

Laparoscopic Adjustable Gastric Band –Long term Results in 81 Patients

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Abstract

Objective: The object of this study is to evaluate the long term outcome in respect of weight loss and long term complications following LABG. **Setting:** Department of Surgery, Sheikh Zayed Military Hospital Abu Dhabi UAE. **Period:** From August 2005 to August 2007. **Patients and methods:** Eighty one (81) patients with morbid obesity underwent LABG at the Zayed Military Hospital, Abu Dhabi UAE and were followed up till date. Twenty one cases followed up for 2 years after surgery and forty four cases followed up till today. Forty eight patients were female and thirty three were male. Age ranged from 21 to 51 years with median of 29 years. BMI in patients ranged from 31 to 59. Preoperative weight ranged between 93 kg to 170 kg with average weight of 129 kg. **Results:**

The following long term complications were seen in 65 cases with at least 2 years follow up. Retrosternal burning, severe dysphagia, gastric band erosion into stomach, port displacement, port hernia, band migration over the body of the stomach. Weight loss was evaluated in 44 cases with more than five years follow up. Maximum weight loss achieved was 71 kg, with an average of 30 kg of weight loss. Weight loss peaked by the end of the first year and thereafter remained more or less static with average fluctuation of 6 kg. **Conclusion:** With correct case selection, LABG is an effective method in reducing weight with fewer long term complications in patients with morbid obesity and is a potentially reversible procedure. **Key Words:** Laparoscopic Adjustable Gastric Band (LAGB), Body Mass Index (BMI), Morbid Obesity.

INTRODUCTION

Obesity is a worldwide problem. According to the WHO criteria, normal Body Mass Index (BMI) is 20-25 kg/ m² BMI of 25 to 29.9 is classified as overweight, 30 to 34.9 as obesity and BMI over 35 with co morbid conditions like diabetes mellitus or hypertension or BMI over 40 is classified as morbid or extreme obesity. The prevalence of morbid obesity in USA is 5% (> 15 million people are obese and >6 million are morbidly obese). Obesity is responsible for 14% of all deaths in USA (Ruben). Prevalence of obesity in Australia is 17% (Brown). In India, 9% of people are obese. Among adults, overweight plus obesity rates are especially high in Kuwait, Qatar and Saudi Arabia, especially among 30-60 year olds (70-85% among men; 75-88% among women) (Ng). In UAE, 17% school children and adolescents, 31% women and 18% men are obese (Al-

Haddad). According to the statistics of WHO (World Health Organization), UAE has the 4th highest rate of obesity in the world at 34%. Qatar with 45% obesity has the highest incidence of obesity. Various dietary regimes, endoscopic intra-gastric balloons, and surgical procedures like Roux-en-Y gastric bypass (RYGB), vertical banded gastroplasty (VBG), sleeve gastrectomy, intestinal (jejuno-ileal) bypass are in practice to control obesity. Laparoscopic adjustable gastric band (LAGB) is one of the surgical procedures performed for morbid obesity. A team of dedicated physicians, dieticians, and motivated patients makes this procedure one of the safe options. The object of this study is to evaluate long term outcome in respect of weight loss and long term complications following LABG.

PATIENTS AND METHODS

Eighty one (81) patients with morbid obesity underwent LABG at the Zayed Military Hospital, Abu Dhabi UAE during August 2005 to August 2007 and were followed up till date. Forty eight patients were female and Thirty three were male. Age ranged from 21 to 51 years with median age 29 years. Twenty one cases followed up for 2 years after surgery and Forty four cases followed up till today. Thirty four cases selected were with BMI up to 31 to 45 and thirty cases were in the BMI range of 46-50. Twelve cases were in the BMI range of 51-55 and five cases had BMI above 56. Preoperative weight ranged between 93 kg to 170 kg with average weight of 129 kg.

INCLUSION CRITERIA

- Motivated Patients with morbid obesity
- Patients who failed to reduce weight with various dietary regimes and exercise programs.

