

Gastric Sleeve is a single restrictive procedure?

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The authors present in their 221 gastric sleeve patients the criteria in which they consider gastric sleeve is both a metabolic and restrictive procedure. The improvement of the associated diseases, visceral fat, BMI and EWL, the levels of grelin, obstatin, grelin/obstatin ratio, PP-YY, the gastric emptying before and after surgery, are evaluated in this series two years after surgery to demonstrate both metabolic and restrictive features of this procedure.

## GASTRIC SLEEVE AS TREATMENT FOR MORBID OBESITY: ANALYSIS OF 3 YEARS

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The authors analyze the results of their series of GASTRIC SLEEVES as treatment of patients with morbid obesity. The study includes 221 patients evaluated at outpatient follow-up during two years of post-op, according to the following protocol: Clinical Assessment, % of weight loss, decreased BMI and % EWL; -Evolution of co-morbidities; Determination of ghrelin pre-and post-operative, as well as the relationship ghrelin / obestatin; Changes in gastric emptying, compared to pre-operative, 3, 6, 12 and 24 months. The Authors also examine morbidity and mortality in the series.

## Laparoscopic Adjustable Gastric Banding: 7-year results in Taiwan

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**Objectives:** Laparoscopic adjustable gastric banding (LAGB) is a pure restrictive bariatric surgery. We had reported our short-term results of LAGB in Taiwan. In this study, we report the long-term results of LAGB in Taiwan. **Materials and Methods:** From January 2002 to June 2010, 246 consecutive patients with morbid obesity underwent LAGB in our department. Mean age was 32.1 years and mean BMI 39.8 Kg/m<sup>2</sup>. The demographic data and post-operative results were recorded. **Results:** All procedures were performed laparoscopically with no conversion to open surgery. The major and minor complication-rate was 0% and 3% respectively. Mean BMI from 39.8 Kg/m<sup>2</sup> to 35.4, 36.3, 34, 33, 31, 30.7 and 32.6 at 1, 2, 3, 4, 5, 6 and 7 years respectively, with 80% follow-up. Revision rate was 13% (33/246). The most common cause of revision bariatric surgery was failed to lose adequate weight (20/32, 62.5%), poor quality of life (5/32, 15.6%), and band slippage (3/32, 9.3%). **Conclusion:** LAGB is safe and effective in weight reduction and improvement of quality of life. However, a late surgical re-intervention rate of 13% was observed with conversion to another bariatric procedure was 8%.

The experience of laparoscopic mini-gastric bypass surgery in single institute of southern Taiwan.

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**Introduction:** Gastric bypass surgery is an effective treatment for morbidly obese patients. In Taiwan, the incidence of morbid obesity increases. More obese patients would have bariatric surgery. We presented the clinical results of laparoscopic mini-gastric bypass surgery in our hospital. **Method and Material:** From 14, Jan, 2009 to 17, Nov, 2010, there were thirty patients underwent bariatric surgery in National Cheng Kung University Hospital. Twenty-three patients (12 women, 11 men) underwent mini-gastric bypass surgery. Mean Body mass index (BMI) was 39.8 (30.7-55.7). All the procedures were completed laparoscopically. No conversion procedure occurred. We retrospectively analyze the patients' clinical data and outcomes. **Results:** All patients had weight loss after surgery. Two patients had post-operative complications. One female patient had pituitary tumor hemorrhage 4 days after surgery. Later she had craniotomy, and recovered. She had the hospital stay 25 days. Two months later, she totally recovered. Another female patient had post-operative upper gastrointestinal hemorrhage immediately after surgery. She had the conservative treatment. The bleeding stopped one day later. One female was dead 25 days after surgery because of acute respiratory distress syndrome. The mean hospital stay was 6.4 days. All the patients had regular follow-up visit in our hospital. **Conclusion:** The laparoscopic mini-gastric bypass surgery could have an ideal body weight reduction, and it is a feasible surgery for morbidly obese patients in southern Taiwan.

