Obesity Surgery

Required Reading for All Patients Considering Surgery

Hugh P. Babineau, MD
1100 East Lake Street, Suite 230
Tyler, TX 75701

Printed June 10, 2003

Rationale for Surgery

Non-surgical methods have not succeeded

"Why don't they just eat less and exercise more?" If only it were that simple. Experience and research have shown that severe obesity is a complicated disease without an easy solution. Unfortunately, drugs, exercise programs, diets, behavioral modification techniques and other non-surgical means have been found to be ineffective in the long term. Certainly, everyone who is overweight should try dieting and exercise, but research has shown that over 95% of patients who are severely obese will regain their weight within a few years.

Treatment of obesity-related health problems – "comorbidities"

This is the reason we undertake major surgery to correct obesity. Severe obesity or "morbid" obesity is a major contributor to diabetes, high blood pressure, heart disease, breathing problems, arthritis, gallstones, urinary incontinence, swollen legs that may develop ulcers, gastro-esophageal reflux disease (GERD), stroke, infertility, certain types of cancer, depression and many other serious disorders. Not surprisingly, morbid obesity is associated with a shortened life span.

Roux-en-Y Gastric Bypass versus other operations

Roux-en-Y Gastric Bypass is considered by most American surgeons to be the "gold standard" operation against which other operations should be compared. It is currently the most frequently performed weight-loss surgery operation in the United States. Roux-en-Y Gastric Bypass seems to have the best weight loss and long term results.

As in everything else, there is debate among surgeons about which operation is the best. Vertical Banded Gastroplasty (VBG) is an operation which, like the Gastric Bypass, is recognized by the National Institutes of Health as being an acceptable option for treating morbid obesity. VBG is still performed by many surgeons, but its use has declined as more surgeons have favored the Gastric Bypass. Other operations include procedures that cause malabsorption, that is, they cause food to go through the intestinal tract without being fully absorbed into the body. An early operation of this type called Jejuno-Ileal bypass has been abandoned because of too many problems. Current operations of this type include the Duodenal Switch and Bilio-Pancreatic Diversion.

Yet another type of operation, Gastric Banding, involves placing a band around part of the stomach in order to restrict it or make it smaller. You may have read or heard about the "Lap-Band," a laparoscopically placed, adjustable diameter band. This procedure and other procedures have the appeal of being a "less invasive" procedure. Some studies in Europe and Australia have reported fair results with these techniques, but the results in United States trials have not been very good. No one is sure why that is. Despite being "less-invasive," banding procedures still can have serious complications including death.

No operation is free from the potential for complications and failures, but in my opinion, the Roux-en-Y Gastric Bypass is relatively safe, the most effective procedure, and the most durable. That is why it is the only bariatric procedure that I offer to patients.

The Incision: "Open" Surgery versus Laparoscopic

Open surgery means performing all the steps of the operation through one incision, anywhere from about 6 to 10 inches in length. I use an angled incision beneath the left rib cage (called a "left subcostal incision"), as opposed to an up-and-down incision in the middle (called an "upper midline incision"). The left subcostal incision is less painful for most patients and results in fewer hernias than the upper midline incision.

