

The Clinical Center for the Surgical Management of Obesity

The Clinical Center for the Surgical Management of Obesity (CCSMO) provides comprehensive care for patients undergoing surgical therapy for the treatment of obesity. A regional and national referral center for bariatric (weight-loss) surgery, the Clinical Center for the Surgical Management of Obesity offers open (conventional – through a standard incision), laparoscopic, and revisional bariatric procedures, as well as secondary procedures such as hernia repairs and panniculectomies. Complete, multidisciplinary care for the obesity surgery patient is coordinated through the center, including nutritional, psychological, and rehabilitative care. The center also sponsors bimonthly support groups for pre- and post-operative patients.

Based at the University of Texas Southwestern Medical Center, the surgeons at CCSMO bring a wealth of experience to the treatment of the obese patient. Drs. David Provost and Mark Watson are members of the faculty of the Department of Surgery at the UT-Southwestern Medical School, and perform bariatric procedures at our affiliated hospitals, Zale-Lipshy University Hospital, Parkland Memorial Hospital and St Paul University Hospital.

Why Surgery for Obesity?

Obesity is a major health issue in America as we enter the 21st century, while posing a difficult therapeutic challenge for clinicians. According to the recent NIH consensus report, the majority of Americans are overweight. Researchers and physicians are beginning to realize that obesity is a chronic condition, like hypertension or diabetes, influenced by genetic, metabolic, and environmental factors. The pathogenesis of morbid obesity involves more than just a lack of willpower or a sedentary lifestyle. Obesity contributes to the development of numerous life-threatening or disabling disorders including coronary heart disease, hypertension, Type II diabetes mellitus, hyperlipidemia, degenerative joint disease, and obstructive sleep apnea. Heavier men and women have an increased risk of death. An estimated \$45 billion is spent annually in the United States treating diseases associated with obesity, with total costs to society estimated at \$140 billion. Annual healthcare costs are 44% higher for patients with a body mass index (BMI) > 35 compared to patients with a BMI between 20-24. Significant weight reduction in the morbidly obese has been demonstrated to improve or reverse co-morbid illness, while benefiting psychological, social, and economic well being.

Obesity has been defined as being over 125% of ideal body weight as determined by the Metropolitan Life Insurance Table. Patients with severe or morbid obesity are 200% or 100 lbs. over ideal body weight. The BMI is a better indicator of excess body fat. The BMI is the individual's weight in kilograms divided by the square of the height in meters (kg/m²). A BMI between 25 and 29.9 is considered overweight (recently

lowered from 27 by the NHLBI). A BMI > 30 defines obesity, while a BMI > 40 represents severe or morbid obesity. Tremendous resources are expended on diets and weight reduction plans, with \$30 billion annually spent on commercial weight loss programs alone. Unfortunately, evidence demonstrating long-term success with medical, pharmacological, diet, exercise and behavioral therapies is absent. Sustained weight reduction requires life-long behavior modification, and weight regain after completion of a dietary/behavior modification program occurs in the majority of severely obese individuals. This “yo-yo” phenomenon may pose its own health risk.

The indications for gastrointestinal surgery for severe obesity were outlined in the 1991 NIH Consensus Development Statement. Candidates for operative intervention should have a BMI > 40 kg/m², or a BMI > 35 kg/m² when associated with high-risk co-morbid conditions. In addition, the consensus panel recommended that a surgeon with substantial experience with the appropriate procedure should perform the surgery, working in a clinical setting capable of supporting all aspects of management and assessment. Lifelong medical surveillance after the surgical procedure is necessary.

Surgical Procedures

Surgical procedures to treat obesity can be classified as malabsorptive or restrictive. Malabsorptive procedures include the jejunio-ileal bypass and the biliopancreatic bypass. The jejunio-ileal bypass has largely been abandoned due to the development of structural liver abnormalities in one-third of patients and clinical cirrhosis in as many as 10%. In the biliopancreatic bypass, bile and pancreatic juices draining into the duodenum are diverted to the terminal ileum by a long Roux-en-Y limb, in addition to gastric partitioning. Excellent weight loss results, however the procedure is not used widely because of the greater nutritional and metabolic risks.