## The introduction of laparoscopic sleeve gastrectomy: initial three clinical experiences

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**Introduction:** Recently, Sleeve gastrectomy (SG) has been proposed as potential single restrictive bariatric procedure. In fact, clinical outcome in terms of weight loss and resolution of comorbidities encouraged and stimulated the diffusion of SG as a primary bariatric procedure. Based on the above, laparoscopic sleeve gastrectomy (LSG) was introduced for primary procedure for morbid obesity in our institution. The objective of this study was to evaluate the feasibility and safety of LSG at the time of introduction for initial three cases. **Objectives:** LSG was introduced in our institution in March 2010 and performed in 3 patients (1 male, 2 females). Case 1: 26 year-old male, BMI 48.1 kg/m<sup>2</sup>, his comorbidities with obesity were insulin dependent diabetes mellitus (DM), hyperlipemia, fatty liver, insomnia, and sleep apnea syndrome, Case 2: 24 year-old woman, BMI 44.1 kg/m<sup>2</sup>, with slight mental retardation, and her comorbidities were right cardiac failure and pulmonary hypertension, Case 3: 43 year-old woman, BMI 44.3 kg/m<sup>2</sup>, with psychiatric disorder, and her comorbidities were the same as case 1. **Results:** LSG was completed in 3 patients without conversion to laparotomy. Each operating time (minutes) was 150, 250, 176 and estimated blood loss (ml) was 20, 540, 30, respectively. No major postoperative complications directly related to LSG were noted. All patients showed uneventful postoperative recovery, with their oral intake resumed in 2 days and median hospital stay of 15 days. They showed expected effect on body weight loss, and remarkable improvement of DM in case 1 and 3 resulted in no need for insulin injection. **Conclusion:** LSG was safely introduced as primary procedure for morbid obesity in our institution.

## Sleeve Gastrectomy in combination with Duodeno-Jejunal Bypass. Three year Period Results.

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**Background:** A new surgical procedure - Sleeve gastrectomy with Roux-en-Y Duodeno-Jejunal bypass (SG-DJBP) is being performed in the world since 2007. They generally brought to successful results but some certain indications to the operation might be developed.

**Material and methods:** We present results of four SG-DJBP procedures performed since July 2007 to September 2010. The mean age of patients was  $38,1 \pm 7,3$  (29-48) years, mean BMI- $47,4 \pm 7,8$  kg/m<sup>2</sup> (38,9-59,8), initial weight- $130,6 \pm 22,6$  kg (111-159). A Roux-en-Y procedure was performed with a biliopancreatic loop 60 cm and alimentary loop-100 or 150 cm depending on initial BMI (less or more 50 kg/m<sup>2</sup> respectively) four operations within a period of follow up control for 3 years and  $\pm 6$  months. Two operation were performed with alimentary loop-180 with the follow up control up to 1 year. A bandage was placed on the gastric tube intersurgically to two patients.

**Results:** All the patients tolerated the procedure well. During 6 months the percentage of %EWL was  $45,7 \pm 5,1\%$ . Up to 1 year all the patients could lose more than  $53,2\%$  EWL (47,0 - 64,4%). Up to 3 years 4 patients could lose more than  $60,7\%$  EWL (52,6 - 68,6%). The patient with a bandage had the best result - 68,6%. All the patients have a tendency to further weight gaining up to 3-8kg.

**Conclusion:** The positive influence on the carbohydrate and lipid metabolism is noticed, all the patients have a slight weight gaining, but there is a less weight gaining with a bandage. It is connected with the stomach extension and lesser malabsorption in contrast to BPD, a bandage gives additional restriction. SG-DJBP is an effective and safe surgery with the slightest metabolic disturbances. It might be offered to patients with BMI > 50 kg/m<sup>2</sup>. However, it is necessary to control a follow up period and compare it with those of SG and BPD.