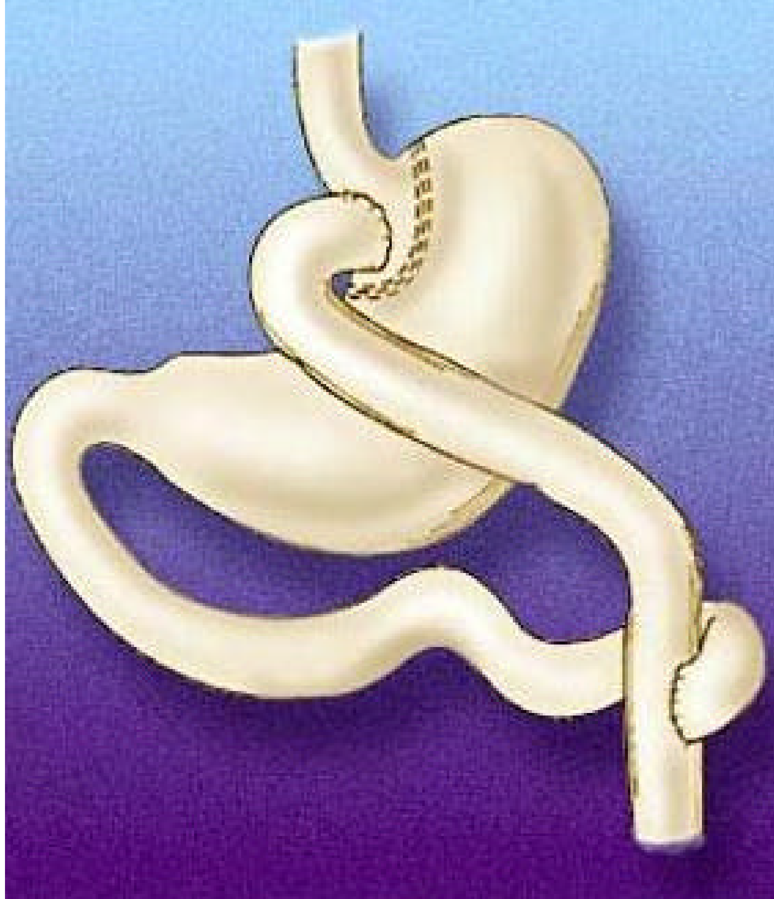
Roux-en-Y Gastric Bypass can be done laparoscopically, which means using much smaller incisions than the open technique. Instead of working directly "hands-on," the surgeon uses instruments passed through several small incisions while watching on a TV screen.

What the Surgery Does

Anatomy

Understanding your anatomy is crucial to having success with obesity surgery. In the normal, not-yet-operated-on situation, as you swallow food or liquid, it goes through the esophagus, then into the stomach. The stomach is like a big bag that can stretch and hold as much as 2 liters (quarts) of food and liquid. Acid is produced in the stomach and mixes with the food, helping to dissolve and digest it. The food and fluid then go from the stomach into a section of intestine, about 10 inches long, called the duodenum. Next, food travels through the small intestine, which is about 7 to 12 *feet* long. Most of the nutrients are absorbed from the food during this phase. Finally, the food passes through the colon, also called the large intestine, before passing out the anus as a bowel movement.

The Roux-en-Y Gastric Bypass alters things in several ways. First of all, a stapling device is used to make the stomach *drastically* smaller – about 20 to 30 milliliters, or about one fluid ounce. To realize how small this is, remember that there are 8 ounces in a cup, 12 ounces in a can of soda, and 32 ounces in one quart. Next, the small intestine is connected to the new stomach pouch. This means that food goes directly from the stomach into the small intestine, bypassing the duodenum. The surgically created connection from the stomach to the small intestine is called a *stoma*. It is a very small passageway – about as big around as a man's little finger. Everything you chew and swallow will have to fit through that hole.



Roux-En-Y Gastric Bypass

Function – the "pouch/tool"

After a Roux-en-Y Gastric Bypass, your stomach has been made into a very small "pouch." It becomes full very quickly with a small amount of food. This gives you a sensation of not being hungry any more, and feeling full. The exit (stoma) of the pouch is only about as big around as your nostril, so the pouch empties slowly. Drinking liquids with a meal can help empty the pouch more quickly. This is *not* what you want to happen if you want to lose weight. Being successful with weight loss requires learning how to use the pouch/tool to keep yourself feeling full for a long time after eating small meals.

A second aspect of the pouch/tool is "dumping," or the "dumping syndrome." When food consisting of concentrated sweets or fats enters into the small intestine from the pouch, the body may have a strong reaction. This can include flushing of the skin, cold sweats, palpitations, nausea, abdominal cramping, diarrhea, and feeling poorly for a few hours. People who have "dumping syndrome" after having had a gastric bypass quickly learn what kinds of foods to avoid.

