

SMF PCP Treatment & Referral Guideline
Bariatric Surgery – Post-Operative Management, Primary Care Perspective

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I. Introduction to Post Operative Management of Bariatric Patients

The Bariatric Surgeon will usually follow the patient for up to 90 days following the procedure. The immediate short term complications of wound infection, stomal stenosis, marginal ulceration and constipation are usually apparent by that time. There are several long term complications which should be monitored by the primary care physician following bariatric patients.

A. **Dumping Syndrome:** This is a constellation of pro-cholinergic symptoms resulting from an influx of undigested carbohydrates into the jejunum. Dumping syndrome results from poor dietary compliance and can serve as a motivational tool for patients to avoid non-permissible foods. It is self remedied and usually subsides one to two hours after consuming sweet foods or those high in simple carbohydrates. It is important that patients who have had bariatric surgery adhere to specific dietary recommendations. Failure to do so may result in episodes of vomiting caused by pouch distention. Patients require life long adjustment in eating behavior, including cutting food into small portions, chewing food thoroughly before swallowing, eating slowly, and waiting one hour after a meal before drinking anything.

B. **Hernia:** Incisional hernias are fairly common after bariatric surgery. If the patient is asymptomatic, it is usually recommended that surgical repair be deferred until maximum weight loss has been achieved. After laparoscopic surgery, internal hernias are more common. These patients will often complain of post-prandial abdominal pain, nausea and vomiting. When an internal hernia is suspected, patients should be referred back to the surgeon for diagnostic imaging and repair.

C. **Gallstones:** Cholelithiasis is a common consequence of rapid weight loss in the post operative period and occurs in up to 50 percent of patients. Weight loss is most rapid in the first six months after surgery but usually continues at a slower pace for up to two years. Prophylactic cholecystectomy during surgery or the use of bile salt therapy remains the mainstays of treatment. Evidence-based guidelines on patient selection for prophylactic cholecystectomy are lacking, and this decision is based on patient risk, stratification made by the bariatric surgeon.

D. **Protein Malabsorption:** A small subset of patients will develop this malnutrition, months to years after bariatric surgery because of anastomotic strictures or food phobias. Typically, these patients have repeated episodes of nausea and daily vomiting and multiple hospitalizations for dehydration, renal insufficiency and liver failure.

E. **Kidney Stones:** Patients who have had malabsorptive procedures are at risk for renal oxalate stones because of impaired oxalate binding in the small intestine. These patients should consume a moderate calcium diet, have periodic urine testing for calcium oxalate and citrate, and have careful monitoring of calcium and vitamin D status.

F. **Neurologic Complications:** Although rare, some patients have been hospitalized with persistent vomiting, weakness, and hyporeflexia after weight loss surgery. This syndrome is known as acute post-gastric reduction surgery neuropathy and remains poorly understood. When suspected these patients should undergo testing for vitamin deficiencies especially B12 and thiamine.

G. **Hair loss:** Hair loss commonly occurs three to six months following surgery. The exact mechanism is unclear. Patients should be assured that this should reverse with time and weight stabilization.

H. **Psychological Problems:** In general, patients will have improved psychological functioning after surgery, however, a subset of patients will acquire difficulties adjusting to their new life styles and changing interpersonal relationships. The clinician should periodically screen for this and refer to mental health professionals as needed.

II. Management of Comorbidities

A. **Diabetes:** After weight loss surgery, patients demonstrate a dramatic change in insulin sensitivity and glucose tolerance. More than 70 percent of patients will be normal glycemic and off medications two years after surgery. In the immediate postoperative period, the patient's medication may need to undergo significant adjustments due to the risk of hypovolemia and liver function abnormalities; metformin and thiazolidinediones should be discontinued. If a patient is taking a sulfonylurea, this medication should be reduced by half and given only in the morning. Patients who are taking insulin prior to surgery should have their basal insulin dosage decreased by half and discontinued for low glucose levels. Patients who are taking prandial insulin should not resume this practice until postprandial glucose values rise above 150 mg/dl. Patients should check their blood sugar three to four times daily. Because of the risk of future diabetes, patients who have been weaned off all other medication should be checked at regular intervals for recurrent hyperglycemia

B. **Hypertension:** Hypertension also improves following weight loss surgery and approximately 30 percent of the patients with hypertension will not require medication at two years postoperatively. Diuretics should be discontinued during the immediate postoperative period. Most patients should have any hypertensive medications withheld in the postoperative period as there can be a significant drop in blood pressure during this time.

C. **Lipids:** After weight loss surgery, patients can anticipate a gradual improvement in total cholesterol, triglycerides and high density lipoprotein cholesterol. In the six months following surgery, reduction of more than 15 percent in total cholesterol and triglyceride reduction of 50 percent can be observed. HDL lipoprotein improvement is usually more gradual. Depending on the severity of the patient's pre-operative hyperlipidemia and whether or not the patient has cardiovascular disease, the practitioner may wish to continue a low dose of statin.

D. **Obstructive Sleep Apnea:** Over 80 percent of patients can expect resolution or improvement in their disease following surgery. At this time there are no standing recommendations for discontinuing CPAP therapy after weight loss surgery, however, it may be reasonable to seek a repeat sleep study after the patient has achieved 30 percent loss of excess body weight.

E. Common Laboratory Monitoring Parameters for bariatric surgery patients:

<u>Follow-up period:</u>	<u>Laboratory Tests:</u>
Every Three Months for the First Year	Complete blood count Glucose Creatinine
Every Six Months for First Year	Liver Function tests Protein and Albumin Iron Total iron-binding Capacity Ferritin Vitamin B12 Folic Acid Calcium (if Hypercalcemic) Parathyroid Hormone
Every Year after the First Year	All of the above lab tests

III. Conclusion

Adherence to an appropriate diet high in protein and supplementation is essential. Patients require lifetime supplementation of a high-potency multivitamin with Iron, B12 (1000 mcg intramuscularly monthly or 100 mcg orally daily), and Calcium (1200 mg daily). Menstruating women may develop anemia refractory to oral Iron supplementation and may require parenteral Iron infusions. Pregnancy is contraindicated for at least 18 months after surgery because of the rapid weight loss and nutrition requirements. Appropriate contraception strategies should be discussed.

IV. References

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