## A case of migration of gastric band

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Bariatric operations produce weight loss as a result of two factors. One is restriction of oral intake. The other is malabsorption of ingested food. All bands work on the principle of restriction of oral intake by limiting the volume of the proximal part of the stomach. Their major advantage is adjustability. Their most common complications include acute obstruction of the stoma, infection, prolapse of the band, attached to the trocar ports and erosion / migration of the band, which is a rare complication (3%). The AA present a case of migration of gastric band, four years after his placement in a patient with morbid obesity, which starts with dyspepsia, nausea and fever and whose imaging and endoscopic study revealed migration of the band with gastric fistula.

Endoluminal Surgery (StomaphyX device). An alternative to the revision surgery?

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The Authors analyze the results of Endoluminal Gastroplasty "StomaphyX" obese patients already receiving prior to bariatric surgery. The 15 patients in whom technique was used, 4 had previously undergone gastric Sleeve, 10 gastric bypass and 1 placement of a gastric band. All patients remained liquid diet / paste for 3 months postoperatively and were evaluated by Esophagogastroduodenoscopy at 6 months, confirming the maintenance of fasteners. We evaluated the weight loss at 1, 3 and 6 months of surgery as well as the improvement the feeling of satiety reported by all patients pre-application of the technique. The Authors conclude the benefits of endoluminal gastroplasty and advantages of this technique which can be used repeatedly in the same patient.

A successful case of safety weight loss using formula diet in alcoholic cardiomyopathy with obesity

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Introduction: We often experiences weight loss improve cardiac function in obesity with heart failure (HF). Recent study shows obesity may lead to left ventricular hypertrophy and systolic dysfunction. On the other hand, alcoholic cardiomyopathy is a common cause of DCM-like change. Alcohol effect on cardiac function can usually be reversible by abstinence from alcohol. Since alcohol addict often are complicated with metabolic syndrome, they should be treated comprehensively. Therefore, it is important to reduce weight of these patients. So, modern formula diet has been recommended as dietotherapy. However there are few reports on the use of formula diet for them. Previous report showed healthy obese patients died suddenly during use of the liquid-protein-modified-fast diet 30years ago. The cardiac accident appears to depend on diet duration and on whether protein and mineral nutritional status are maintained. Pronounced weight loss causing lack of these nutrients has been thought to produce a decrease in myocardial fiber size. However, the moderate caloric restriction could be performed enough safely by the modern formula diet including protein, vitamins, a mineral. We report a case of weight loss using formula diet after acute heart failure (AHF) treatment. Case report: 36-year-old obese male was hospitalized with dyspnea. On admission, his weight was 103.3kg, BMI 32.6kg/m<sup>2</sup>. Blood pressure was extremely high. Examinations revealed severe cardiac dysfunction, enlarged heart and pulmonary congestion. He had a ten-year history of alcohol abuse. As above, AHF due to alcoholic cardiomyopathy with obesity and hypertension was diagnosed according to the absence of coronary disease. After AHF therapy, weight loss using formula diet and cardiac rehabilitation were started. After these therapies, weight was reduced to 82kg. The cardiac function was improved without any cardiac accident during the hospital days. Conclusion: Weight loss using the formula diet for obese patient with HF was safe and useful.

## Gastric Sleeve and Metabolic Syndrome

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The Metabolic Syndrome (MS) is a complex disease, associated with an increased cardiovascular risk, due to central fat distribution and insulin resistance. Today there are several treatments for MS, including bariatric surgery, that improve that cardiovascular risk. The authors present a group of 48 patients with MS, submitted to gastric sleeve procedure, and evaluate their BMI, body weight and MS at 6, 9 and 12 months after surgery. The MS improved with weight loss in all the patients, sometimes with full remission. The authors conclude that gastric sleeve surgery is a good option for the treatment of MS in obese patients.