How it works to make you lose weight

This is not completely understood at this time. However, it is understood that weight loss is all a matter of *calories in versus calories out*. If you eat and digest more calories than your body can spend, you will gain weight. If you eat fewer calories than your body burns, you will lose weight. The pouch/tool helps you stay full and not feel hungry after eating small meals, helping you consume fewer calories. Furthermore, if you have "dumping syndrome," it also helps you avoid concentrated fats and sweets, which contain a lot of calories.

The pouch/tool works because with it you can win the "calories in versus calories out" battle. Some people *lose* this battle because they learn how to outsmart the pouch/tool. This can be done in a number of ways. Consuming liquids with solids helps wash food out of the pouch, taking away the sensation of being full. It is better to drink your liquids 30 minutes before the meal, or at least 30 minutes after a meal. A second way in which people can regain weight is to learn to "eat up to the edge" of having dumping syndrome. For example, if someone knows that two tablespoons of ice cream will cause dumping, but one and a half won't, they might eat one and half tablespoons, wait a while, then eat another one and half tablespoons, and so on. Snacking continuously on high-calorie foods, such as potato chips or corn chips, is a way to defeat the pouch by never allowing it to get full.

Risks

The Roux-en-Y Gastric Bypass, whether it is done open or laparoscopically, is *major* surgery. It should be considered permanent. “Reversing” the procedure has been done in rare situations and is high-risk surgery. The discussion of specific risks below is an attempt to describe known complications and the estimated frequency at which they occur. It is by no means a complete list, and the percentages are only estimates based on the best knowledge that we have from studies published in medical journals.

The risk estimates below are for persons undergoing bariatric surgery for the first time. An operation to revise a previous weight-loss operation carries with it significantly higher risks.

Intraoperative Complications (1 to 2 percent)

Bleeding requiring transfusion.
Injury to the spleen requiring removal of the spleen (splenectomy).
Injury to the gastrointestinal tract or other organs.

Early Postoperative Complications

Pulmonary embolism (1 to 2 percent). This is a potentially serious complication in which a blood clot, usually formed in the leg, breaks loose and travels to the lungs. As many as one-third of bariatric patients who have a pulmonary embolism die. Getting out of bed soon after surgery and the use of low doses of heparin are thought to reduce the likelihood of this complication.

Gastrointestinal leaks (1 to 2 percent). Also referred to as “anastomotic leaks,” “postop leaks,” or just “leaks.” There are several connections made from stomach to intestine or from one part of the intestine to another that have to be watertight. Although these connections are always watertight when the surgery is completed, a leak can develop sometime after surgery. This is a potentially fatal complication that can be hard to discover in time. The treatment almost always requires emergency surgery.

Wound infection (10 to 15 percent). The fatty tissue beneath the skin has a poor blood supply and is thus susceptible to infection. These infections are treated by opening all or part of the skin incision, draining the infection, and allowing the wound to heal from the inside out. This is probably the single most common complication.

Wound seroma (up to 40 percent). This is a collection of fluid beneath the skin that is *not* infected. It is treated by draining with a needle or by making a small opening in the skin. Sometimes a seroma has to be treated several times.

Fascial dehiscence (1 percent). This refers to the entire wound opening up. This is rarely fatal, but is a serious problem that requires emergency surgery.

Other complications (3 to 10 percent): Atelectasis, pneumonia, pulmonary edema, heart attack, arrhythmias (irregular heartbeats), stroke, bowel obstruction, kidney failure, liver failure, infection or other problems with catheters, urinary tract infection.

Temporary hair loss: In the first few months following a gastric bypass, many individuals experience partial hair loss. This is *temporary* and *partial.* It is not known why this happens or how to prevent it.

Late Complications

These are problems that can occur any time in your life after having Roux-en-Y Gastric Bypass. They require the attention of a bariatric surgeon. Many can be treated with medications or endoscopic procedures, but many require additional surgery.

