number of patients receiving bariatric surgery has increased dramatically over the past few years as the problem of obesity has continued to rise. Surgical solutions have become increasingly attractive, owing to the many medical and psychological complications of obesity as well as the difficulty of introducing behavioral modification necessary for losing substantial amounts of weight. As surgery grows more popular, primary care physicians are often challenged with responsibility for much of these patients' preoperative and postoperative care. Although most primary care physicians have little training in this area, they must choose appropriate candidates for surgery, properly prepare them for success before the surgery, and care for their special needs after surgery.

As surgery grows more popular, primary care physicians are often challenged with responsibility for much of these patients' preoperative and postoperative care.

Illustrative Case

A 36-year-old man was seen in the emergency department for the chief complaint of nausea and vomiting. He had received bariatric surgery one month earlier and had since sought medical attention repeatedly for nausea, vomiting, and dehydration. When seen in the emergency department, the patient had been vomiting all previously ingested foods and liquids. Two days previously, he was diagnosed with an acute episode of gout and was placed on a regimen of indomethacin, allopurinol, and colchicine. Since that time, the patient had noticed blood in his vomitus. Review of systems was clinically significant for a 64-pound weight loss in the month since receiving bariatric surgery. He noted no change in bowel habits, no fever, or other symptoms.

Initial physical examination showed a fatigued but alert man. His blood pressure was 130/62 mmHg, pulse was 93 beats/minute, respirations were 12 per minute, and temperature was 98.2°F. Abdominal examination showed a well-healed midline surgical scar. Active bowel sounds were present throughout. Mild epigastric tenderness was present without rebound tenderness or guarding. Results of complete blood count and measurement of electrolyte, blood urea nitrogen, and creatinine levels showed results within normal limits except for plasma potassium (3.1 mEq/L; 3.1 mmol/L), which was replaced intravenously.

The patient was admitted to the medical floor and was given intravenous fluid hydration. The admitting physician contacted the surgeon on-call for the surgical group. The surgeon discussed that these symptoms are very common with the postoperative complication of stricture at the Roux-en-Y anastomosis and recommended further evaluation with esophagogastroduodenoscopy. Results of this procedure showed a normal esophagus; a tiny gastric remnant with no retained fluid or food; a stenotic egress from the stomach, flanked by two surgical clips; and an ulcerated area distal to the clips.

All use of aspirin and nonsteroidal antiinflammatory drugs was discontinued. The patient was started on a regimen of omeprazole and a full liquid diet. The patient was discharged after a three-day hospital stay and at that time was tolerating very small amounts of liquid at a time. He was instructed not to eat solids, as they may obstruct the stoma. He received follow-up appointments with his surgeon that week and with his primary care physician one week later.

Christina M Frichtel, DO, is a third-year family medicine resident at KP Fontana. She serves as assistant chief to the residents there. E-mail: christina.m.frichtel@kp.org.

Patient Selection

The standard measurement to define obesity is the body mass index (BMI), calculated as the weight in kilograms divided by the height in square meters. Most sources[1,2] suggest that surgery is an option for patients either with a BMI of 40 or more or with a BMI of 35 or more plus obesity-related medical conditions. These conditions include type 2 diabetes, hypertension, dyslipidemia, ischemic heart disease, stroke, obstructive sleep apnea, asthma, nonalcoholic steatohepatitis, gastroesophageal reflux disease, degenerative joint disease, infertility, and polycystic ovary syndrome.[3]

Many guidelines include prior weight-loss attempts as a prerequisite for bariatric surgery. However, because of the low success rates for nonsurgical therapy in morbidly obese patients and because of the dangers of obesity-related medical problems, medical judgment should be used in deciding whether surgery should be done.[1] Moreover, according to some authors,[2] no justification exists to require morbidly obese patients to participate in a long-term weight loss program before bariatric surgery can be approved; an exception is if the surgeon considers such a program necessary.

The same contraindications exist for bariatric surgery as for any other elective abdominal surgery,[1] and a favorable prognosis after weight reduction should warrant the risk of treatment. Eating disorders should be treated carefully before the patient is considered for surgery.[1] Pregnancy should be delayed until the body weight stabilizes, usually 18 to 24 months after surgery.[1]

The referring physician should also consider the patient's true motives for wanting the surgery; any ambivalence about losing weight; and the attitudes of the patient's spouse.[4] Candidates for bariatric surgery should also be evaluated as to their ability to comply with the postoperative regimen.[4] Psychosocial risk factors also are important in preoperative assessment of the patient. Positive factors include age <40 years, being employed, being married, having a strong social support system in place, being able to reliably keep appointments, having realistic expectations, complying with a prescribed dietary regimen, being female, achieving preoperative weight loss, having higher education, being aware of eating rules, and not smoking.[4] Negative factors include having a prior psychiatric admission, MMPI psychopathology, previous bariatric surgery, public financial assistance, negative life events, alcohol or drug use, snacking, black ethnicity, codependency, secondary gain, childhood abuse, or denial of disease.[4]

Preoperative Education

Patient education determines the outcome of bariatric surgery to a much greater degree than with other types of surgery.[4] Patients should be counseled not only about the procedure but about the necessity of dramatic postoperative lifestyle changes and the possibility of surgical complications.