Our experience in treatment of metabolic syndrome

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Methods. A total of 439 patients underwent various bariatric procedures for 9 years were investigated. In 391 cases laparoscopic operations were done. LAGB was performed in 307 patients. Median age was 37. There were 253 (82,4%) women and 54 (17,6%) men. Average preoperative BMI was 42 kg/m<sup>2</sup> (35 to 54). Beginning from 2007 we had performed 45 patients underwent LSG, 11 - LDS, 28 - LRYGB. Median age for the patients was 36 years, of them 63 (75%) were females and 21 (25%) males. BMI was in limits of 41-90 kg/m<sup>2</sup>. In the cohort of patients who underwent LAGB 68 (22,4%) suffered from metabolic syndrome (MS), LSG - 12 (26,6%), LDS - 100%, LRYGB - 16 (57,1%) respectively. Results. At North-West Russia obesity was found in 41,4%. After LAGB during first two years of follow up sugar level in blood became normal in 156 (52,3%) patients. Blood pressure became normal in 103 (34,5%). BMI was in limits of 26 - 38 kg/m<sup>2</sup> with the same tendency in the following years. We managed best weight reduction mainly in women younger then 39 y. o., with BMI lower then 45 kg/m<sup>2</sup>. In 46 (15,4%) patients there were complications, among them 38 (12,7%) cases of bandage slippage. 17% of the patients were reoperated. Symptom-complex, that different MS was lost after LDS in 100 % and in 75% after LRYGB. No complications were identified after LSG, LDS and LRYGB. Conclusion. LAGB is an effective method of treatment for the patients with BMI lower then 45 kg/m<sup>2</sup> in younger age cohort. LSG can be an alternative for LAGB. LDS and LRYGB are most effective operations in treatment of MS.

Irregular CPAP use induced visceral fat accumulation in obstructive sleep apnea regardless of daily sleepiness

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**Background:** Obstructive sleep apnea syndrome (OSAS) is a common disorder in obese subjects. Occasionally OSAS causes excessive daily sleepiness (EDS) and resulted in adipose tissue accumulation. The other hand, there were many people who do not have daily sleepiness despite of sever OSAS. But the effect of continuous positive airway pressure (CPAP) treatment on visceral fat accumulation (VFA) in OSAS without sleepiness has not been known.

**Material and Methods:** VFA and subcutaneous fat accumulation (SFA) were assessed by CT before and 1 year after CPAP treatment in 47 OSAS patients (mean apnea and hypopnea index/Epworth sleepiness scale; 40.7 times/h/5.4±4.5). The sample was divided according to CPAP therapy, with regular users defined as a minimum nightly use of (≥4 h /day ≥75%/month); 27 subjects were regular and 20 were irregular CPAP users.

**Results:** Neither the regular CPAP use group nor irregular CPAP use group showed any change in body mass index or subcutaneous fat area levels. VFA increased significantly after 1 year of CPAP treatment in irregular user (171.3±68.5 to 161.2±72.4 cm<sup>2</sup> (-3.4±5.1%) vs 170.0±75.3 to 192.5±66.7 cm<sup>2</sup> (+13.4±14.6%), P<0.0061)

**Conclusions** These data suggested that irregular CPAP use induce visceral fat accumulation in patients with severe OSAS regardless of EDS. OSAS may have significant effects on the visceral fat accumulation without EDS.

## Individualized intervention with Metabolic Stem Cell system after bariatric surgery

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(Background) In addition to reducing body weight, ameliorating fat dysfunction by improving hypoadiponectinemia is crucial in protection against the development of metabolic syndrome. We recently started a Weight Management Clinic in order to perform integrated and individualized intervention for obese patients. Here we report 3 cases whose metabolic stem (MSC) cell as adipocyte precursors were obtained during bariatric surgery that can be used as a novel screening system for selecting patient-suitable drugs or supplements to enhance adiponectin secretion. (Method) MSC were prepared from fat tissues collected from 3 patients during bariatric surgery. Case1: 24yo male BMI 52 adiponectin 3.5ug/ml Case2: 24yo female BMI 46 adiponectin 5.3ug/ml Case3: 40yo female BMI 40 adiponectin 1.7ug/ml MSCs were differentiated in cultures into mature adipocytes and treated with drug or supplementation medium every 48 hours. Levels of adiponectin were measured in the culture medium. Dividing the adiponectin secretion on day 12 by that on day 10 provided an estimate of adiponectin-producing activity in culture. (Result) Using this score, we assessed 80 candidate agents in a 96-well plate. Moreover, we identified some novel adiponectin up-regulatory effects for several substances, including Turmeric and Ryukyu herb. Even after weight reduction achieved by surgery, additional enhancement of adiponectin was observed in all cases with suitable supplementation. (Case1: adiponectin 7.4 ug/ml, Case2: adiponectin 10.1 ug/ml, Case3: adiponectin 2.1ug/ml) (Conclusion) MSC system is able to identify potential responders to specific agents. This can be applied to post-operative individualized intervention for morbid obese patients.

