Complications of surgery for obesity
By Suzanne Canada

A. Background
Bariatric surgery reduces caloric intake by modifying the anatomy of the gastrointestinal tract. The 4 most common procedures that are performed are laparoscopic adjustable gastric banding, sleeve gastrectomy, roux-en-Y gastric banding, and biliopancreatic diversion with duodenal switch. These procedures can be performed as open surgery or laparoscopically, which requires a much smaller incision. Patients who elect to undergo bariatric surgery are generally those who have had little success achieving weight loss by other means, either conventional or with medical treatments. Due to risks and drawbacks of these procedures, the NIH Health Consensus Development Conference recommended that patients not be referred for bariatric surgery unless they have a BMI of 35 kg/m² or more with coexisting medical conditions. The American College of Physicians recommended a higher minimum BMI of 40 kg/m² or more. In 2007, approximately 4.8% of the population met this criterion (~300 million people, worldwide).

Although patient literature indicates that subjects can expect to lose up to 60% of their excess weight in the first 2 years after surgery, the average experience may not be as profound. In the first 2 years, Dixon 2008 reported a 20% mean total weight loss among surgery patients vs 1.4% weight loss in subjects on conservative therapy (P > 0.001). The SOS trial reported 23.4% weight loss (vs. weight gain of 1.6%) over the first 2 years following surgery. Because many studies report changes in BMI or in percent of excess weight, the comparisons across studies are more difficult. Due to the effectiveness of bariatric surgery when other methods have failed, the procedures draw a fair amount of interest among obese patients.

Bariatric surgery is fairly safe; Death rarely occurs with experienced surgeons at centers where bariatric surgery is commonly performed (less than 0.5% of patients). The likelihood of post-operative complications is also diminished with high rates of annual surgical experience. However, comprehensive planning for long term patient care is needed to maximize safety and efficacy. Hospitalization is required, and further interventions such as nutritional and psychological support are likely to be needed. This
manner of managing obesity irreversibly forces major lifestyle changes to be made by patients. Therefore, bariatric surgery requires substantial planning and commitment from doctors as well as patients.

B. Common Complications During and Immediately After Bariatric Surgery

As with any major surgery, bariatric surgeries have risks such as bleeding, infection and reactions to the anesthesia. The most common cause of death during these surgeries has been cardiovascular events, pulmonary embolism and myocardial infarction, and anastomotic leaks.\(^1\)\(^,\)\(^5\) Early complications of these operations occur in 7.6% to 29.4% of patients\(^5\) and can include bleeding, infection, leaks from the site where the intestines are sewn together, and blood clots in the legs that can progress to the lungs and heart.\(^7\) One common side effect is dumping syndrome, a condition in which stomach contents move too quickly through the small intestine causing nausea, vomiting, diarrhea, dizziness and sweating. This can effect from 5% to 70% of patients, depending on the procedure used.\(^1\)\(^,\)\(^5\) A significantly higher risk of infection has been found in open procedures than laparoscopic procedures, which is as expected.\(^5\) Reoperation may be required in the first month after surgery in 3.7 to 6.4% of subjects, due to incisional hernias, band slippage, and the occurrence of obstructions.\(^5\)\(^,\)\(^6\)

C. Outcomes at 1 Year and 2 Years After Bariatric Surgery

Observational studies of patients who underwent surgery for obesity generally show positive results for most patients from 30 days (the time it generally takes to fully recover) to 2 years after the surgery. The successful weight loss generally leads to much better quality of life, higher self esteem, and fewer health problems. Only 10 percent of subjects do not lose enough weight, or have the weight return in that period.\(^7\) Up to 40% of subjects may have to undergo follow-up surgeries, which run the gamut from incisional hernias to joint replacement or abdominoplasty.\(^6\) Along with the rapid weight loss, subjects may run in to some nutritional problems that need to be addressed or else they may develop diseases such as anemia, osteoporosis, and beri beri.\(^7\) Another added risk of cholecystitis was associated with the rapid weight loss, and this risk included patients who had no history of cholecystitis. The hazard ratio was higher for men to experience cholecystitis than women.\(^5\)
In one of the most rigorous and long-term studies, the Swedish Obese Subjects (SOS) study, the number of deaths in the first year following surgery was not significantly reduced. Furthermore, while the rate of deaths due to disease were significantly decreased, the mortality due to non-disease factors increased. The non-disease categories included drugs, poisoning, suicide and other causes, as well as the disease category of stroke, and no one category accounted for the increased mortality. This lag in improved health was partially attributed to pre-existing comorbidities, such as undiagnosed cardiovascular disease and undiagnosed cancer. For example, the rate of stroke was not significantly reduced following surgery/weight loss. Researchers explained this by suggesting that the vascular damage resulting from chronic obesity (and poor diet) may not be as easily reversed as other physiological problems. Another factor contributing to the observed increase in death rate could be that too rapid weight loss is not good for overall health. Rapid weight loss is known to have several side effects including, body aches, fatigue, feeling cold, dry skin, hair thinning and hair loss, and mood changes (such as irritability and depression).

In some cases, such as the younger patients (16 to 18-yrs old) and elder patients (over 60-yrs old), the occurrence of specific complications following bariatric surgery may indicate additional risks for those subjects. For teenage subjects, many physicians have concerns that the surgery requires too great a lifestyle change and their quality of life suffers. It may be that teenagers are more sensitive to changes in body image and personal relationships, and may require extra emotional support to help them. Furthermore, the surgery is more likely to lead to nutritional deficiencies during a critical stage of development. For these reasons, experts recommend rigorous consultation before the surgery and life-long follow up after the surgery for younger patients. For subjects over age 60, some reports have found indications that accelerated aging occurs following the surgery. This observation has led some to hypothesize that the weight loss acts as a metabolic signal of senescence that triggers premature ageing. A systematic review of weight loss in the elderly concluded that maintaining weight is beneficial for older persons (over age 65), but that weight loss intervention in the cases of osteoarthritis, type 2 diabetes, and coronary heart disease has clinically important benefits. These additional risks make the surgical solution less attractive for some
subjects, and surgery is recommended only when the patients’ health is immediately at risk.1

D. Long Term Outcomes of Bariatric Surgery

When long-term outcomes (7 to 10 yrs) have been examined, the analysis of outcomes has become more challenging, because of inconsistent information collection across studies. The best information has been Sjostrom and colleagues report on 10 yr follow up in Swedish obese subjects (SOS) and Steffen with 7-years of follow up.8,12 These studies have shown improvements in morbidity and mortality and especially in the risk factors for cardiovascular and metabolic diseases. In addition to the weight loss resulting from gastric bypass surgery, significant improvements were demonstrated in waist circumference, the prevalence of hypertension and metabolic syndrome, onset of type 2 diabetes, and serum profiles of triglycerides and lipoproteins. After the weight loss, the SOS population also had a long-term decrease in cancer rates.8 One meta-analysis found that subjects who underwent bariatric surgery had a 33% reduction in death rate compared to pair-matched subjects who did not.13

E. Summary

Although bariatric surgery is a highly effective means of producing weight loss, risks associated with the procedures as well as the life-long, life-encompassing commitment required of patients and physicians make the option less attractive. The weight loss following the surgery has been shown to have additional health benefits that reduce the risk of mortality. Because the life-changing benefits of weight loss must outweigh the risks, extensive consultation is advised before referring patients for this type of surgery. Some studies have found additional risks for specific subsets of patients, as well as some unexplainable and unanticipated health risks in the first year following surgery.

References


