Totally Robotic Biliopancreatic Diversion and Duodenal Switch: an Evaluation of Outcomes

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INTRODUCTION

The rate of obesity has increased yearly over the past two decades in the United States. The risks associated with obesity are wide-reaching, from the impact upon each individual patient's morbidity, to the healthcare and economic costs associated with the disease. The treatment of obesity includes diet and exercise therapy, pharmaceutical therapy, and bariatric surgical procedures. Bariatric procedures provide durable, long-term results with the added bonus of providing improvement of many obesity-related co-morbidities. Biliopancreatic diversion with duodenal switch (BPDDS) results in 70-80% excess weight loss, compared to a roux-en-y bypass, which results in 60-70% loss. The purpose of this study is to assess clinical outcomes for patients undergoing RBPDDS performed by a single surgeon at a tertiary care center in the Midwest.

METHODS

A retrospective review of 49 patients was completed. All patients underwent RBPDDS performed by a single surgeon at the University-affiliated tertiary care center from December 2012 to August 2016. Patient outcomes were evaluated including ICU stay, operative revisions, and improvement in patient co-morbidities. Follow up (FU) was assessed to 2 years post-surgery. All procedures were performed by a single surgeon.

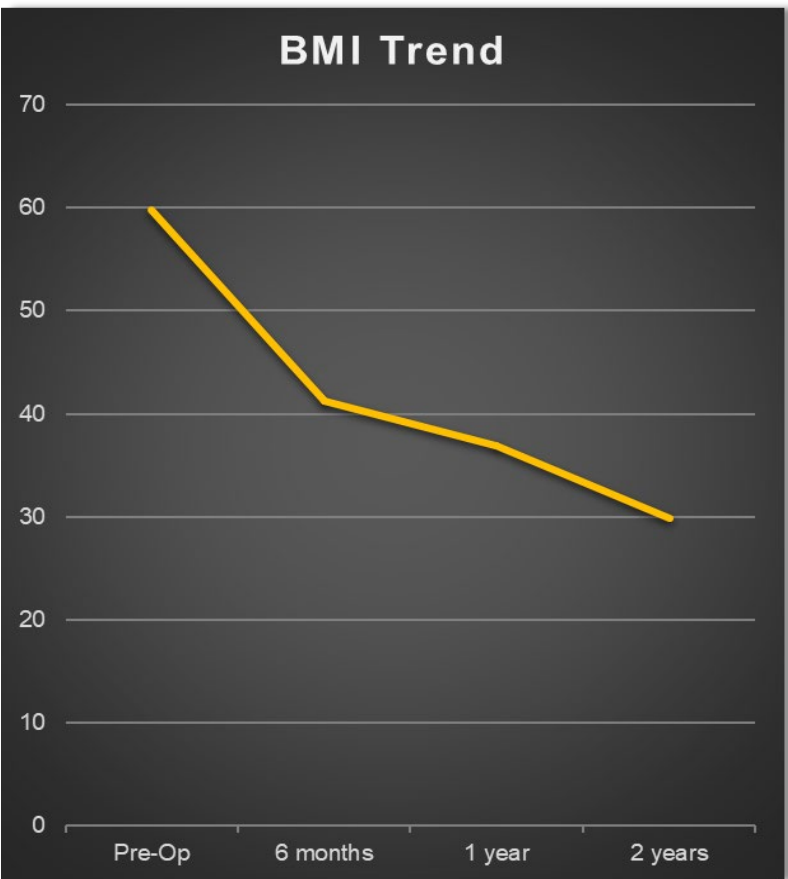| Patient Characteristics	Average (minimum, maximum)
Age (years)	42 (26, 62)
BMI (kg/m2)	59.72 (40.80, 81.40)
Operative Time (minutes)	203 (166, 284)
Estimated blood loss (mL)	40.94 (10, 200)
Length of Stay (days)	3.08 (2, 18)

Figure 1.