… surgery is an option for patients either with a BMI of 40 or more or with a BMI of 35 or more plus obesity-related medical conditions.

Options for bariatric procedures include restrictive procedures (eg, banding) as well as gastric bypass, which is both restrictive and malabsorptive.[1] Choice of procedure is mostly at the discretion of the surgeon, as is the option to operate in an open fashion or laparoscopically. Gastric bypass is achieved with a Roux-en-Y procedure, in which the small intestine is configured into two limbs: One limb, created from proximal small bowel, drains the pancreobiliary system as well as gastric secretions from the stomach below the level of the gastroplasty; the other limb drains the food from the gastric pouch.

A realistic expectation for weight loss is 50% to 75% of excess weight.[4] Kral has suggested the following rules, with which patients should familiarize themselves before surgery:

1. Rules of eating
   - Eat slowly in a quiet setting (without stress or distraction).
   - Advance your diet from liquids to purees to solids.
   - Predetermine small portions.
   - Chew properly before swallowing.
   - Stop eating immediately when you feel your pouch.
   - Never drink with your food.
   - After eating, wait at least one hour before drinking.[4]
2. Rules of vomiting (if you vomit or regurgitate)
   - Identify the reason(s).
   - Wait four hours before drinking.
   - Advance your diet only if tolerated, if not tolerated, take nothing by mouth until the next day.
   - If vomiting persists, contact your surgeon.[4]

Postoperative Care

A radiographic upper-gastrointestinal-tract study using water-soluble contrast done between the second and eighth postoperative day[5] showed postoperative complications and led to modification of the clinical approach.

The rules of eating and vomiting should be reviewed with the patient during postoperative visits. The patient is usually instructed to eat only liquids and soft foods

for the first month after surgery. Usually, separating eating and drinking will enable greater intake of calories.[6] To prevent malnutrition, patients are advised to take a multiple vitamin and mineral supplement daily.[6]

Complications

Complications of bariatric surgery can be classified as either short-term or long-term issues. Although many short-term complications are seen by surgeons, most long-term complications are seen first by primary care physicians. These complications can manifest in medical offices, in emergency departments, in urgent care facilities, or during routine visits for other problems.

Short-Term Complications

Wound problems—infection, seroma, and hernia—are more common in morbidly obese patients, in whom the incidence is about 15%.[1] Patients receiving laparoscopic procedures have the advantage of avoiding incisional hernias. Stomal stenosis has been reported in 12% of patients who received gastric bypass or gastric banding.[7] Patients and physicians should be trained to avoid malnutrition by recognizing early symptoms of this problem (ie, postprandial epigastric pain and vomiting). Diagnosis and treatment are achieved by using endoscopy with dilation.[7]

A realistic expectation for weight loss is 50% to 75% of excess weight.

Perioperative death occurs in approximately 1% of bariatric surgery recipients. Gastrointestinal anastomotic leaks occur in fewer than 1% of patients,[1] but peritonitis from a leak can be life-threatening. Venous thromboembolism has been reported in 1% to 2% of cases.[1,7] In general, morbidly obese patients are at increased risk for thromboembolism and should receive low-dose heparin prophylaxis, use pneumatic compression stockings, and return early to ambulation.[1] Atelectasis can be improved with pulmonary toilet, incentive spirometry, and nocturnal continuous positive airway pressure (CPAP) for patients with sleep apnea.[7]

Long-Term Complications

Of perhaps more relevance to the primary care physician are the long-term complications of bariatric surgery. Hernia can occur as a late complication of open Roux-en-Y bypass or banding procedures. Open Roux-en-Y can yield a bowel obstruction rate of up to 3%.[8] Postoperative anastomotic strictures can occur in 5% to 12% of patients who receive Roux-en-Y bypass surgery and in 5% to 17% of patients who receive vertical banded gastroplasty.[9] One study noted pouch dilatation and stoma stenosis in 18% of patients, most of whom received restrictive surgery.[10]

Adjustable gastric banding has been associated with band erosion, erosive esophagitis, and herniation of the stomach upward inside the band.[9] Stomal ulceration occurs in 12% to 15% of patients undergoing undivided gastric bypass but occurs less frequently in patients who receive divided procedures.[7] The cause of stomal ulceration is unclear but has been postulated to be either leakage of acid through the staple line into the pouch or subclinical breakdown of the staple line.[7] Stomal ulcers usually occur within the first three months after gastric bypass surgery. Most patients with these ulcers are seen for severe dyspepsia and vomiting and can be diagnosed by endoscopy. H-pylori must be either ruled out or treated as an etiologic factor,[7] as necessary.