Restrictive procedures include the vertical banded gastroplasty (VBG) and gastric banding. A 15 to 30 ml proximal gastric pouch is created restricting food intake. The Roux-en-Y gastric bypass (RYGB) also involves the creation of a small gastric pouch which is drained by the small intestine. This operation combines gastric restriction with a minimal degree of malabsorption. An added benefit is the limitation on the intake of simple sugars, which cause you to feel ill. The RYGB is the most commonly performed open obesity procedure.

The surgeons at CCSMO have experience with a variety of bariatric procedures, but prefer the RYGB and the Lap Band. The gastric bypass has been performed for over 25 years. Average initial weight loss exceeds 70% of excess weight, and long term studies have demonstrated that the weight loss is maintained at over 50% in greater than 90% of patients. Attention to diet and eating habits, exercise, and long-term follow-up with your surgeon contribute to optimal weight reduction. In addition to weight loss, many associated medical problems will resolve or improve following gastric bypass. Adult-onset diabetes mellitus improves in over 90% of patients, with 80% becoming medicine-free, including insulin. Improvements in hypertension and high cholesterol may be expected. Obstructive sleep apnea, shortness of breath, and other respiratory difficulties such as asthma, improve or go away completely in the majority of patients. Gastroesophageal reflux is frequently cured immediately. Although permanent damage to joints which has already occurred is not reversible, improvements in mobility and joint

pain can be expected. Improvement is also frequently observed with leg swelling or venous stasis disease, urinary incontinence, and headaches.

The RYGB can now be performed laparoscopically in many patients. This means that instead of performing the surgery through a standard incision, typically going from below the breastbone to above the umbilicus, the operation is done through six smaller incisions, less than one inch in length, using cameras and long instruments. The benefits of the laparoscopic RYGB include much lower rates of incisional hernia and wound infection, reduced pain, and a more rapid return to work and normal activities. Candidates for laparoscopic surgery should weigh less than 325 to 350 pounds, depending on weight distribution, and have not had extensive abdominal surgery. Cholecystectomy (gall-bladder removal), hysterectomy, Caesarean section, and appendectomy incisions do not usually prevent laparoscopic RYGB.

The adjustable laparoscopic gastric band (Lap-Band, Inamed), is a new product, approved by the FDA in June, 2001 for the surgical treatment of obesity. The Lap-Band functions similarly to a gastroplasty by limiting the intake of food. Average weight loss is 10 to 15% less than that observed following RYGB, but excellent results are achieved in many patients. Adherence to the prescribed eating habits is essential to long-term success. Advantages of the Lap-Band include ease of insertion, shorter hospital stay, and rapid recovery from surgery. The risk of major complications from surgery is low with the LapBand, and the operative mortality is very low. The major disadvantage of the LapBand is the potential need for re-operation in the future for band replacement or removal, which may be required in 10 to 15% of patients. Indications for band removal include erosion into the stomach, band slippage with resultant vomiting, and port or tubing leakage. These complications are rarely life-threatening nor emergent, and can be managed laparoscopically. We have been very pleased with the results of the LapBand, and believe it is an excellent alternative to the more invasive gastric bypass.

The Decision for Surgery

The decision to undergo weight-loss surgery deserves much thought, complete understanding and acceptance of the lifestyle and dietary changes resulting from the surgery, and thorough knowledge of the benefits and potential risks of the surgery. The SCSO offers monthly information and question/answer sessions, and your surgeon will explain the expectations, risks and benefits of gastric bypass at your initial consultation.

With rare exception, the surgeons at CCSMO adhere strictly to National Institutes of Health guidelines regarding weight requirements for gastric bypass. Your body mass index (BMI) can be calculated by using the formula:

$$\text{BMI} = \text{weight (kg)} / \text{height}^2 \text{ (meters}^2\text{)},$$

where weight in kilograms = weight in pounds divided by 2.2,
and height in meters = height in inches multiplied by 0.0254.