EXCLUSION CRITERIA

- Frequent sweets eaters, fizzy drinks and milk shake drinkers.
- Patients with previous upper abdominal surgery

Each patient was given a booklet to know about the procedure and the expected post-operative course and follow up. Patients were encouraged to go for regular exercise and dietary restriction to show their motivation and show some weight loss before surgery. Pre-operative work up included detailed clinical history, physical examination, dietician assessment, psychiatric evaluation, chest X-ray, ECG, gastrograffin studies, upper GI endoscopy, ultrasound of abdomen, complete blood counts, coagulation profile, urea and electrolytes, Liver Function Tests, blood sugar, thyroid function tests, urine examination, pregnancy test if indicated, and anesthesia assessment. Many patients had various co-morbid conditions including hypertension in sixteen cases, diabetes mellitus in sixteen cases, osteo-arthritis in three cases, bronchial asthma in one case, gout in one case, gallstones in three cases (laparoscopic cholecystectomy was performed at same time in these patients when LABG was done), meniscus tear in one case and carpal tunnel syndrome in one case.

PROCEDURE

Patients were admitted one day ahead of surgery. Deep Venous Thrombosis prophylaxis was started with low molecular weight heparin and single dose prophylactic antibiotic cephazolin (2gmI/V at induction) was used. Under general anesthesia, the patients were placed in semi sitting position on the operating table, and were well strapped. Pneumatic compression stockings were applied. Pneumoperitoneum was established through Veress needle and 5 ports were placed. Dissection around gastro-esophageal area was carried out with blunt and sharp dissection and the gastric band was passed around and locked. The band was fixed in position by suturing cardia above the band to the body of the stomach below the band with non-absorbable stitches (gastro-gastric suture) to prevent its migration. The port was stitched to the aponeurosis with the non-absorbable suture. Naso-gastric tube was kept overnight and gastrograffin studies were carried out next morning to see any leak. Patients were started with liquids and over the next week semi-solid food was started. Four weeks later, patients were called and gastrograffin studies were carried out and band was adjusted with port injection. Thereafter follow up was carried out every 3 to 6 months.

RESULTS

Long term Complications

The following long term complications were seen in 65 cases with at least 2 years follow up. Retrosternal burning in sixteen cases, treated with partial deflation of the band and antacid agents. In one patient, the band had to be removed due to unbearable retrosternal burning. Severe dysphagia in three cases, this was caused by a bolus of food (meat), the bolus was removed endoscopically and the band deflated for short time and reinflated again. Gastric band erosion into stomach, two cases, these patients presented with abdominal pain and were diagnosed by endoscopy. In both cases band removal was attempted endoscopically, one was successful and the other had to be removed by open method. Port displacement in two cases, each port was refixed under local anesthesia. In one patient, LABG was changed to gastric bypass on patient's demand because of poor compliance. Port hernia occurred in one case and was repaired with mesh. In one patient, the band migrated over the body of the stomach. Patient presented with severe abdomen pain and persistent vomiting, gastrograffin studies and upper GIT endoscopy confirmed band migration and the band was removed as emergency.

WEIGHT LOSS

Weight loss was evaluated in 44 cases with more than five years follow up. Weight loss ranging from 0 kg to 71 kg was achieved with an average of 30kg of weight loss. Weight loss peaked by the end of the first year and thereafter remained static with average fluctuation of 6 kg. Weight loss was related to BMI as patients with higher BMI lost more weight than those with lower BMI .

Sr. #	BMI	Pre LABG wt	Post LABG wt	Weight lost kg	Age	%wt Loss
01	40	105	105	0	31	0%
02	42	121	117	4	31	3%
03	47	125	121	4	29	3%
04	51	128	121	7	30	5%
05	42	111	103	8	37	7%
06	44	102	95	7	42	7%
07	42	113	104	9	34	8%
08	53	134	122	12	39	8%
09	31	83	75	8	35	10%
10	40	121	107	14	42	11%
11	51	136	121	15	45	11%
12	46	136	120	16	32	12%
13	50	146	125	21	25	15%
14	47	121	102	19	47	16%
15	47	120	101	19	30	16%
16	53	150	125	25	49	16%
17	42	132	110	22	31	17%
18	43	115	84	21	34	18%
19	46	136	112	24	45	18%
20	54	118	83	25	43	21%
21	50	140	110	30	26	21%
22	46	139	109	30	32	22%
23	47	170	116	54	25	22%
24	45	134	104	30	50	22%
25	56	156	120	36	31	23%
26	49	145	110	35	28	24%
27	55	113	85	28	32	25%
28	38	127	95	32	45	25%
29	47	129	77	32	31	25%
30	59	137	102	35	39	25%
31	42	130	94	36	36	28%
32	50	138	99	39	23	28%
33	57	160	108	52	33	32%
34	46	135	91	44	21	33%
35	47	141	94	47	25	33%
36	53	143	95	49	22	34%
37	44	117	76	41	35	35%
38	42	112	70	42	29	37%
39	42	106	64	42	28	39%
40	48	118	69	49	31	42%