## Diabetic complications stratified by past maximum body mass index

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**Background:** In Japan, prevalence of obesity (especially high degree obesity values  $35 < \text{BMI}$ ) is relatively low. Therefore, relationship between degree of obesity and development of diabetic complications has not been fully understood. **Objective:** To investigate the impact of past maximum BMI on the subsequent development of diabetic complications. **Methods:** One hundred inpatients with type 2 diabetes were divided into 3 groups according to each patient's past maximum BMI; Group A:  $25 < \text{BMI} < 30$ , Group B:  $30 < \text{BMI} < 35$  and Group C:  $35 < \text{BMI}$ . There were no significant differences in mean age, duration of diabetes and HbA1C among all groups. And we compared the prevalence of diabetic complications as well as other obesity-related complications among groups retrospectively. **Results:** Mean past maximum BMI of each group (Group A, B and C) were 28.4, 32.1 and 37.3 respectively. In group C, the difference between past maximum BMI and mean current BMI (30.2) was greater than in other groups. A rate of Insulin use was significantly higher in Group C than in Group A (Odd ratio: 6.3). With increase in past maximum BMI, the prevalence of diabetic retinopathy, nephropathy and neuropathy became higher (Odd ratio; retinopathy: 3.4, 7.6, nephropathy: 3.9, 12.3 and neuropathy: 6.9, 14.8). The prevalence of diabetic macro angiopathy (includes coronary artery disease, cerebral infarction and peripheral artery disease) also tended to be higher in Group C than in other groups (Odd ratio: 2.1, 2.7). Arterial stiffness (evaluated by cardio-ankle vascular index) was significantly higher in Group C than in Group A (7.7vs9.8). The prevalence of the other obesity-related complications (sleep apnea syndrome, osteoarthritis, liver dysfunction) showed similar results. **Conclusion:** Degree of obesity may associate with future development of obesity-related complications, especially with diabetic complications.

Background: The impact of a degree of obesity on the development of diabetic and other obesity-related complications is not fully understood. Objective: To investigate the impact of a maximum BMI in the past history on the development of diabetic and other obesity-related complications. Methods: One hundred inpatients with type 2 diabetes were divided into 3 groups according to each patients maximum BMI in the past history (max BMI); Group A:  $25 < \text{BMI} < 30$ , Group B:  $30 < \text{BMI} < 35$  and Group C:  $35 < \text{BMI}$ . And we compared the prevalence of diabetic complications as well as other obesity-related complications among groups. Results: Mean max BMI (Group A, B and C) were 28.4, 32.1 and 37.3 respectively. In all groups, mean present BMI (25.8, 27.4 and 30.2) were significantly lower than those of max BMI. There were no significant differences in mean age, duration of diabetes and HbA<sub>1c</sub> among all groups. A rate of Insulin use was significantly higher in Group C than Group A (Odd ratio: 6.3). The prevalence of diabetic retinopathy, nephropathy and neuropathy became higher accompanied with increased max BMI (Odd ratio; retinopathy: 3.4, 7.6, nephropathy: 3.9, 12.3 and neuropathy: 6.9, 14.8). The prevalence of diabetic macro angiopathy (includes coronary artery disease, cerebral infarction and peripheral artery disease) tended to be higher in Group C than the other groups (Odd ratio: 2.1, 2.7). Arterial stiffness (evaluated by cardio-ankle vascular index) was significantly higher in Group C than Group A (7.7 vs 9.8). The prevalence of the other obesity-related complications (sleep apnea syndrome, osteoarthritis, liver dysfunction) showed similar results. Conclusion: A degree of obesity in the past history might be associated with the development of obesity-related complications, especially with diabetic complications.

