Vertical Banded Gastroplasty and Distal Gastric Bypass as Primary Procedures: A Comparison

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Background: Comparing primary vertical banded gastroplasty (VBG) and distal gastric bypass (DGBP) patients might assist decision-making based on patient profiles and desired outcomes.

Methods: A prospective study of 81 vertical banded gastroplasty and 60 distal gastric bypass patients. Technical aspects, complications, weight loss, post-op compliance and satisfaction are reported. Length of follow-up is 48 months (VBG) and 36 (DGBP). Lost-to-follow-up 41% (VBG) and 22% (DGBP). Ten per cent VBGs were revised, with 1% takedown. Three per cent DGBPs were converted to proximal GBPs. Demographics are comparable.

Results: Operative time was 40 min VBG and 88 DGBP; blood loss 187 cc vs 335 cc; and hospital stay 3 versus 4 days. Exclusive VBG complications include: 1% staple-line leak, 4% intra-abdominal abscess, 1% respiratory failure, 5% pneumonia, 1% intra-abdominal bleed, 1% small bowel obstruction, 2% infected incision, 2% fistula, 2% stenotic or obstructed stoma, and 1% bezoar. Exclusive DGBP complications include: 2% GI bleed, 12% marginal ulcer, 5% reflux esophagitis, 13% hypocalcemia, 23% hypovitaminosis A and D (12% requiring B12 therapy). Shared complications include hypoproteinemia 6% VBG versus 40% DGBP; excess vomiting (>6 months post-op) 7% versus 10%, excess diarrhea 2% versus 20%, dehydration 1% versus 8%, re-hospitalization 4% versus 15% (hyperalimentation), post-op cholecystectomy 1% versus 5%, weight regain 48% versus 1%. VBG experienced an average of 64% excess weight lost at 36 months versus DGBP 89% excess weight lost. VBG follow-up compliance is generally poor but good for DGBP. Compliance with diet and supplements is equivalent (50%). Satisfaction is 85% and 93% respectively.

Conclusion: The DGBP provides better long-term weight loss, but nutritional deficiencies occur more often and require close follow-up. The surgery is more complex, but as a primary procedure there are few major complications.

Key words: Vertical banded gastroplasty, distal gastric bypass, nutritional considerations, complications, morbid obesity.

Introduction

Bariatric surgical procedures involving a combination of gastric restriction and malabsorption have been available to the bariatric surgeon for many years. The biliopancreatic diversion of Scopinaro" is one that has been widely used, and there are variations on the theme of creating a closed gastric pouch with a gastroenterostomy and Roux-loop. The biliopancreatic secretions may be brought into the small intestine anywhere from near the ligament of Treitz down to 50 cm from the ileocecal valve.

The purpose of this paper is to compare a form of distal gastric bypass with the vertical banded gastroplasty. The vertical banded gastroplasty (VBG) is the current standard against which other bariatric procedures are being compared.

A procedure popularized by Dr Jose Torres has demonstrated an excellent weight loss and low complication rate after 14 years of follow-up on many patients. We compared an operation similar to his (the distal gastric bypass) with the VBG for weight loss, complication rates and patient compliance and satisfaction. In addition, the complexity of the two operations is evaluated, comparing operative time, blood loss, and length of hospitalization.

Materials and Methods

Study Design

This is a prospective study using a convenience sample composed of two target groups: 81
patients who met the criteria for a VBG and 60 patients who, like the VBG patients, have had no previous bariatric surgery and upon whom a distal gastric bypass (DGBP) was performed. The VBG patients are used as a reference group.

The DGBP patients have been followed for 36 months and the VBGs for 48. The percentage of lost-to-follow up for the DGBP patients is 22% and the VBG patients 41%. The patients were interviewed carefully prior to surgery regarding dietary patterns. Those who were inclined to eat significant amounts of high calorie liquids as well as those who were frequent snackers ('grazers') were informed that the likelihood of success would be greater if a DGBP were performed upon them; however, the choice was made by the patient.

The statistics used for analysis were measures of central tendency, SD and variation.

**Surgical Procedure**

In the VBG, a marlex mesh band (1.0 × 6.5 cm) is tightened to a 5-cm circumference around a 37 French (11 mm) bougie. A 4-row, 55-mm linear stapler is used for the partition and a 28-mm circular stapler is used for the gastric window. The staple-line is oversewn with an 0 Prolene suture (Figure 1A).

In the DGBP, a lesser curvature blind pouch of approximately 40 cc is created using a 4-row 90-mm stapler. The small intestine is measured proximally from the ileocecal valve a distance of 250 cm, and a retrocolic gastroenterostomy is performed between the proximal end of the 250 cm segment and the blind gastric pouch. A 21-mm circular stapler is utilized for the anastomosis. The biliopancreatic segment of small intestine is anastomosed to the distal ileum 100 cm from the ileocecal valve using a stapled anastomosis (Figure 1B).

![Diagram](A) Vertical banded gastroplasty. (B) Distal gastric bypass.

**Figure 1.** (A) Vertical banded gastroplasty. (B) Distal gastric bypass.

Results

The demographics of the two groups are remarkably similar in terms of average age (41 years for the DGBP versus 38 years for the VBG), average preoperative weight (126 kg DGBP vs 125 kg VBG) and BMI (44.8 DGBP vs 44.7 VBG). The average per cent excess overweight was 102% DGBP vs 114% VBG. The mix of male to female was similar as was the racial mix. Pouch size in the DGBP's averaged 39.75 cc with a maximum of 70 cc and a minimum of 10 cc, while the average pouch size of the VBG was 10.1 cc, and a maximum of 14 cc, and a minimum of 9 cc.

Comparing the complexity of the two procedures, the operative time averaged 88 min for the DGBP and 40 min for the VBG (a little less than 1 h longer for the DGBP). The average blood loss for the DGBP was 335 cc and for the VBG 187 cc (148 cc difference). The average length of hospital stay for the DGBP patients was 3.8 days as compared to 3.2 days for the VBG patients.

The mean weight loss, as measured at 3-month intervals, was remarkably different (Figure 2). The DGBP patients had a mean weight loss at 36 months of 57 kg (n = 16), the VBG patients had lost 38 kg (n = 50). The most meaningful number is the per cent of excess weight lost. At 36 months, the DGBP patients had lost 89% of their excess with a SD of 14.3%, the VBG patients had lost 64%