

Preoperative Treatment with Very Low Calorie Diet

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Obesity is the most significant risk factor for the development of non-alcoholic fatty liver disease (NAFLD), a term that encompasses a spectrum of liver pathology ranging from fatty liver alone

(hepatic steatosis) to concomitant hepatic inflammation (non-alcoholic steatohepatitis or NASH).

NAFLD is estimated to occur in 30 to 100% of obese adults and is associated with hepatic enlargement (hepatomegaly), elevated serum aminotransferase levels and insulin resistance.

In morbidly obese patients, any abdominal surgery is difficult because of reduced intraabdominal space due to an enlarged liver and an increased amount of intraabdominal fat. The enlarged left liver lobe obscures the gastro-esophageal junction and makes the dissection at the gastroesophageal junction and proximal stomach difficult. Furthermore, traction to a fatty liver may cause trauma with increased risk for bleeding. Technical difficulties due to an enlarged liver are one of the most common reasons for abandonment of the laparoscopic procedure and often leads to conversion to an open procedure. The successful laparoscopic bariatric procedure is associated with less postoperative pain, reduced risk of incisional hernia, better postoperative pain, reduced risk of incisional hernia, better postoperative pulmonary function, as well as shorter postoperative care when compared to open bariatric procedures.

There are different preoperative dietary regimens recommended to reduce liver size. Most studies support that a preoperative very low calorie diet induces moderate weight loss resulting in a significant reduction of intrahepatic fat content and liver volume. This moderate weight loss and reduction in liver volume facilitates the laparoscopic bariatric procedure by improving the exposure of the gastroesophageal and proximal stomach region.

Optimizing Nutrition After Bariatric Surgery

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Bariatric surgery is an extremely effective weight loss tool which can result in significant and sustained weight loss. Implementing a structured post-surgical dietary protocol and managing the nutritional deficiencies that can result from such surgery, are essential to any bariatric surgical practice.

There are 4 critical stages after bariatric surgery where dietary manipulation and intervention are essential for weight loss success.

1. Post-surgical healing phase (liquid diet) - enables healing to occur from the surgery and minimizes patient discomfort whilst lessening the risk of stretching the new stomach pouch.
2. Progression of diet back to solids - semi-solid meals are introduced then gradual progression back to solid diet. The soft texture diet enables the stomach to get used to foods again, and the patient begins the learning process of how much they can safely eat.
3. Normal diet - dietary intervention during the longer time period from post-surgical period right through to target weight. Dietary guidance and regular contact with the patient is essential to continue a steady but adequate rate of weight loss and minimize nutritional deficiencies.
4. Maintenance of target weight - ongoing dietary review to ensure weight lost is maintained.

An experienced bariatric dietitian is a critical team member in each of these stages. The nutritional consequences of bariatric surgery must be considered on an individual basis, as both macronutrient and micronutrient deficiencies can occur. Deficiencies must be screened for and appropriate supplementation provided.

Multidisciplinary Approach in Adolescent Bariatric Surgery

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Bariatric surgery has been shown to be an effective, and cost-efficient, tool in the management of adolescent obesity. However, adolescence is a unique period in an individual's life, whereby identity is established and risk taking behaviour is common. They are not children, nor "little adults". Patient selection, perioperative and postoperative management of the adolescent patient requires that their special needs are acknowledged, and a multidisciplinary team is required to maximise outcomes.

Taiwan's Experience of Multidisciplinary Approach in Bariatric Surgery

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Morbid obesity is a serious disease as it is accompanied by substantial co-morbidity and mortality. The prevalence is increasing to an alarming extent. In the past few decades, bariatric surgery has developed and gained importance. Bariatric surgery is proved to be the only treatment permitting significant and long lasting results for patients suffering from morbid obesity with indications of BMI>40 kg/m² or BMI >35 kg/m² associated with one or multiples comorbidities. Bariatric care should be delivered within credentialed multidisciplinary systems. Roux-en-Y gastric bypass (RGB), adjustable gastric banding (AGB), and biliopancreatic diversion with duodenal switch (BPD + DS) are validated procedures that may be performed laparoscopically. Laparoscopic sleeve gastrectomy (LSG) also is a promising procedure proved in recent literatures. We would like to report our experience in multidisplinary approach in Taiwanese morbidly obese patients.

