

# Refined Roux-en-Y May Help Super Obese Patients

*The extended Roux limb allows for longer transit and better absorption of water, minerals, and vitamins.*

BY JEFF EVANS  
Senior Writer

LOUISVILLE, KY. — Extension of the Roux limb in Roux-en-Y gastric bypass procedures for “super obese” patients may provide good long-term weight loss and resolution of comorbidities with an acceptable rate of complications, Mr. Wayne K. Nelson reported at the annual meeting of the Central Surgical Association.

Surgeons at the Mayo Clinic, Rochester, Minn., developed and refined the very, very long-limb Roux-en-Y gastric bypass (RYGBP) to meet the needs of their large referral practice in bariatric surgery, which accepts patients who are more overweight and have worse comorbidities than are typically seen.

The more commonly performed RYGBP operations for super obese patients—the distal gastric bypass and the biliopancreatic diversion with or without duodenal switch—both leave a relatively short Roux limb, a relatively long biliopancreatic limb, and a short (100-cm) common channel where food and digestive enzymes mix.

The proximal anatomy of the very, very long-limb RYGBP is similar to that of the distal RYGBP, but the Roux limb is much longer (typically 400-500 cm).

The extra length leaves a longer transit and greater ability to absorb water, minerals, and vitamins, said Mr. Nelson, who

is a student at the Mayo Medical School in Rochester.

The common channel is the same 100-cm length, whereas the length of the biliopancreatic limb is typically shorter—around 50-70 cm—than in other RYGBP procedures.

“Remember, this isn’t a typical Roux-en-Y gastric bypass,” he said.

Of 1,435 bariatric procedures performed at the Mayo Clinic during 1985-2003, 257 were performed with the very, very long-limb RYGBP. These 257 consecutive patients were 45 years old on average, and had an average body mass index (kg/m<sup>2</sup>) of 60, with BMIs ranging from 41 to 100. A total of 40% of patients were male.

More than 90% of the operations were open.

When the investigators began their study, they sent a detailed survey to patients to gather data in addition to what had been captured at normal follow-up visits; 73% of the patients responded to the survey.

After an average of 45 months of follow-up, the patients’ BMI had dropped to a mean value of 37, and 82% had lost more than 50% of their excess body weight, an amount commonly considered as a marker of success in bariatric surgery.

The patients who did not lose greater than 50% of their excess body weight still lost a great deal of weight, Mr. Nelson

said, but many of them needed to lose hundreds of pounds to reach their ideal body weight. On average, patients lost 66% of their excess body weight.

Medical comorbidities resolved without the need for further treatment in a large number of the patients after the operation, including type 2 diabetes in 95% of patients, hypertension in 65%, sleep apnea in 48%, and asthma in 30%.

In the survey, 90% of patients reported that they were satisfied with the results of the operation, and 93% said that they would recommend the procedure.

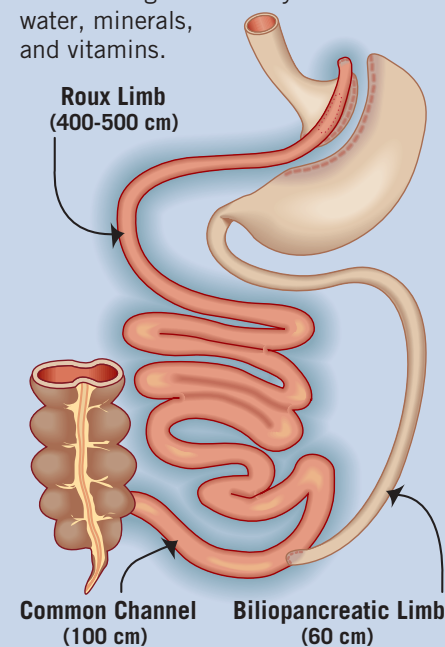
Procedural complications included two deaths, four staple-line leaks (one of which required reoperation), two intraabdominal abscesses, five wound dehiscences, 22 wound infections, and two pulmonary emboli.

About 82% of the patients reported some food intolerance, and 70% had occasional loose or watery stools. The more serious complication of malnutrition resulting from protein or caloric deficiency developed in 4%; this was resolved with a proximal relocation of the jejunostomy to lengthen the common channel to 200-300 cm. Other problems included oxalate nephrolithiasis in 16% of the patients, and gross steatorrhea in 5%.

“Because of the potential metabolic se-

## Snapshot of a Very, Very Long-Limb RYGBP

The procedure leaves a Roux limb that is about three times longer than that of the standard RYGBP. The result is a longer transit and greater ability to absorb water, minerals, and vitamins.