You must be able to comply with your gastric bypass diet. Although the RYBG has a low failure rate, no operation is foolproof. Repetitive overeating and inattention to food selection can lead to inadequate weight loss. With a small gastric pouch following

surgery, you will only be able to eat small quantities of food at a time. Patients should eat one-half cup or less of food at a meal, and will need to eat four to six times per day. You must take small bites, chew your food well, and eat slowly, taking two to three minutes between each bite. Patients must stop eating when they become comfortably full, or are no longer physically hungry. Overeating or eating too quickly will result in discomfort or vomiting. Some patients will have difficulty eating tough meats, particularly beef. Most vegetables are tolerated well, although some raw vegetables such as broccoli, celery, or carrots should be avoided. Carbonated beverages, even diet sodas, are prohibited, as they may stretch your pouch, limiting weight loss. Greasy or fried foods should be avoided, and make some feel ill. Foods high in sugar cause the dumping syndrome, which causes light-headedness, sweats, a jittery feeling, nausea, and vomiting. Cake, candy, ice cream, pies, cookies, and other sweets and desserts can cause dumping and must be avoided. Artificial sweeteners are permitted. Patients are no longer able to gulp large volumes of liquid when thirsty, and you will also have to learn to drink liquids, particularly water, continually throughout the day to prevent dehydration.

Exercise is an essential component of any weight loss program, and the gastric bypass is no exception. Your surgeon will expect you to begin a daily walking program upon discharge from the hospital. Patients who are unable to walk due to joint or back problems are encouraged to participate in alternative methods of exercise including water aerobics, stationary bicycles, etc. Achieving weight loss goals requires dedication, and if you do not believe you can comply with your surgeon's instructions, then weight-loss surgery may not be your best option.

Depression improves in most patients following weight loss surgery, but some patients may see a worsening of symptoms in the first year. The forced changes in lifestyle mandated by the surgery can add to stress, although nearly all patients adapt well with time. Monthly support group meetings, sponsored by the CCSMO, can help with this transition period, and psychological counseling can be arranged when needed.

It is important that patients considering weight loss surgery have a complete understanding and acceptance of the changes they will face. This is not the easy way out.

Risks of Surgery

The gastric bypass is a major surgical procedure, and complications do occur. Obese patients are at greater risk of many complications following surgical procedures, and many associated medical conditions like diabetes, heart disease, or breathing difficulties further increase risk. Although the risk of any surgical procedure, including gastric bypass, is greater in patients with serious medical illness, it is these patients who will frequently see the greatest benefit of significant weight reduction. Complete understanding of the risks and benefits of weight loss surgery is essential before making the decision to have surgery.

Many of the risks of gastric bypass surgery result from complications that arise from the surgical procedure or during the immediate post-operative period. Other complications may occur months or years after gastric-bypass, but these can be minimized with regular, lifelong follow-up with your surgeon. Early complications of surgery, of varying severity, may occur in up to 10% of gastric bypass patients. Death, although infrequent,

may result from weight-loss surgery. The risk of death from a gastric bypass procedure is less than 0.5% (<1/200), although the actual risk will vary from patient to patient. Older age, weight greater than 450 pounds, and underlying respiratory or cardiac disease increase the risk of death or complications. Risks and complications of gastric bypass include:

Respiratory Complications

Major abdominal surgery increases the risk of postoperative pulmonary (lung) complications. Pain from the incision, combined with pressure from excess weight, makes taking a deep breath difficult. This can result in atelectasis, or collapse of the small air spaces in the lung. Atelectasis can worsen breathing difficulty, cause fever, or lead to pneumonia. Prevention, by getting out of bed soon after your operation, early walking, and breathing exercises, is the best treatment for atelectasis.

Some patients with severe pre-existing lung diseases, sleep apnea, or those weighing more than 400 lbs. are at increased risk of post-operative breathing difficulty. If you are at high risk, your surgeon may elect to have you observed in the intensive care unit for one or two days following surgery. Some patients may require mechanical ventilation (breathing machine) in the ICU after surgery.

The best way to minimize the risk of post-operative respiratory complications is to improve your breathing and physical conditioning prior to surgery. If you become short of breath when walking short distances or climbing a flight of stairs, starting a daily exercise program prior to surgery is beneficial. Walking for exercise to improve stamina, taking the stairs instead of the elevator, and losing weight prior to surgery can lessen risks. Swimming, water aerobics, stationary bicycles, and other low-impact activities are recommended for patients with joint pain limiting walking.

Pulmonary embolism results from blood clots which may form in the veins of the legs during surgery. These clots may break loose and travel through the heart to become lodged in the arteries of the lungs causing respiratory difficulty. If the clots are large or occlude a large portion of the pulmonary circulation, strain on the heart results, which may be fatal. Clots result when blood flow becomes stagnant during surgery or afterwards when patients stay in bed. Obesity, older age, a previous history of blood clots, and major surgery are risk factors for clot formation.

