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Diabetes & its Complications

Laparoscopic Butterfly Gastroplasty 2000 Cases and 10-years' Experience

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ABSTRACT

Background: *The restrictive bariatric procedures (vertical banded gastroplasty, Gastric band and sleeve gastrectomy) are effective procedures for the long term control of morbid obesity especially for the bulk eaters. The cardinal complications after these procedures are weight regain due to pouch dilatation, solid food intolerance, and reflux disease due to the tubular shape of the pouch.*

Methods: *From Jan 2007 through Jan 2017, laparoscopic Butterfly gastroplasty was attempted in 2000 patients. Median age was 32, with median preoperative BM I48. The Butterfly gastroplasty (micro funell shaped pouch) was constructed using Two 60 blue endo-cutter cartridges, the first one placed from angle of His downward and the second is applied just below the level of the first branch of the left gastric the outlet (1.2 cm) is between the ends of the previous Cartridges. The outlet of the pouch was banded with a prolene mesh.*

Results: *Average excess weight loss at one year was 70%, 81% at second year, 85% at third year. 90% at the fourth and fifth years then 10% start to gain weight (about 50% of the lost weight) at the sixth and seventh years. While 20% start to gain weight at the eighth & ninth year. While at the tenth years 25% of patients start to gain weight. The mean operating time was 45 min. The outlet calibration was accurate and easy. There was complete cure of diabetes type 2 in 92% of cases, and 96% of cases showed cure of hypertension. Problems of infertility solved in 88% of cases and there was marked decrease of Ghrelin level in all cases. There was no leak or mortality.*

Conclusion: *Butterfly gastroplasty, (micropouchfunell shaped pouch) using the gastric cardia only is an effective way to prevent pouch dilatation and therefore prevent the weight regain occurred in a high percentage of patients under went the original VBG of Mason. The pouch being micro. Funnel rather than tubular-shaped prevent solid food intolerance and reflux disease. The way of construction of the butterfly allow easy accurate outlet and less cost. 2000 cases with ten years follow up with such Results, is evidence that this technique is perfect in morbidly obese patients.*

Keywords

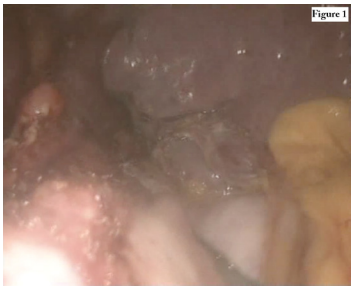
Laparoscopic Butterfly gastroplasty, Obesity, VBG.

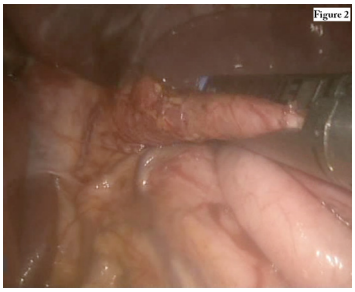
Introduction

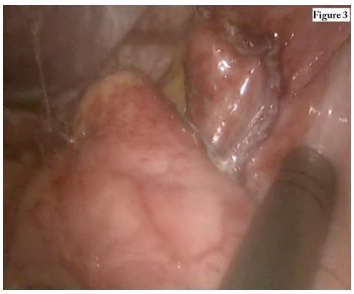
The restrictive bariatric procedures, (Vertical banded gastroplasty, Gastric band and Sleeve gastrectomy) are effective procedures for the long term control of morbid obesity especially for the bulk eaters. The cardinal complications after these procedures are pouch dilatation, staple line dehiscence and marginal ulceration. The long tubular pouch of the original VBG with elastic fundus and high percentage of parietal cells is blamed for these complications. Construction of a butterfly gastroplasty (micro funnel shaped pouch) limited to the cardia theoretically avoids these complications.

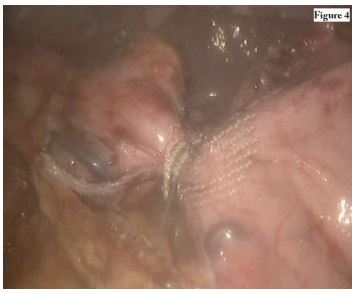
Materials and Methods

From Jan 2007 through Jan 2017, an attempt was carried out to perform laparoscopic butterfly gastroplasty in 2000 patients. The median age was 32 with a median BMI of 48 kg/m^2 the demographic data are shown in table 1. The position of patient and trocars are similar to any hiatal procedure. The anterior and posterior layers of the gastrosplenic ligament are divided from the level of splenic vessels up to the angel of His. The first articulating endo-cutter (blue60) is applied to perform the butterfly with accurate adjustment of the pouch outlet (1.2 cm). The outlet of the pouch is banded with a prolene mesh (5x1.5 cm). Gasrografin study is performed within the first postoperative day followed by oral intake and discharge (Figures 1-4).