Obesity Conference; Understanding of psychological aspects of obese patients are essential for good follow-up after bariatric surgery

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The pre- and post-operative management of bariatric surgery patients is multidisciplinary. Especially, physician should be responsible for the treatment of obesity, nutrition, risk factors and complications for the long-term follow-up together with nutritionist and nurse. On the other hand, it is also essential to understand the psychological aspects for good follow-up after bariatric surgery. Because bariatric surgery requires a considerable change in eating behaviors and patients will experience psychosocial change post-operatively.

Our institution holds a monthly “Obesity Conference” for more than 15 years. It is the multidisciplinary case conference and consists of not only physicians, nutritionists, nurse and physiotherapists, but also psychiatrist and clinical psychologists. Since 2010, our team has invited surgeons and has become a bariatric surgery multidisciplinary one. A highlight of the conference is to discuss the findings from interview, intelligence test and psychological test such as Rorschach Test (Comprehensive System) and Egogram performed by Mental-health professionals. We first understand and sympathize with the patient’s familial social background, past history, psychological stress and psychic reality as much as possible. Subsequently, we evaluate the personality traits and whether the patient has mental disorder and/or eating disorder. Then, the comprehensive strategy for follow-up after bariatric surgery is discussed and consented. In our team, physician mainly coordinates the conference and pre- and post-operative management including mental-health.

Our conference established a “high lambda” personality (Rorschach Test), which was highly detected in Japanese severe obese patients. High lambda is characterized as avoidance of complexity and the patients are often resistant against their behavior modification. To understand this personality is helpful to predict their “dropout” after bariatric surgery.

Understanding of “patient” with psychological aspects is essential to success in bariatric surgery. Obesity Conference must improve to popularize such an excellent bariatric surgery in Japan and to make more obese patients happy with the surgery!

The Role of the Dietitian in Bariatric Surgery Team

Yotsuya Medical Cube

Eri Kikkawa

The basic principle of treatment for obesity is that the consumption of energy overcomes the intake of energy. However, the obesity cannot be treated only by negative balance of energy. There are a number of problems with obese patients, such as eating habits, living conditions and social lives. Therefore, the multidisciplinary team approach with sufficient expertise to manage the interplay of these behavioral, nutritional, psychological, medical and surgical issues would seem imperative.

Our institution has performed nearly 200 bariatric cases since 2006. Our team consists of bariatric surgeons, nurses, social worker, and national registered dietitian for the management of bariatric patients. The main role of dietitian is nutritional management before and after surgery for the purpose of bettering the outcome of surgery. For example, the preoperative nutritional assessment and education of the patients plays an important role in reducing the risks of surgery and the postoperative instructions from the dietitian are provided for weight loss induced effectively and prevention of nutritional deficiency and malnutrition.

The postoperative excess weight loss was 22.9% at 1 month, 41.5% at 3 months, 58.5% at 6 months, 70.4% at 12 months, and 73.6% at 24 months. The dietitian has given the patients the details about nutrition and guided them properly. Therefore, there was no patient suffering from nutritional deficiency and malnutrition after surgery. In addition to that, our result shows that our multidisciplinary approach was successful for morbidly obese patients in Japan.

Psycho-Social approach by the social worker for bariatric patients in Japan. / A model to ensure the success of bariatric surgery

Tetsuya Nakazato

Yotsuya Medical Cube

Morbid obesity is a new but rapidly increasing social problem in Japan. More than 200 patients have underwent bariatric surgery since 2006 at Yotsuya Medical Cube.

We have organized the multidisciplinary Team which consists of surgeons, a nutritionist, a pharmacist, nurses, and a social worker. The team approach plays an important role in the success of treatment for bariatric patients. In this approach, the social worker is in charge of the psycho-social support for patients. For example, there are two kinds of psycho-educational groups organized by the social worker: 1) Pre-surgery orientation group with post-surgery patients as supporters every Wednesday and Thursday; 2) Post-surgery patient group meeting every December, the counseling has also been provided on individual basis as well as in group settings for pre-surgery and post-surgery patients.

As social work is a profession for those with a strong desire to help improve people's lives,, social workers are in an important position to help bariatric patients by helping them cope with and solve issues in their everyday lives, such as family and personal problems, relationships, and social problems. Therefore, as the patients can focus on their physical problems and treatment, this intervention has lead to the success of bariatric surgery in our hospital.

