

Laparoscopic Biliopancreatic Diversion with Duodenal Switch in Patients with BMI > 60

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Background

The Biliopancreatic Diversion with Duodenal Switch has been recognized as having benefit in patients in higher BMI ranges. The performance of the completely laparoscopic BPD/DS in patients with BMI's in the 50's and 60's has been reported to be more difficult, with a significantly higher morbidity and mortality than in the lower BMI ranges. We present our experience with the completely laparoscopic BPD/DS with hand-sewn duodeno-ileal anastomosis in patients with BMI > 60, in order to demonstrate that the operation can be routinely used in this population without increased morbidity and mortality.

Methods

Data was obtained for 32 consecutively done patients undergoing the laparoscopic BPD/DS from 11/15/2000 through 7/13/2004 (for whom at least 6 month follow-up data would be available). There were 23 females and 9 males, with an average initial weight of 410.0 pounds, ranging from 336 to 510, and an average initial BMI of 64.3, ranging from 60 to 73.

The operations were all done with the same completely laparoscopic technique, using a hand-sewn, two-layer duodeno-ileal anastomosis, with a running 2-0 Vicryl for the inner layer and a running 2-0 Ethibond for the outer layer. The Common Channel was 75 or 80 cm in all but one case, in which the patient requested a longer Common Channel, and in that case the CC was 100cm. The Alimentary limbs ranged from 250 to 275cm. The stomach volume was 100 - 120 cc. Operative times decreased from 2000, with times in the 6 hour range, to 2005, with times routinely in the 210 - 240 minute range, including cholecystectomy, if not previously done, and liver biopsy.

Follow-up was obtained at office visits, and/or via phone interviews. Major co-morbid conditions including hypertension, diabetes, sleep apnea and hyperlipidemia were followed for improvement or resolution.



Inner layer of the anterior wall of the duodeno-ileal anastomosis



Outer layer of the anterior wall of the duodeno-ileal anastomosis

Results:

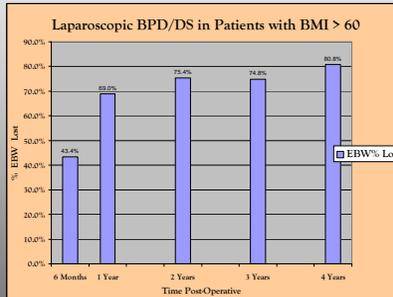
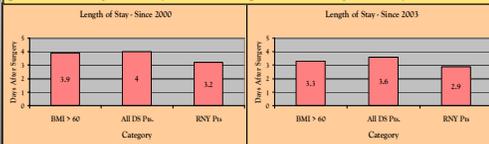
Follow-up was obtained in all patients. Two patients required ICU care post-op, one for 1 night, the other for 2.

Major Morbidity: 0 (0%)
Minor Morbidity: 5 (15.6%)
 2 Minor Hemorrhage
 2 Pulmonary Insufficiency
 1 Atelectasis
Mortality: 0 (0%)

The % Excess Body Weight (EBW) Lost was:

69.0% at 1 year (n = 27)
 75.4% at 2 years (n = 18)
 74.8% at 3 years (n = 15)
 80.8% at 4 years (n = 8)

The Length of Stay (LOS) for the 32 patients in the BMI > 60 group averaged 3.9 days (range 2 - 5). This compared favorably to the larger group of all Lap DS patients who averaged 4.0 days (N = 209), while the Lap RNY patients averaged 3.2 days (N = 499). Since 2003, the LOS has dropped steadily in both the DS and RNY groups. In 2005, DS patients average 3.2 days, and RNY patients average 2.5 days.



Resolution of Co-Morbidities was monitored and of those having each of the co-morbidities below, by their most current follow-up, the condition was either **Resolved**, **Improved**, or **Unchanged**:

Co-Morbidity	Present Pre-Op	Resolved	Improved	Unchanged
Diabetes Mellitus	13	11 (84.6%)	2 (11.1%)	0
Hypertension	19	16 (84.2%)	1 (5.3%)	2 (10.5%)
Sleep Apnea	21	14 (66.7%)	6 (28.6%)	1 (4.8%)
Hyperlipidemia	10	9 (90.0%)	0	1 (10.0%)
Depression	18	5 (27.8%)	9 (50.0%)	4 (22.2%)

Late Complications included one patient who required a laparoscopic lengthening of his common channel at 1.5 years post-op for non-compliance and protein malnutrition. A different patient required prolonged TPN but has since become able to sustain protein levels with diet alone. Another patient developed cholelithiasis that has been dealt with surgically. There was one case of Augmentin-related cholestatic jaundice.

Conclusions

The completely laparoscopic Biliopancreatic Diversion with Duodenal Switch is a safe, feasible and very effective operation for patients with BMI's in the 60's and above, and should be offered to these patients by those surgeons well-trained and comfortable with its performance.

A single-stage Laparoscopic BPD/DS can be performed in patients with BMI's > 60 with a very low morbidity and mortality.

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