Demographics	Data
Number	2000
Age	35 (20-50)
Sex (F/M)	1600/40
BMI (KG/M^2)	47 (40-60)
Weight (kg)	107-205

Table 1: Demographic Data.

Results

During this laparoscopic procedure one case had to be converted to open surgery due to misfiring of the end-ocutter cartridge (0.2%). The operation time ranged between 35 min .and 60 min .Outlet stenosis and solid food intolerance occurred in 200 cases (10%), endoscopic dilatation solve the problem. Reflux disease was diagnosed in 50 patients (2.5%). Average excess weight loss at one year was 70%, 81% at second year, 85% at third year. 90% at the fourth and fifth years then 10% starts to gain weight (about 50% of the lost weight) at the sixth and seventh yearswhile20% start to gain weight at the eighth & ninth year. While at the tenth years 25% of patients start to gain weight there was complete cure of diabetes type 2 in 92% of cases (it ranges between 88% and 94% in other studies), and 96% of cases showed cure of hypertension (nearly same results in other studies).

Problems of infertility solved in 88% of cases and there was marked decrease of Gherlin level in all cases. There was no leak, no mortality (Tables 2 and 3).

Demographics	Results
Mean Operating Time in Non complicated Cases	35 minutes
Mean Operating Time in complicated Cases	60 minutes
Mean Operating Time	40 minutes
Internal Hemorrhage	3 Cases
Conversion to Open Surgery	1 Case
Leak	None
Intolerance to solid Food	10%
Weight Look	See NEXT Table
Moratality	0%

Table 2: Results.

Mean% excess weight loss	Period
70%	1 year
81%	2 years
85%	3 years
88%	4 years
90%	5 years
10% start to gain weight (about 50% of lost weight)	6 years
15% start to gain weight (about 50% of the lost weight)	7 years
20% start to gain weight(about 50% of the lost weight)	8 years
25% re-gain 75% of lost weight	9 years
25% re-gain 100%of lost weight	10 years

Table 3: Results.

Discussion

Although VBG is considered as one of the best bariatric procedures, it is blamed of being responsible for that 65% of patients underwent this procedure regained weight after five years. And 100% regain weigh after ten years. While in our study only 10% starts to regain weigh after 5 years and 25% after ten years. The main criteria of failure were stated as pouch enlargement, staple-line dehiscence and or marginal ulceration. In this study an attempt was made to carry out a new technique of gastroplasty (butterfly gastroplasty) in 2000 patients utilizing micro pouch technique different from that of Mason. Construction of a micro pouch limited to the gastric cardio that avoid using (the elastic, peristaltic fundus with high concentration of parietal cells), markedly decrease the incidence of complication rates after the original VBG specially weight regain due to pouch dilatation .The micro pouch being funnel shaped rather than long tubular of the original VBG minimize to a great extent the incidence of solid food intolerance which is the cardinal problem after this procedure. (The incidence in this study is 10% while in original VBG is 30%. Butterfly gastroplasty allow easy and accurate pouch outlet adjustment which is a problematic step in other techniques of laparoscopic VBG .The use of only two end cutter cartridges in constructing the butterfly- shaped pouch made

it-to a great extent-less costs comparable to any other technique. In this study the mean operation time was 40 min. The mean operating time of other authors is 90 min there was complete cure of diabetes type 2 in 92% OF cases (it ranges between 88% and 94% in other studies), and 96% of cases showed cure of hypertension (nearly same results in other studies). Problems of infertility solved in 88% of cases and there was marked decrease of Ghrelin level in all cases. There was on leak, no mortality. We recommend the use of this micro, funnel- shaped banded pouch using the gastric cardia only (butterfly gastroplasty) as it is proposed to solve the intraoperative technical problems, markedly reduces the costs and prevent the cardinal complications of the original VBG mainly weight regain, reflux disease and or marginal ulceration [1-21].

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