I will speak about effects of the social worker intervention for bariatric patients with my experiences and research.

A multidisciplinary approach to obesity treatment

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Open and laparoscopic bariatric surgeries have been performed in Japan since 1981 and 2000, respectively. But because of the low rate of obesity in the population (the percentage of the population with a BMI over 30 is 3.2%), and even medical personnel have little interest in trying to understand weight loss surgery. Although more than 90% of bariatric surgery is performed laparoscopically in the world, health insurance coverage is applied only for open surgery in Japan at this time. With regard to gastric bypass for Japanese obese patients, no consensus has yet been reached among domestic societies for the treatment of obesity due to the high risk of gastric cancer. For these complex reasons, only a few hospitals perform bariatric surgery routinely in Japan. However, considering that there has been an increase in obesity-related diseases in Japan, and since obesity continues to increase, it appears that there are many patients who would be candidates for bariatric surgery.

It is well known that the implementation of a presurgical patient assessment and diet programs by a multidisciplinary team can lead to optimal results after bariatric surgery. Our multidisciplinary team, including physicians, psychologists, nurses, psychotherapists, dietitians and physical therapists has worked for years on obesity treatment. Surgeons joined this team in 2010, and we started performing both open and laparoscopic bariatric surgeries. We herein present our multidisciplinary approach to pre-, peri- and postoperative care.

Diabetes control and lessened cerebral cardiovascular risks after gastric bypass surgery in Asian Taiwanese with a body mass index <35 kg/m²

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Background: Morbid obese patients with type 2 diabetes mellitus (T2DM) and a body mass index (BMI) >35 kg/m² benefit greatly from Roux-en-Y gastric bypass surgery (RYGB). Whether the patients with T2DM and a body mass index (BMI) <35 kg/m² also profit from this surgical procedure is not known. In Asian Taiwanese, the risks associated with T2DM and cardiovascular diseases occur at a relatively lower BMI levels. We examined the safety and efficacy of RYGB in Asian Taiwanese patients with T2DM and a BMI of 22-35 kg/m² in a referral medical center. Methods: A total 62 consecutive patients with T2DM and a BMI of 22-35 kg/m² underwent RYGB between 2003 and 2009. The data were prospectively collected before surgery and at 3, 6 and 12 months after operation. Results: Of the 62 patients, 15 were men and 47 were women (age 40.1 ± 10.1 years). Their preoperative characteristics were BMI 30.2 ± 3.2 kg/m², body weight 81.8 ± 11.8 kg, waist circumference 100.6 ± 10.4 cm, and duration of T2DM 5.9 ± 6.0 years. There was no mortality, major surgical morbidity, or excessive weight loss experienced. The BMI decreased postoperatively by 20%, from 30.2 ± 3.2 kg/m² to 24.0 ± 2.8 kg/m² (P < .001). The fasting blood glucose level decreased from 194.7 ± 70.4 mg/dL to 99.8 ± 28.4 mg/dL (P < .001), and the hemoglobin A1c decreased from 9.1% ± 1.7% to 6.0% ± 0.9% (P < .001). The 10-year cerebral and cardiovascular disease risk was estimated with UKPDS risk engine before and after RYGB. The risk for fatal and nonfatal stroke and coronary heart disease decreased essentially. Conclusion: RYGB safely and effectively remits T2DM in Asian Taiwanese with a BMI <35 kg/m². It also lessens the 10-year cardiovascular cerebral disease risks. More larger, longer term, prospective and randomized studies are needed to confirm these effects.

Prevalence of nonalcoholic steatohepatitis (NASH) in morbidly obese Japanese patients who underwent bariatric surgery

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Background:

Non-alcoholic fatty liver disease (NAFLD) is increasingly being recognized to occur more commonly in the obese with a clinicopathologic entity that extends beyond uncomplicated steatosis to steatohepatitis (NASH), advanced fibrosis, liver failure and hepatocellular carcinoma. In our previous report, we showed that racial difference between Japanese and Western people in terms of NAFLD and related liver dysfunction. There are few reports investigating the prevalence of NASH in morbidly obese Japanese.