Postoperative gallstone formation is common among bariatric surgery patients who have rapidly lost weight after the surgery.[7] Prophylactic use of ursodiol for six months postoperatively has been shown to reduce incidence of gallstones but is expensive and unpalatable to some patients.[7] Some surgeons routinely remove the gallbladder at the time of bariatric surgery. Cholecystectomy in a patient with symptomatic uncomplicated gallstones does not usually pose any specific problems; however, choledocholithiasis can be complicated by limited access to the biliary tree by endoscopic retrograde cholangiopancreatography.[7]

Dumping Syndrome

Primary care physicians should also be aware of dumping syndrome, which can occur as a result of eating simple sugars.[6] Dumping syndrome is a vasomotor and neuroendocrine response initiated by rapid emptying of foods into the jejunum. The hyperosmolarity of the sugars causes an influx of fluid, distention of the intestine, and resultant cramping and diarrhea.[6] Other symptoms include hypotension, nausea, lightheadedness, tachycardia, flushing, and syncope.[6]

Nutrition

After surgery, the patient's caloric intake must be reduced dramatically, ie, to under 1000 kcal per day, divided into multiple small meals and snacks.[6] The risk of protein calorie malnutrition varies depending on the length of the common channel.[1] Therefore, patients with more distal procedures should have albumin levels drawn three to four times a year for the first three to four years and annually thereafter.[1] Even with supplementation, postoperative iron deficiency occurs in 20% to 50% of patients, and B12 deficiency occurs in 25%

to 35% of patients.[1] Patients should therefore have a complete blood count and measurement of iron and B12 levels done twice per year for the first two years; thereafter, this testing should be done annually.[1] These patients less frequently have folate deficiency, which can usually be prevented by taking one prenatal-type vitamin per day.[6] Although more difficult to detect, calcium deficiency can affect especially those patients who have underlying lactose intolerance.[6]

Conclusion

Bariatric surgery offers primary care physicians increased ability to help morbidly obese patients, many of whom cannot achieve weight reduction through more conservative measures. With surgery, patients can often enjoy the benefits, both psychological and medical, of a healthier weight. However, integral to the success of the procedure is proper patient selection, education, and follow-up care. Primary care physicians are often at the forefront of these issues.

Physicians should consider patients for referral who have a BMI ≥40 or BMI of 35 plus two obesity-related medical conditions. Patients should be counseled about the surgery itself as well as about the postoperative lifestyle changes that are crucial to successful surgical outcomes. Primary care physicians are especially likely to encounter long-term surgical complications, including hernia, stricture, obstruction, ulceration, and gallstone formation. Knowledge of the rules of eating and vomiting and familiarity with common problems (eg, dumping syndrome) will help primary care physicians to better counsel their patients in the postoperative period. To monitor patients for potential malnutrition, various postoperative laboratory tests—measurement of albumin, iron, and B12 levels—should be done periodically. ❖

Postoperative gallstone formation is common among bariatric surgery patients who have rapidly lost weight after the surgery.

References

1. Choban PS, Jackson B, Poplawski S, Bistolarides P. Bariatric surgery for morbid obesity: why, who, when, how, where, and then what? Cleve Clin J Med 2002 Nov;69(11):897-903.
2. Cowan GS Jr, Hiler ML, Buffington C. Criteria for selection of patients for bariatric surgery. Eur J Gastroenterol Hepatol 1999 Feb;11(2):1:69-75.
3. O'Brien PE, Dixon JB. The extent of the problem of obesity. Am J Surg 2002 Dec;184(6B):4S-8S.
4. Kral JG. Selection of patients for anti-obesity surgery. Int J Obes Relat Metab Discord 2001 May;25 Suppl 1:S107-12.
5. Toppino M, Cesarani F, Comba A, et al. The role of early radiological studies after gastric bariatric surgery. Obes Surg 2001 Aug;11(4):447-54.
6. Kushner R. Managing the obese patient after bariatric surgery: a case report of severe malnutrition and review of the literature. JPEN J Parenter Enteral Nutr 2000 Mar-Apr;24(2):126-32.
7. Byrne TK. Complications of surgery for obesity. Surg Clin North Am 2001 Oct;81(5):1181-93, vii-viii.
8. Fisher BL, Schauer P. Medical and surgical options in the treatment of severe obesity. Am J Surg 2002 Dec;184(6B):9S-l6S.
9. Schirmer BD. Laparoscopic bariatric surgery. Surg Clin North Am 2000 Aug;80(4):1253-67, vii.
10. Wolf AM, Kortner B, Kuhlmann HW. Results of bariatric surgery. Int J Obes Relat Metab Disord 2001 May;25 Suppl 1:S113-4.

Miracles

As for me, I know of nothing else but miracles.

— Walt Whitman, 1819-1892, American poet