Incisional Hernia (0.4 to 30 percent). There is a broad range of percentages here. The lowest number, 0.4%, comes from a study by Dr. Kenneth Jones, Jr, in which the subcostal incision (diagonal line beneath the left rib cage) was used. The higher rates come from series where the upper midline incision was used. I prefer the subcostal incision for this reason, and I believe it is a less painful incision as well.

Vomiting (percentage unknown). Infrequent episodes of vomiting are a common side-effect of gastric bypass. Severe, unrelenting vomiting is rare, and is usually caused by narrowing of the stomach outlet (the "stoma").

Vitamin and mineral deficiencies (10 to 54 percent). Iron deficiency is the most common nutritional problem, especially in women still having periods. Folate, B12 and Calcium deficiencies are the next most common. *These deficiencies are prevented from becoming significant in almost everyone by religiously taking a multivitamin, Calcium, Iron, and B12 supplements.*

Breakdown of staple-line (1 percent). It is possible for the stomach pouch to re-connect to the rest of the stomach. This situation would usually require surgery to fix.

Stomal stenosis (5 to 10 percent). The outlet from the stomach to intestine, the "stoma," is created to be about one centimeter (about half an inch) across. If it is made too big, weight loss may not be adequate. However, since it is so small, if it becomes narrowed by swelling or scarring, food can become obstructed. Treatment may require stretching with an endoscope. Surgery is rarely required.

Marginal ulcer or stomal ulcer (3 to 10 percent). This refers to a breakdown of the lining of the stomach or intestine. It can cause pain, gastrointestinal bleeding, or narrowing of the gastric outlet (stoma). Treatment is usually with ant-ulcer medications, but surgery may be required. **Aspirin and other anti-inflammatory medications, such as ibuprofen and naproxen can cause these, especially if taken every day**.

Intestinal obstruction (2 to 3 percent). This is an emergency that requires immediate hospitalization and the care of a bariatric surgeon. Surgery is often required.

Failure to maintain weight loss (10 to 15 percent)

On rare occasions this is due to technical problems such as pouch dilation, stoma dilation or staple-line-disruption. More often, it is due to "out-eating" the pouch/tool and not exercising.

Death (1 percent)

The "mortality rate" for gastric bypass seems to be about 1% or less. It is not zero. This means that people do die from undergoing surgery. Accepting the possibility of dying from surgery has to be part of the very complicated and personal decision to undergo weight-loss surgery.

Benefits: The correction of comorbidities

Despite all the risks, *dramatic improvement in overall health* is why we do the surgery. As a physician, this is what drives my enthusiasm for bariatric surgery. The

percentages below are taken from one study of 104 patients. Other studies have had similar results:

Diabetes

82% resolved, 18% improved.

High Blood Pressure

70% resolved, 18% improved.

Gastro-esophageal reflux disease (GERD)

72% resolved, 24% improved.

High cholesterol

63% resolved, 33% improved.

Arthritis

41% resolved, 47% improved.

Asthma

13% resolved, 69% improved.

Sleep Apnea

82% resolved, 18% improved.

Psychological and social problems

Depression: 8% resolved, 47% improved. A word of caution is needed here. As you can see, only 8% of people had their depression resolve in this study. There is no doubt that obese people are the object of discrimination and social mistreatment. There is also no question that obesity can make depression worse. However, depression is a very complicated, chronic and difficult illness to treat. If you suffer from depression, my every hope would be that your depression would be cured after the weight loss you experience after surgery, but unfortunately the chances of *weight loss alone* solving the problem are not great. On the other hand, depression can often be treated by a psychiatrist, or other professional, with therapy and/or medication.

Amount of weight lost

After a gastric bypass, people lose 3%-5% of their body weight per month *on average*. The weight loss is usually fastest in the first 6 to 12 weeks. Weight loss should continue for about 10 to 20 months, sometimes longer. On average, people lose between 65% and 80% of the excess weight between 12 and 18 months after surgery. After this, there is a tendency for some of the weight to come back. After about 5 years, the average weight lost is 50% to 60% of excess weight. This seems to be well maintained afterwards. Weight loss maintained up to 15 years has been documented by research studies.