Methods:

Twenty-eight consecutive morbidly obese Japanese who underwent bariatric surgery in Yotsuya Medical Cube from October 2009 to July 2010 were enrolled. There were 16 females and 12 males (mean age: 40.3 ± 11.2). Mean pre-operative weight was 114.4 ± 22.3 kg and mean BMI was 41.9 ± 6.9 kg/m². A trucut liver biopsy was performed from left lobe of the liver at the time of surgery and analysed by a single pathologist. The liver biopsies were assessed by applying histopathological criteria that are accepted in the pathology literature.

Results:

Eighty-nine percent (25 in 28) of the patients undergoing bariatric surgery were found to have steatosis. And 71.4% (20 in 28) were found to have NASH. One patient was found to have established cirrhosis.

Conclusion:

Hepatic steatosis was very prevalent in our cohort of patients presenting for bariatric surgery. The prevalence of NASH was much higher in Japanese morbidly obese patients than the reported prevalence of NASH in Western individuals. These findings support that Asian are more prone to central obesity and, thus, have increased risk for obesity-related comorbidities.

The Feasibility: SILS port Roux-en-Y Gastric Bypass for Low BMI Diabetes Mellitus

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Background: Single Incision Laparoscopic Surgery has been expanded to bariatric surgery. Laparoscopic Roux-en-Y gastric bypass is already accepted as one of the most effective procedure for the treatment of type 2 diabetes mellitus. Hereby, we described our experience using SILS Port to performed Roux-en-Y gastric bypass in nine patients with type 2 diabetes mellitus patients. **Methods:** After getting approval of E-Da Institutional Review Board, 9 cases with diagnosis of Type 2 Diabetes Mellitus patients with low body mass index (BMI less than 30) underwent Roux-en-Y gastric bypass using the SILS Port from August 2010 to November 2010. Standard Roux-en-Y gastric bypass was performed with 25ml of gastric pouch, 100cm of alimentary and biliopancreatic limb. **Results:** Four female and five male patients with mean BMI 27.15 and average of diabetes history of 10.2 years, underwent SILS Port Roux-en-Y gastric bypass. Novel liver suspension technique was performed in all patients. Mean operation time was 135 min. And two patients needed additional trocars intra-operatively, related to the difficulty in the dissection of gastric pouch and gastrojejunostomy suture. There was no surgical complication or mortality. At the first month postoperatively, mean AC sugar dropped from 198mg/dL to 116.1mg/dL, and mean HbA1c decreased from 9.71% to 8.18%. **Conclusion:** Laparoscopic Roux-en-Y Gastric Bypass with SILS Port is feasible and reproducible, but should be performed under strict indication and by an experienced surgeon. Even in low BMI patients, it showed high technical skill demands, increased operation time and high conversion rate.

Early Resolution of Type 2 Diabetes Mellitus by Laparoscopic Ileal Transposition with Sleeve Gastrectomy Surgery in 23 to 35 BMI Patients

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Introduction: Diabetes is considered a life style disease. 56% diabetic patients with BMI greater than 7 are at high risk of diabetes related complications. Bariatric surgery results in diabetes resolution in over 84% patients. Based on hindgut hypothesis suggesting role of incretins like GLP-1, early trials of ileal interposition surgery have displayed consistent HbA1c levels below 7 in over 80% patients with over 30 kg/m² BMI. In developing countries majority of T2DM patients are not morbidly obese and surgical procedures are to be evaluated for their efficacy in this group. In this study we have assessed the efficacy of ileal transposition with sleeve gastrectomy (SGIT) in 23 to 35 BMI T2DM patients. **Method:** After institutional ethical committee approval & Indian Council of Medical Research registration (CTRI/2008/091/00206), selected T2DM patients [HbA1c over 7, C Peptide more than 1] underwent Lap SGIT by a single surgeon. Data of first five patients with minimum 6 months follow up was analyzed for glycemic control, reduction/ discontinuation of diabetes medication. **Results:** The study target (HbA1c less than 7) was achieved in 60 % patients within 1 month , and in 100% patients within 6 months. Requirement of medicines reduced significantly within 6 months and their HbA1c levels reduced from 9.65% to 6.22%. **Conclusion:** Laparoscopic SGIT represents a new paradigm, for the treatment of T2DM even in non morbidly obese patients. **Conflict of Interest:** None. **Funding:** Research related to this study was funded by Bombay Hospital trust, Mumbai, India.