## Psychosocial Assessments of Japanese Severe Obese Patients before Intra-gastric Balloon Placement Therapy.

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Bariatric surgery was not so popular in Japan as in other countries. Instead, intra-gastric balloon placement therapy has been performed in our hospital since 2007. The results of bariatric surgery and intra-gastric balloon placement therapy could be influenced by patient's psychosocial factors, and vice versa. Therefore it is important to assess psychosocial factors before procedures. The purpose of the present preliminary study is to explore characteristics of psychosocial factors of Japanese obese candidates for intra-gastric balloon placement therapy. Eligible patients for this study were adult obese ones classified to class II or higher (body mass index [BMI] was over 35kg/m<sup>2</sup>) who applied to receive intra-gastric balloon placement therapy. Thirteen male (44.8±8.7 years) and 14 female patients (51.4±9.6 years) were candidates for the therapy and received an initial psychosocial assessment between 2007 and 2010. Mean BMI was 42.6kg/m<sup>2</sup> in the male patients and 43.2kg/m<sup>2</sup> in the females. Five patients had psychiatric comorbidity. The psychosocial assessment included an interview about weight history, lifestyle, and psychiatric history, and questionnaires about mood states, coping skills, self-esteem, and social support. We evaluated correlations between initial BMI and the psychosocial factors. There was a significant negative correlation between initial BMI and problem-focused coping ( $r = -0.485$ ,  $p = 0.012$ ). In the subscales of the problem-focused coping, planful problem solving ( $r = -0.393$ ,  $p = 0.047$ ) and confrontive coping ( $r = -0.473$ ,  $p = 0.015$ ) had negative correlations with BMI. In conclusion, heavier patients might have poorer ability to solve their own problems including their weight and diet. Because this study was cross-sectional, it is necessary to assess prospectively the influence of preoperative psychosocial factors on outcomes of intra-gastric balloon placement therapy and vice versa.

## First experience of laparoscopic sleeve gastrectomy for morbid obesity in our OR

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*Introduction:* Laparoscopic approach to bariatric surgeries has been penetrating into our country and first case of laparoscopic restrictive surgery for morbid obesity has been performed until 2010 in our hospital. Perioperative nursing experience of the case will be reported. *Patient and Methods:* A 39-year-old, 132 kg man (height 170cm, BMI 45.7) was planned to undergo laparoscopic sleeve gastrectomy for weight reduction under general anesthesia. His medical background included hypertension, sleep apnea and gall stone. Setting in operating theatre was designed on the basis of that for laparoscopic gastrectomy for gastric cancer in our OR. The patient was positioned supine with thighs abducted and 30 degrees reverse Trendelenburg. Lithotomy positioning device (Levigator™), which was routinely used for the operating position of laparoscopic gastrectomy, were revealed to be too small for the patient, thus, leg section of electric operating table was switched between right and left part to obtain wide area for abducted thighs. Intermittent pneumatic compression devices were also equipped during surgery. *Results:* Operative procedures were completed within 3 hours with little blood loss. However, the patient noted numbness and mild foot drop of right leg right after surgery. Examination by a neurologist on the second postoperative day revealed right peroneal palsy. Slow, but complete recovery occurred over three month. *Discussions:* Photographical review of the OR setting could not reveal any mechanical compression of the site. However, repeated checkup of the whole body of patient during operation was suggested to be important to this type of surgery.

The effects of regular advice-messages via to internet with cell phone on diet using formula diet supplements.