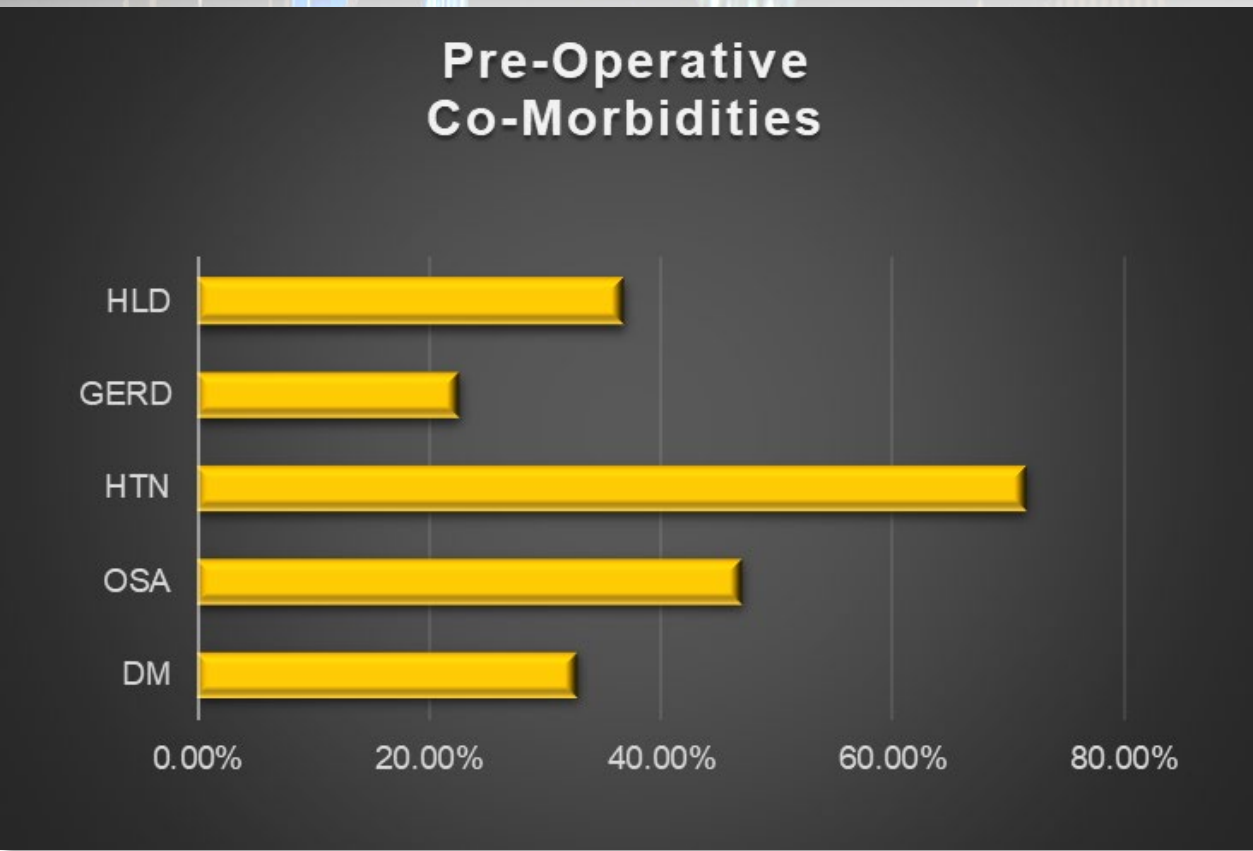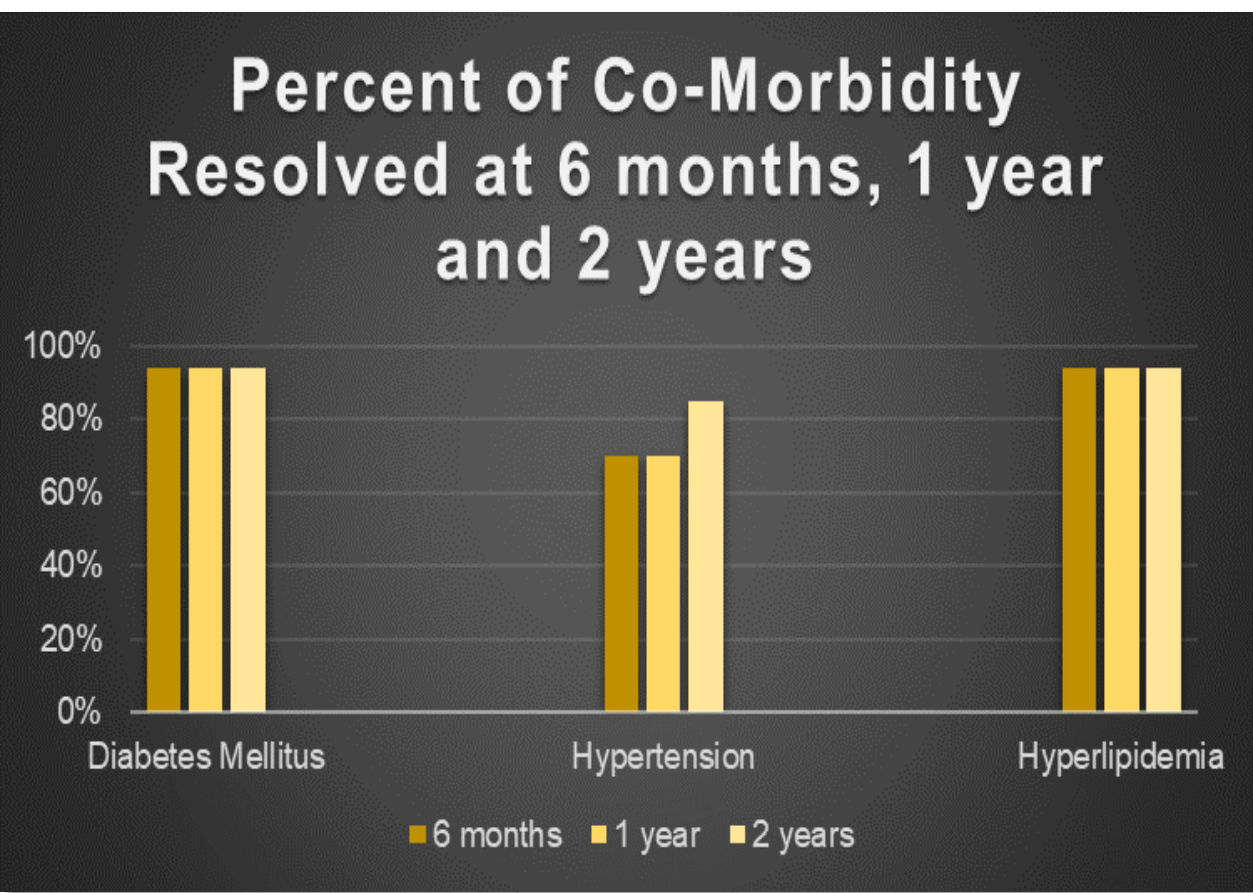**Figure 2.**