We can lower the risk of blood clots and pulmonary embolism by administering a blood thinning drug called heparin prior to surgery, and continuing this during the hospital stay. In addition, compression stockings are applied to improve flow in the veins of the legs. Getting out of bed and early ambulation may also reduce the risk of blood clot formation.

Infectious Complications

Infections may occur during hospitalization following abdominal surgery. Although some infections, such as urinary tract infections (bladder infection) are relatively minor, others are more serious and may be life threatening.

Wound infections is an infected collection of fluid or pus which occurs beneath the skin incision in the fat of the abdominal wall. Signs of wound infection include redness around the incision, pain, and foul drainage from the wound. Wound infections are treated by opening the skin incision. Though not life threatening, wound infections are an inconvenience, requiring wound care for several weeks following discharge from the hospital. Antibiotics are administered during surgery to reduce the incidence of wound infections, however they occur in 5% of open procedures and 1% of laparoscopic operations.

Peritonitis is a serious infection occurring within the abdominal cavity following surgery. Peritonitis usually results from a leak at one of the connections (or anastomoses) made between your stomach pouch or small intestine. Although the connection between the pouch and intestine is carefully tested during the operation, leaks occur in 1 to 2% of patients following gastric bypass (open or laparoscopic). Leaks are usually detected while patients are hospitalized, and frequently require emergency surgery to treat. Prolonged hospitalization may result.

Bleeding

Post-operative bleeding may occur after major abdominal surgery, including obesity surgery. During surgery, many small blood vessels require division. Bleeding is controlled with sutures or cauterization. Some blood vessels may begin to bleed after completion of the operative procedure, within the abdominal cavity or through the skin incision. When bleeding occurs, hospitalization may be prolonged for one to two days as your blood count is carefully monitored. Blood transfusions may be required. Banked blood is very safe today, with a risk of hepatitis of less than one in 30,000, and HIV in less than one in 600,000. Rarely a return to the operating room may be needed if the bleeding does not stop. Injury to the spleen may occur during obesity surgery, increasing the risk of transfusion. Splenectomy may be required (in fewer than 1% of patients).

We have performed open and laparoscopic gastric bypass successfully in patients who decline blood transfusions for religious reasons.

Obstruction

An intestinal obstruction results in the blockage of food as it passes through the gastrointestinal tract. During abdominal surgery, adhesions or scar tissue forms between loops of intestine. Sometimes, even many years following surgery, the bowel can kink or occlude around these adhesions resulting in small bowel obstruction. If not treated, the intestine may lose its blood supply and die. Surgery is usually required to relieve the obstruction.

Obstruction may also occur at the anastomoses or connections made within the GI tract during gastric bypass. During surgery, the connection between your pouch and the intestine is purposefully made small. In some patients, scar tissue during healing may further reduce the size of this opening resulting in vomiting. This is called a stricture. Dilation of the stricture is performed as an outpatient, increasing the opening back to its normal size. Strictures may occur in up to 5% of patients.

Nutritional Problems

The Roux-en-Y gastric bypass has been performed for over 25 years, and nutritional problems are very rare in patients who have appropriate, life-long follow-up. Vitamin and mineral supplements, as well as eating a healthy diet emphasizing high-protein foods are essential in preventing nutritional deficiencies. After gastric bypass, dietary intake is insufficient to meet vitamin and mineral requirements. A daily multivitamin with iron, as well as calcium supplements, are required to prevent vitamin deficiencies. In addition iron and vitamin B12 levels in the blood should be monitored on a regular basis. Some patients may require additional iron or B12 supplementation in addition to their multivitamin. We first test for B12 or iron deficiency 6 to 8 months following surgery.

Adequate protein intake is also essential during the period of rapid weight loss. The gastric bypass diet emphasizes protein intake, to provide enough protein to meet the body's needs. Hair loss may occur in some patients during rapid weight loss. Hair loss is transient, and regrowth always occurs. Increasing protein intake is often sufficient to slow or stop hair loss, although occasionally additional supplements may be required.

Nausea

Overeating or eating quickly frequently results in abdominal discomfort and vomiting following gastric bypass. Most patients quickly adapt, learning to eat slowly, chew well, and stop eating when comfortable but now longer physically hungry. Another kind of nausea is experienced by some patients for the first few weeks following gastric bypass. This may result from delayed function of the intestine connected to your gastric pouch and usually resolves with time. Control of vomiting is usually achieved with anti-nausea medications.