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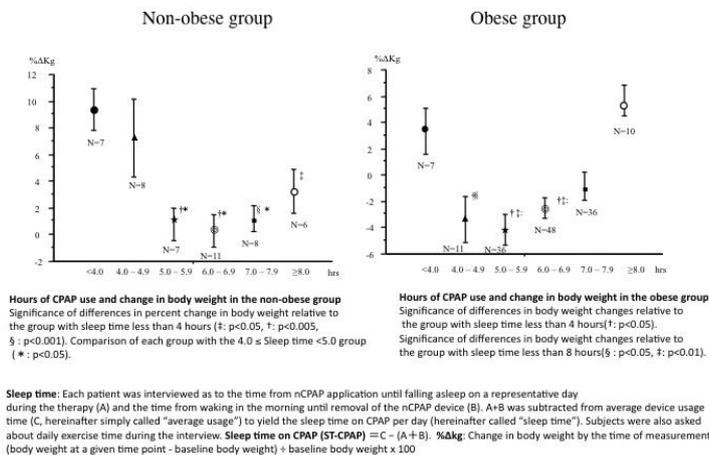
Since WHO has proposed the criteria of metabolic syndrome in 1998, obesity is focused as a risk factor of life-style related diseases. In the result, many formula diet supplements which aimed weight loss have been market in the world. Although the formula diet supplements have nutritional availability, some users fail to loss their weight due to their lack of knowledge, or gain weight due to the rebound phenomenon. Therefore it is thought that the formula diet supplements are not effective to weight loss, despite their price. However we propose that the users might be able to be loss their weight by giving advice-messages regularly. In this study, we evaluated whether the regular advice-messages via to internet with cell phone were effective to the subjects who intake formula diet supplements. A total 20 subjects with BMI more than 23 were recruited. They were divided into two groups by an advice group or no advice group. Each group received formula diet supplements for 12weeks, and was provided consecutive 12 weeks as follow up. The advice group was provided an advice-messages everyday during trial, while the no advice group was provided nothing during same period. We evaluated weight and BMI as parameter in this study.Each group lost their weight compared to their initial value. No significant difference was indicated between both groups in their weight and BMI. This study was finished the period that each group intake the formula diet supplements. Follow up for 12 weeks is performed at present. We hypothesize that the deference is indicated between both group in their weight and BMI during follow up period. We will report the effect of advice-messages during follow up period in the congress.

Hours of nightly nasal continuous positive airway pressure use is associated with weight change in patients with obstructive sleep apnea-hypopnea syndrome

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Nasal continuous positive airway pressure (nCPAP) is known to alleviate sleep-related disturbances and may reduce the risk of hypertension and cardiovascular disease. Using an electronic database of number of hours of nightly CPAP use, we estimated the habitual sleep time of patients during nCPAP and examined its relationship to association with changes in body weight. In obese patients with obstructive sleep apnea-hypopnea syndrome (OSAHS), percent weight gain over 9 years displayed a U-shaped relationship with the minimal weight gain in patients with 5 to 6 hours of habitual sleep. In contrast, weight gain was the largest in patients with sleep time of less than 4 hours per night or more than 8 hours per night. These results suggest that changes in body weight in patients with OSAHS are associated more with habitual sleep time.

Fig. 1: Hours of CPAP use and change in body weight



Title: Successful application of a new stapler with reinforcement installed to sleeve gastrectomy in bariatric surgery

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In patients undergoing sleeve gastrectomy, the gastric wall is often thick and readily breakable due to adipose tissue accumulating in the submucosa and the muscularis. When sleeve gastrectomy is performed on such patients, conventional staplers often break or fail to suture the thick and fragile gastric wall, sometimes resulting in serious post-operative complications such as bleeding and/or anastomotic leakage.

As a countermeasure for this problem, we have used a newly available type of stapler, which sandwiches a strip of reinforcement between the staples and the tissue. By stapling the gastric wall from the reinforcement layered atop, the stapler prevents breaking of the tissue and ineffective stapling. The layer of the reinforcement and the gastric wall seems to have a proper physical strength for stapling. Since the introduction of the device, we have experienced no post-operative complications stemming from suture errors. This new stapler can be useful in sleeve gastrectomy.