Is Laparoscopic Duodenojejunal bypass with Sleeve an effective alternative to Roux en Y gastric bypass:
A Randomized Trial

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Background:The incidence of Obesity and related metabolic disorders including Carcinoma Stomach in India is one of the highest in the world .Hence one requires a procedure that allows postoperative surveillance of the stomach with the best outcomes in terms of weight control and resolution of comorbidities .Here we compare one such procedure, Duodenojejunal bypass with Sleeve against the standard Roux-en Y gastric bypass.**Methods:**52 patients were randomized into 2 groups of Laparoscopic Duodenojejunal bypass with Sleeve (DJB) and Laparoscopic Roux en Y gastric bypass (RYGB) of 26 patients each. **Results:**The mean BMI at the end of 6 months and 1 year was 35.16, 29.25 in RYGB and 34.51, 28.10 in DJB. The %excess BMI loss at 6 months and 1 year were 52% \pm 19 and 77% \pm 24 in RYGB and 58% \pm 14 and 82% \pm 19 in DJB, which was not statistically significant.14/26 patients in the RYGB and 19/26 in the DJB group had Type II Diabetes . In RYGB 12 had complete resolution and 2 had improvement and 16 patients in the DJB had complete resolution and remaining 3 had improvement . There was 100% resolution of Dyslipidemias in both groups. There was 1 patient in the DJB group who presented with internal herniation 1 month post-op was managed surgically. **Conclusion:**Laparoscopic Duodeno-jejunal bypass with Sleeve, which combines the principles and advantages of Sleeve Gastrectomy and RYGB is a safe and effective alternative to gastric bypass in weight reduction and resolution of comorbidities.Also, with the possibility that the procedure can be made less restrictive by altering the size of the sleeve, it can be employed as a procedure to treat Metabolic Syndrome even in the lower BMI group. But, a long term follow up is necessary to establish it as a standard procedure.

Overview of Laparoscopic Sleeve Gastrectomy (LSG).

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Sleeve gastrectomy (SG) has been a simpler bariatric operation, which shows good resolution of co-morbidities and provides excellent weight loss. Laparoscopic SG was initially performed for high-risk patients (in 2000) to enable increased safety for both operations. However, indications for SG as a primary procedure have been increasing. The Third International Consensus Summit for SG was held in New York City, Dec 2-4, 2010, to evaluate techniques and results.

Methods: A questionnaire was filled out at the Second ICSSG March 19-22, 2009 in Miami Beach and compared to the recent one in NYC in 2010.

Results: Findings are based on 106 questionnaires, representing a total of 14,776 SG. In 86.3%, SG was intended as the sole operation and 81.9% of the surgeons reported no conversions from a laparoscopic to an open SG. Mean \pm SD %EWL: 1 yr 60.7 \pm 15.6, 2 yrs 64.7 \pm 12.9, 3 yrs 61.7 \pm 11.4, 4 yrs 64.6 \pm 10.5, >4 yrs 48.5 \pm 8.7. Bougie size was median 34.0 Fr., (range 16-60). The dissection commenced 5.0 \pm 1.4 cm (median 5.0, range 1-10) proximal to the pylorus. Staple-line was reinforced in 65.1%; of these, 50.9% over-sew, 42.1% buttress and 7% do both. Post-op, a high leak occurred in 1.5% and a lower leak in 0.5%, hemorrhage in 1.1%, splenic injury in 0.1%, and later stenosis in 0.9%. Post-op GE reflux (~3 months) was reported in 6.5% (range 0-83%). Mortality was 0.2 \pm 0.9% (total 30 deaths in 14,776 patients). This year, 5 years results showed a mean of 50% EWL, a higher result than with gastric banding, but comparisons with gastric bypass are still pending. Conclusion: SG for morbid obesity should be recognized as a primary operation.

Rise of Sleeve gastrectomy in Asia

Muffazal Lakdawala

Abstract

Bariatric surgery is an ever evolving field. There have been several discoveries that have changed the way bariatric procedures are carried out. This has led to a lot of enthusiasm within the surgical community. Many of the bariatric surgical procedures have not been able to stand the test of time and have been replaced with newer, simpler and more effective procedures rendering the older ones obsolete.

