Is It Time to Bypass the Bypass? Should Pyloric Preservation Become an Important Principle in Bariatric Surgery?

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The vertical sleeve gastrectomy has recently become an increasingly popular surgical option for the treatment of obesity. However, many bariatric surgeons have questioned its long-term efficacy and have promoted Roux-en-Y gastric bypass (RYGB) as a gold standard.

With an extensive experience with RYGB and a practice with thousands of post-RYGB patients, we commonly encounter patients with weight regain. It is our group's impression that weight regain following RYGB is more common than discussed. Supporting this speculation are the results of two recent trials that compared RYGB to either banded bypass or duodenal switch[1,2]. Both demonstrated weight regain of approximately 15 percent in the bypass-only group between the first and third postoperative years. In a randomized trial comparing banded bypass to standard bypass, Dr. Bessler concluded that banding the bypass preserves weight loss after the first year[1]. In his study, the banded group maintained a 70-percent excess weight loss, whereas at the three year mark, the bypass only was under 60-percent excess weight loss. These results were statistically significant. Similarly, three years postoperative, duodenal switch patients continued to lose weight, whereas the bypass group in a trial conducted at University of Chicago regained 17 percent of their total excess weight loss[2].

Our participation in several endoscopic trials, including the RESTORe Trial (Randomized Evaluation of Endoscopic Suturing Transorally for Anastomotic Outlet Reduction) and the ROSE trial (Revision obesity Surgery, Endoscopic), provided additional insight. The goals of these trials was to retighten the stoma or stoma ana pouch with endoscopic suturing devices. During these trials, patients reported similar experiences. They still were eating a smaller quantity of food during each meal. However, they

felt hungry shortly after eating. As a result, we studied glucose tolerance testing (GTT) on 36 post-RYGB patients. The mean age of the patients was a 49 year old; average BMI at the time of surgery was 48. They were a mean of 40 months post-bypass, and average weight regain was 17 pounds. We found that six patients were diabetic based on GTT, and 26 of 30 had reactive hypoglycemia, two hours post-glucose administration. Reactive hypoglycemia was defined as glucose less than 60 or a greater than 100mg/dL drop in one hour. Perhaps, more importantly, 16 of 26 had severe hypoglycemia where the ratio of maximum to minimum glucose was greater than 3 to 1.

We speculate that there is a rapid gastric emptying, and that when a glycemic load is presented to the small bowel, there is an abrupt rise and fall in glucose level. The combination of empty pouch and low sugar causes hunger. We feel that this cycle is contributory in the weight regain and maladaptive eating pattern that develops. Few patients in our study had pathologic insulin levels, suggesting neosidioblastosis is not the primary etiology.

Since the comparative trials between vertical banded gastroplasty and RYGB that were performed in the late 1980s and early 1990s, many have suggested that gastric bypass is the procedure of choice for sweet eaters[3]. As 60 percent of calories consumed in the United States are simple carbohydrates, this group in all probability includes the majority of bariatric patients. The primary explanation given for the improved early results with bypass was that carbohydrate ingestion would cause gastrointestinal symptoms of dumping. This would act as negative reinforcement. However, what happens in patients who do not experience gastrointestinal symptoms associated with dumping. With time, do they become increasingly tolerant, and does bypass no longer challenge the desire to eat simple carbohydrates?

Our data suggest that reactive hypoglycemia is far more common than previously reported. Additionally, our histories seem to indicate that this response combined with rapid emptying, is somewhat responsible for weight regain following bypass. In other words, the dumping created by performing the bypass may not be helpful, as many have speculated.

Many readers will state how successful bypass procedures have been in their practices. It is important to highlight that this is one of many variables. Certain patients may scar and maintain a restrictive opening. There is variation on the amount and type of food eaten. Activity levels will be different. However, it is clear that the banded bypass patients have less weight regain. Thus, we feel that future versions of these procedures will incorporate a valve that regulates emptying. The valve can be synthetic, like a silastic ring, marlex mesh, or laparoscopic band; but this can lead to different issues. It is our contention that the best valve is the biologic valve that is already present – the pylorus. As opposed to mechanical products, the pylorus, the narrowest part of the gastrointestinal tract, can relax, open and control the outflow of solid food. We believe that this is far more preferential than a synthetic band.

Thus we believe that pyloric preservation will become an important principle in bariatric

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surgery. Success with sleeve gastrectomy has shown that severe malabsorption does not need to be part of the duodenal switch. An increasingly popular option in our practice is a laparoscopic duodenal switch with a sleeve done over a 38 bougie with a 125 to 150cm common channel. With this approach, we have not had to lengthen any common channel for protein malnutrition, and patients report 1 to 3 bowel movements daily. None have complained of spillage or poor control. We believe that sleeve and this type of duodenal switch or pyloric preserving bypass will become common. We also speculate that this approach will improve long-term outcomes by increasing initial weight loss and preventing recidivism after the first postoperative year.

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