## Enhanced glucagon-like peptide (GLP-1) secretion leads to rapid improvement of glucose tolerance and insulin secretion after laparoscopic sleeve gastrectomy (LSG)

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**【Objective】** Bariatric surgery, especially Roux-en-Y gastric bypass (RYGP), has been shown to resolve T2DM. Although the mechanism by which RYGP improves T2DM have yet to be fully determined, the most possible mechanism of this is assumed to be increment of GLP-1 secretion. LSG has been designed as the first of a two-stage procedure for the high-risk, super-obese patient. Recently LSG has been studied as a single-stage procedure because of excellent weight loss and low incidence of complications. However, little is known about the impact of LSG on glucose homeostasis. We performed LSG in two diabetic patients and both showed rapid and profound improvement of glucose tolerance after LSG.

**【Methods】** We performed glucose tolerance test (GTT) before and twenty days after surgery and analyzed area under the curve of plasma glucose, insulin and GLP-1 ;  $AUC_{\text{glucose}}$  (mg/dl·hr),  $AUC_{\text{insulin}}$  (µU/ml·hr),  $AUC_{\text{GLP-1}}$  (pmol/l·hr), and fasting ghrelin levels.

**【Results】** The first case had received metoformin 750mg/day for three years. HbA1c was 6.3%. Twenty days after surgery, BMI decreased from 38.0 to 36.4 (-4.1kg). Although  $AUC_{\text{glucose}}$  slightly decreased (510 to 457), both  $AUC_{\text{insulin}}$  and  $AUC_{\text{GLP-1}}$  dramatically increased (122 to 216 and 6.4 to 68.5, respectively). Three months after surgery, HbA1c was 5.5% without medication. Second case also showed great improvement of glucose tolerance with enhancement of insulin and GLP-1 secretion. Ghrelin levels were significantly decreased in both cases. Enhanced GLP-1 secretion is specific to bariatric surgery, because weight reduction by diet therapy did not enhance GLP-1 secretion.

**【Conclusion】** These results suggest that LSG can lead to rapid improvement of glucose tolerance and insulin secretion along with GLP-1 secretion. Reduction in ghrelin levels may also contribute to improvement of glucose tolerance. Thus, LSG will be ideal procedure for obesity with T2DM.

## Duodenal switch for failed gastric banding

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### Background

Biliopancreatic duodenal switch (BPD/DS) has 2 components: a restrictive one the sleeve gastrectomy (SG) and a malabsorptive one the duodenal switch (DS). Each of the two components can be performed separately.

### Method

Between May 2003 and July 2008, 38 patients with an uncomplicated and well tolerated adjustable gastric banding (AGB) sustained an additional DS for an inadequate initial excess BMI loss (IEBMIL) (BMI >30) or for persisting curable co-morbid condition. Most of the bands were kept deflated.

### Results

So far, 16 patients remained with the band associated to the DS while 22 patients had a later band removal for convenience, intolerance or IEWL (6 patients had a conversion to SG and 16 patients are free of any restriction). All glycemic and high cholesterol problems were resolved.

| BMI before AGB     | BMI before DS | Type of restriction | Differential evolution of BMI |          | % IEBMIL  |           |
|--------------------|---------------|---------------------|-------------------------------|----------|-----------|-----------|
|                    |               |                     | At 1 Y                        | At 2 Y   | At 1 Y    | At 2 Y    |
| 46.9 (35.4 - 61.7) | 40.9 ± 6.9    | AGB                 | 32.3±5                        | 30.6±4.5 | 67.5±22.8 | 65.9±18.9 |
|                    |               | SG                  | 29.9±7.6                      | 28.6±3.8 | 77.2±16.2 | 81.9±11.9 |
|                    |               | Without restriction | 33.7±5.5                      | 32.9±6.0 | 61.8±24.8 | 64.9±29.5 |

### Conclusion:

Additional DS is feasible. With or without any restriction, it contributes to patients weight loss and to resolve curable co-morbid condition. Although AGB + DS, isolated DS or debanding and SG and are options for failure AGB further studies are needed.