41	57	156	90	66	38	42%
42	45	126	72	54	29	43%
43	43	161	90	71	31	44%
44	50	123	79	64	1	52%

DISCUSSION

Surgery is being increasingly used for management of morbid obesity. Of the various bariatric surgical procedures, gastric band is technically the easiest and simplest to perform. The band is adjustable and is now usually performed laparoscopic ally (LAGB). Proper case selection is very important for bariatric surgery. Mental health (presence or absence of psychiatric conditions) predicts weight loss after bariatric surgery (Rutledge); preoperative psychiatric assessment is, therefore, essential. Complications are very common after bariatric surgery; they are seen in as high as 40% of patients (Boza). The incidence and type of complications varies with various bariatric surgical procedures. RYGB is associated with complications such as adhesions, internal hernias and anastomotic stricture, all causing intestinal obstruction. Dumping syndrome, diarrhea and nutritional deficiencies are also common. Marginal ulcer can occur at the site of the gastro-jejunosomy (Al Harakeh). VBG and sleeve gastrectomy are associated with the serious complication of staple line leak. Incidence of leak is low (2.4% Aurora) but complications following leak are associated with high morbidity and mortality. Intestinal bypass procedures also give rise to severe nutritional deficiencies in the long term (Hamdan). Common complications of LAGB are band slippage causing reflux and migration; gastro-gastric suture has been proposed to prevent band slippage and migration but a prospective randomized study of 80 patients did not show any difference whether gastro-gastric sutures were used or not (Avsar). In a study of 442 patients, LAGB was associated with less (5%) early morbidity as compared to RYGB (17%)(Romy).Band erosion is rare and is seen in 3% of cases. Complication rate in a series of 262 LAGB was 10% including 3% band removal (Gouillat).Spivak compared long term (10 year) results of LAGB (n=148) with Lap RYGB (n=175); LAGB had more (53%) complications than RYGB (41%) but LAGB had no serious life threatening complications as compared with 9% in RYGB. Romy also reported more long term complications in LAGB vs. RYGB (27% vs. 13%). Various bariatric surgical procedures differ in their

long term outcome in terms of weight loss also. LAGB results in less weight loss of 50-60% of excess weight as compared to VBG (60-70% of excess weight) (Schroeder). Weight loss after LAGB is slow but prolonged as compared to rapid initial weight loss after VBG (Schouten). Failure (BMI > 35 or reversal of weight loss) rates of LAGB are high and are in the range of 40-50% (Romy, Boza, Spivak). Control of metabolic disorders is an associated advantage of bariatric surgery. LAGB also results in better control of hypertension and diabetes (Ahn). Need for band removal is not uncommon. By 10 years, 23% of bands had been removed (Spivak). In another study, 40/199 (20%) of patients with LAGB required reoperation including reposition or removal of band, reposition of port/ reservoir and revisional bariatric surgery. Gallstones may form because of rapid weight loss after bariatric surgery, especially after RYGB but prophylactic cholecystectomy is not indicated as it happens in only 4% (Boza) to 7% of cases (D'Hondt). Most patients with morbid obesity are women and majority are young in the reproductive years of life. There is no difference in obstetric complications or neonatal outcome after bariatric surgery except a higher cesarean section rate (Facchiano)

CONCLUSION:

With correct case selection, education and motivation on part of the patients, LAGB can be effective in reducing weight and with fewer long term complications in patients with morbid obesity. It is a potentially reversible procedure when compared to sleeve gastrectomy or gastric bypass which are irreversible.

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