Remember that these are only averages. Some people lose 100% of their excess weight. Some people regain a large amount of the weight lost (about 10% to 15% of

people experience a significant re-gain in weight). To have the best success, you need to continue healthy eating habits and exercise for the rest of your life.

Looking better is only a side effect

Okay, it can be a very pleasant side effect. Please remember, however, that this is not the reason we subject people to *major surgery*.

Living with a Gastric Bypass

In a separate pamphlet, I give detailed instructions for diet, activity and other issues following surgery. Below is a summary:

The first six weeks

During this time, you will be on a "full liquid diet." This means foods that are liquid, pureed, or nearly so. Drinking a lot of water is very important for health and for losing weight. This is the period of the most rapid weight loss. Most people consume about 1000 calories per day. It is also the time for healing your incision and recovering from surgery. Vomiting may occur, but should not be severe and you will quickly learn how not to consume too much. ***You must stop eating as soon as you feel full*!** Many people do not feel hungry at all during this time.

The first year

After six weeks, you will advance into regular foods. Now is when you will need to re-learn how to eat right for health. Three small meals a day, and plenty of water between meals, are the goals for everyone. Your pouch/tool will help you accomplish this because when you eat properly, you will become full quickly and the feeling of fullness will last.

The peak of weight loss, 65% to 80% of excess weight on average, occurs at around 10 to 20 months after surgery. Reaching a "plateau" of weight loss can be very discouraging, but is entirely normal. The average excess weight loss at 15 years after surgery is around 55%. So, there is a trend towards gaining some weight back as the years go by. You can combat this with the good habits learned with the pouch/tool, by eating nutritious foods, and by exercising regularly. Many people have lost 100% of their excess weight, and kept it off, by doing just that.

Eating differently for the rest of your life

Remember that this is major, permanent surgery. The changes brought about by surgery are intended to last the rest of your life. Food, and eating a lot of it, are regular parts of our social institutions. Your pouch/tool won't let you eat a huge meal at Thanksgiving like everyone else. Going out to restaurants might mean leaving two thirds of your food, or having to bring it home, or trying to get the waiter to bring you a reduced portion. You may never be able to drink a can of soda, or have a Pina Colada, or just one cookie, without having dumping syndrome. Take some time to imagine what day-to-day life, holidays, good times and bad times will be like when your body doesn't react to food the way it does now.

Pregnancy

Many women have had successful pregnancies following a Gastric Bypass. There is a limited amount of research on this, but these pregnancies do not appear to be higher risk than other pregnancies. **Women are advised not to get pregnant during the first year after a Gastric Bypass**. Furthermore, contraceptive pills may not be effective during the first few months after surgery, so abstinence (no sex) or a barrier method of birth control (condom or diaphragm, for example), must be practiced during that time.

Keys To Success

Diet

The long-term goal of this surgery is to have you eating three small but nutritious meals every day. Most successful diets (Atkins, T-Factor, Zone, etc.) say essentially the same thing: If you want to keep weight off, eat moderate amounts of protein, lots of fresh fruit and vegetables (without dressings and syrups!), small amounts of carbohydrates, and very small amounts of fats and oils. The pouch/tool helps you do this by getting full quickly and giving you a lasting sense of fullness. The dumping syndrome helps you by discouraging you from eating foods that have concentrated fats or sugars.

"Low-carb" diets are popular lately, but I still think the best guidelines for gastric bypass patients is a low-fat, low sugar diet as described above.

Immediately after surgery, you will not be eating normally. You will be on a restricted "full liquid" diet, and will not be able to eat normal meals, even if they are small. Gradually, your stomach pouch will enlarge a little bit, allowing you to eat balanced meals consisting of small portions of food.

You will need to drink plenty of water. Remember not to drink for 30 minutes before or within 30 minutes after eating. Mixing liquids with solids makes the pouch empty too quickly, which means you may eat more food without feeling full.