EMILY BRANNAN, ILLUSTRATION

quelae, [the very, very long-limb RYGBP] should not be offered” to patients who are medically naive, noncompliant, or unreliable regarding follow-up, or who have extremely abnormal preoperative amounts of urinary oxalate, Mr. Nelson said. ■

# Laparoscopic Procedure Appears Safe for ‘Super-Super Obese’

BY JEFF EVANS  
Senior Writer

LOUISVILLE, KY. — “Super-super obese” patients obtain nearly the same benefits from laparoscopic Roux-en-Y gastric bypass as do less obese patients without incurring unwarranted risks, Dr. Jon C. Gould reported at the annual meeting of the Central Surgical Association.

Surgeons have taken several different approaches in treating super-super obesity (a body mass index greater than 60 kg/m<sup>2</sup>), which is increasing at a faster rate than other levels of obesity. Some surgeons prefer an open approach, while others advocate two-stage procedures beginning with a sleeve gastrectomy, followed by a biliopancreatic diversion with duodenal switch or gastric bypass.

Still others consider super-super obese patients to be nonoperable, said Dr. Gould of the bariatric program at the University of Wisconsin, Madison.

Laparoscopic bariatric surgery, which is considered to be more technically challenging as the degree of obesity increases, may pose a higher risk of death and postoperative morbidity—especially in super-super obese patients. These patients have thicker abdominal walls, greater amounts of intraabdominal and visceral fat, and larger livers that can contribute to

longer operative times in which the margin of safety declines, Dr. Gould said.

To study the results of laparoscopic surgery in these patients, he and his colleagues reviewed prospectively collected data on procedures performed on 28 patients with a BMI (kg/m<sup>2</sup>) greater than 60 (mean BMI of 62) and 260 patients with a BMI less than 60 (mean BMI of 48) during 2002-2005. None of the super-super obese patients had a BMI greater than 70.

The super-super obese patients in the study were required to lose a specific amount of weight on a high-protein, low-calorie diet before undergoing the operation. The required amount of weight loss, determined at the discretion of the surgeon, was “somewhat subjectively” based on where a patient carried his or her weight, but the amount typically was 30-40 pounds, he said.

The surgical technique involved a circular stapled gastrojejunostomy with an antecolic, antegastric placement of a 150-cm Roux limb. A 50-cm biliopancreatic limb was used.

Few early complications developed in patients in either group. The group of less obese patients incurred one death, two staple-line leaks, four bleeding episodes, and six wound infections. One staple-line leak and one wound infection occurred among the 28 super-super obese patients.

Stenosis developed among significantly more of the super-super obese patients (29%) than among those with a lower BMI (9%). This difference persisted even after the investigators had switched from using a 21-mm stapler in the first 142 patients to a 25-mm stapler in the following 142 patients. Dr. Gould was unsure whether stenosis resulted from surgeons routinely oversewing the gastrojejunostomy in the super-super obese patients, from increased tension on the anastomosis, or from intraabdominal pressure.

But all of the patients with stenosis responded well to endoscopic dilatation without any long-term comorbidity, he said.

Patients with lower BMI lost a significantly higher percentage of their excess weight at 1 and 2 years (69% and 75%, respectively) than did higher-BMI patients (57% and 61%). But the super-super obese patients lost significantly more weight overall (about 150 vs. 120 pounds). Most of the super-super obese patients (92%) failed to achieve a BMI less than 35, compared with 17% of the less obese patients.

Resolution of preoperative medical conditions post surgery was similar among super-super obese and less obese patients: type 2 diabetes (100% vs. 80%, respectively), gastroesophageal reflux disease (80% vs. 96%), and hyperlipidemia (80%

vs. 91%). But hypertension resolved in significantly more of the less obese than in the super-super obese patients (89% vs. 63%). The super-super obese patients also reported a quality of life similar to that reported by the less obese patients after the operation.

“It’s not clear to me why [super-super obese] patients respond somewhat differently to some of these procedures than our less obese patients do,” Dr. Gould said.

“I think we do need to take a step back to assess and think about how we’re going to define success in these patients,” he added. “To what lengths should we go to achieve a specific postoperative BMI, what morbidity should we accept to achieve that BMI, or should our end point—our definition of success—be more related to quality of life and health?”

In the last 18 months of the study, all patients went on the preoperative high-protein, low-calorie diet for 2 weeks regardless of their BMI; this diet was extended by an additional 2-4 weeks for the super-super obese patients, Dr. Gould said.

Preoperative acute weight loss could help reduce the size of the liver and create excessive stretch in abdominal skin that could increase the laparoscopic operating space with insufflation, he suggested. ■