Figure 3.

Figure 4.

Figure 1. Patient characteristics, BMI, operative time, EBL, LOS including range and average.

Figure 2. Pre-operative co-morbidities, including hyperlipidemia, GERD, hypertension, obstructive sleep apnea, diabetes mellitus, represented as percentage of patients with identified co-morbidities.

Figure 3. BMI trend from the pre-operative period through 2 year follow up.

Figure 4. Percent of co-morbidities resolved in patients with diabetes, hypertension, and hyperlipidemia at 6 months, 1 year, and 2 year follow ups.

RESULTS

49 patients were evaluated in the study, ranging in age from 26 to 62 years, with an average age of 42 years. Their average BMI was 59.72 pre-operatively. Prior to operative intervention, the patients were evaluated based on the presence or non-presence of various co-morbidities, including hyperlipidemia (36.73%), gastroesophageal reflux disease (22.45%), hypertension (71.42%) obstructive sleep apnea (46.94%), and diabetes mellitus (32.65%). Only 4 of the 49 patients had none of the measured comorbidities. Of the study population, 46.9% of patients had prior abdominal surgery excluding obstetric and gynecologic surgeries.

The patients were evaluated for the presence and required treatments of the comorbidities at time intervals of 6 months, 1 year and 2 years. Figure 4 demonstrates the percent of resolved co-morbidities evaluated at several points of follow up, revealing resolution of hyperlipidemia, hypertension and diabetes mellitus of the majority of the affected patients.

The average BMI of the study population was 59.72 kg/m2. BMI was measured at subsequent follow up intervals of 6 months, 1 year and 2 years, which were found to be an average of 41.26 kg/m2, 36.89 kg/m2, and 29.90 kg/m2, respectively.

RESULTS CONTINUED

The BMI reduction of the study population between pre-operative BMI and at 2 year follow up was an average of 50%.

Post-operative complications occurred 34% of the time, and included various electrolyte derangements, dehydration, and symptomatic acute blood loss anemia.

CONCLUSIONS

Total RBPDDS is safe and effective procedure for patients wishing to decrease co-morbidities associated with a morbidly obese BMI, including durable decrease in diabetes, hypertension, and improved weight loss.

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