Exercise

Everyone needs to exercise. You don't have to go out and become a marathoner or Olympic athlete. Simply walking 30 minutes a day at least 3 times a week is beneficial to health and maintaining weight loss. People who want to lose *all* of their excess weight do need to exercise more rigorously than this.

Exercise helps weight loss in two ways. First, you burn calories while you exercise. Second, exercising increases the amount of muscle you have. Muscle burns calories even when you are not exercising. So, the more muscle you have, the more calories you burn, even when you are not doing anything.

Medical follow up

I will need to see you at 6 weeks, 4 months, 8 months, 1 year, 18 months and 2 years after surgery. After that, you should see me, or a physician knowledgeable about gastric bypass surgery, once a year. People who have had a Roux-en-Y Gastric Bypass can become anemic (iron-deficient), Calcium deficient, and deficient in B12, folic acid (folate) and other vitamins. It is extremely important to religiously take 2 multivitamins with iron and a calcium supplement (such as Tums or OsCal 500) every day. From time to time, you may need to have blood work to check for deficiencies.

Support

Do not go through this alone. There are support groups in the area for people who have had obesity surgery or are considering having surgery. There are also organizations and web sites that offer information and support. (See the "Resources" Section at the end).

Make sure that you have someone close to you who knows you are having surgery and will be available to give you help. Having bariatric surgery is a major undertaking – physically, emotionally, even spiritually. Make sure you and your spouse or significant other talk about the surgery and the risks, ahead of time. If you don't have a spouse or significant other, find someone – a good friend, a neighbor, maybe your boss – in whom you can confide.

Actually having the surgery

The day before

You will need to be on a "clear liquid" diet and to take some laxatives to empty out your intestinal tract. You will be given details on this prior to surgery. Although the surgery does not directly involve the colon, it is best to have the colon as empty as possible.

Nothing to eat or drink after midnight. This is a standard precaution for undergoing general anesthesia

The day of surgery

You will arrive at the hospital about 2 hours prior to surgery. An IV will be started and you will be given a dose of heparin for prevention of DVT (blood clots in the legs). You will also receive antibiotics, and the anesthesiologist will probably give you some sedating medication through the IV.

You will wake up in the recovery room and spend about an hour there before going to the hospital room. This is usually a regular hospital unit. Depending on your situation, you may be in the ICU initially. You will have a Foley catheter draining your bladder and be connected to several monitors and IVs.

Recovering in the Hospital

It is impossible to not have any incisional pain. The pain can be very intense for the first day or two. Each day, it should get a little better. You will have a device called a PCA (for "patient controlled analgesia"). This allows you to give yourself a dose of pain medication through your IV, usually Morphine, when you want it. In addition, you may be given a medication called ketorolac or Toradol. It also goes through the IV, and is in the same family of drugs as Ibuprofen (Motrin, Advil, etc.).

It is very important to get up and walk as soon as possible after surgery. Walking helps prevent blood clots, pneumonia, fevers and atelectasis (compression of the lungs). Walking also helps to get the bowels moving again.

Over the next few days, your diet will be advanced from apple juice and water at first, to milk and other liquids. Remember to STOP EATING OR DRINKING AS SOON AS YOU FEEL FULL! Details of the postop diet are in the postop instructions.

You will be ready for discharge in about 3-4 days, if all goes well.

Resources

Internet

www.asbs.org	American Society for Bariatric Surgery
www.WLSCenter.com	Informative site
www.obesityhelp.com	Peers and information
www.tylerbariatric.com	Our web-site

Support groups

These are currently held monthly at East Texas Medical Center. Contact my office for details.

Books

Weight Loss Surgery, by Barbara Thompson.
Gut Feelings, by Carnie Wilson.

Organizations

American Society for Bariatric Surgery
7328 West University Avenue, Suite F
Gainesville, FL 32607 (U.S.A.)
(352) 331-4900 (Phone)
www.asbs.org