Diarrhea or Constipation

Some patients may notice a change in their bowel habits following gastric bypass. Diarrhea is usually transient, and can be controlled effectively with over-the-counter medications recommended by your surgeon. Some patients may experience problems with constipation. A reduced frequency of bowel movements can be expected by many patients. Ensuring adequate water intake, as well as regular exercise are essential to correct constipation.

Cholelithiasis (Gallstones)

Gallstone formation may occur in up to 30% of patients during periods of rapid weight loss such as that experienced following weight loss surgery. If you have gallstones at the time of surgery (determined by your surgeon intraoperatively), your gallbladder will be removed at this time. If you do not have gallstones, you will be prescribed a medication (Ursodiol, Actigall) to prevent gallstone formation. Taking the medication for six months following surgery will reduce the risk of developing gallstones, requiring removal of your gallbladder, to 5%.

Hernia

A hernia is a tearing of the muscular repair of your incision, occurring months or years following surgery, producing a bulge in your abdominal wall which may be uncomfortable or painful. Surgical repair of a hernia is usually necessary. The incidence of incisional hernia following abdominal surgery in obese patients may be as high as 25%. If you have a pre-existing hernia, the risk is higher. One of the benefits of the laparoscopic approach to gastric bypass is a reduced incidence of hernia, less than 1%.

Pregnancy

It is very important to avoid becoming pregnant during the period of rapid weight loss. Your reduced dietary intake is insufficient to meet your needs plus that of a growing fetus. Many obese women are infertile or have irregular menstrual cycles. This may change rapidly with weight loss, and effective contraception is mandatory to prevent pregnancy. Once your weight has stabilized, pregnancy is possible. We recommend waiting at least 18 months following your surgery before considering pregnancy. Pregnancy is possible following weight loss surgery, and may be safer following weight loss than it would be obese.

If You Are Considering Weight Loss Surgery

The decision to have a weight loss operation should be made carefully. It should be made only with a full understanding of the risks and benefits of the procedure, the knowledge and willingness to accept the dietary changes imposed by the procedure, the understanding that regular exercise is essential for any weight loss program, and committing to life-long follow-up with your surgeon. It is strongly recommended that you attend one of our monthly information, question and answer sessions prior to your initial appointment. Check your health insurance policy or with your human resources department to determine if surgery for obesity is a covered benefit, and what requirements are necessary. Gastric bypass is a covered benefit under Medicare, when medically necessary, but not Medicaid. Cash payment plans are available. To expedite the insurance approval process, you will be contacted by our office prior to your appointment to confirm coverage and that all prerequisites have been met. Please bring a written record of previous attempts at weight reduction, as well as copies of medical records from any physician supervised weight loss programs.

During your initial visit, your surgeon will carefully explain the details about weight loss operations, including risks, benefits, and dietary changes that can be expected, as well as answer any questions you may have. If you decide to have surgery, we will contact your insurance company to obtain approval. Occasionally this may take several weeks, and appeals may be necessary. Once approval has been obtained, a date for surgery will be scheduled. Prior to your date of surgery, a second visit is required. At this visit, risks and benefits will be reviewed and a physical examination will be performed. You will then be escorted to the hospital day surgery area to complete your preoperative evaluation. There, you may meet with nurses, anesthesiologists, dieticians, physical therapists, and other providers who will participate in your care while in the hospital. You will return to the hospital the morning your surgery is scheduled. Your surgeon will again meet with you prior to your surgery. The majority of our gastric bypass procedures take from one and a half to two and a half hours. After a short stay in the recovery room, most patients will be taken to their rooms, although a few patients may be monitored in the intensive care unit. On the first or second post-operative day you will start drinking small volumes of juice or water. The frequency will be increased, and most patients are ready for discharge on the second or third post-operative day. You will return to see your surgeon about one week following discharge for an examination, to remove sutures or staples if necessary, and to advance your diet. An additional visit is required at 4 to 5 weeks to advance to the regular gastric bypass diet. Additional follow-up visits are maintained at 3 month intervals for the first year or two, then annually for life.

The surgeons and staff at the Clinical Center for the Surgical Management aim to provide courteous and comprehensive care for patients desiring or considering weight loss surgery.