Sleeve gastrectomy is a relatively new procedure. What was initially started as the first stage of a duodenal switch surgery in super super obese patients has now come of age to have its place as a standalone procedure in bariatric surgery. There is a lot of excitement in the surgical community about this procedure. Its popularity can be attributed to its favourable early results. Hence surgeons from across the world are now offering it to an increasing number of patients. The benefits of sleeve gastrectomy seem to far outweigh its risks. It is a technically easier procedure with a lower learning curve. There are less chances of developing nutritional deficiencies and the remnant stomach is always accessible for examination which is of great significance for stomach cancer endemic countries like Japan and Korea.. Asian studies have already suggested better results in terms of weight loss and resolution of co-morbidities after a sleeve gastrectomy. Increasing proficiency of Asian surgeons in Single Incision surgery has led to further increase in the popularity of this procedure in Asia.

The only word for caution for complete adoption of LSG is that long term results are still awaited and leaks from staple lines are difficult to treat.

Long term results of laparoscopic sleeve gastrectomy for Korean

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Purpose: In Asia, its types and the main causes are different from than in the western society. Therefore, the treatment plan should be different, and the surgery for morbid obesity should be carefully chosen. Long term results of the isolated laparoscopic sleeve gastrectomy which was performed for the Korean are reported.

Methods: We retrospectively reviewed 168 patients who underwent LSG from January 2003 to January 2011. One hundred thirty nine of these patients had more than 6 months of follow-up, and they are subjects of this report. Sleeve gastrectomy was performed laparoscopically using Endo-GIA stapler to create a lesser curve gastric tube over a 48-Fr bougie. The longest follow up time is 8 year.

Results: Preoperative Body Mass Index (BMI) is 36.7 ± 5.4 (30.0-59.1). The percentage of excess weight loss (%EWL) in the postoperative first, third, fifth, and seventh year was 71.4 ± 22.1 , 66.0 ± 29.9 , 67.8 ± 27.6 , and 60.4 ± 29.3 . The percentage of excess BMI loss (%EBMIL) was 73.1 ± 24.3 , 67.8 ± 31.0 , 73.4 ± 32.1 , and 62.2 ± 29.7 . However, the follow up rate is decreased by postoperative time. The follow up rate in third year is 62.5% and fifth year is 30.2%. There was no 30-day peri-operative mortality. Three major complications (1 delayed bleeding, 2 leakage) occurred.

Conclusion: Isolated laparoscopic sleeve gastrectomy has been an effective weight loss operation in the most of the Korean patients. However, the more follow up rate after LSG is needed.

Sleeve Gastrectomy in Banding country.

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Laparoscopic gastric banding has been the dominant bariatric procedure in Australia for the last 10 years. Most bariatric surgery are performed in private hospital and there is no database to allow us to examine adequately the trend of different operations. Overall the numbers of bariatric procedures increased from 500 per year to 15000 last year. However, from medicare data documented by government, we are able to estimate there is a decline in numbers of lap band performed and increase in numbers of sleeve gastrectomy. The presentation will examine the possible reasons behind it and illustrate the problems that will be facing Australian bariatric surgeons in the next 5 to 10 years.

Laparoscopic sleeve gastrectomy in Japan

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In Japan, laparoscopic bariatric surgery was introduced in 2000, and laparoscopic sleeve gastrectomy (LSG) has been performed since 2005. Since gastric cancer is a frequently-occurred disease in Japan and the excluded distal stomach after laparoscopic Roux-en-Y gastric bypass (LRYGB) cannot be checked by usual endoscopy, LRYGB is probably not so suitable for Japanese patients. Therefore, a number of LSG is rapidly increasing. Japan Research Society for Endoscopic and Laparoscopic Treatments of Obesity (JELTO) which was organized 5 years ago carried out a nationwide survey on laparoscopic bariatric surgery in 2010. From 2000 to 2009, total 340 laparoscopic bariatric operations were performed by 9 Japanese institutes, and 102 of the operations (30%) were LSG. In 2009, 70 morbidly obese patients underwent laparoscopic bariatric surgery, and 50 of the 70 patients (71%) did LSG. There was no mortality and the postoperative complication rate was 7.8% in the 102 cases. Major complications were staple-line leakage in 4 cases (3.9%) and intra-abdominal bleeding (reoperation required) in 3 (2.9%). Percent excess weight loss after LSG was 66% at 12 months and 68 % at 24 months, respectively. According to the weight loss, 91% of patients with type 2 diabetes achieved remission, hypertension were resolved in 62% of patients, and dyslipidemia were resolved in 53%. This survey showed the safety and effectiveness of LSG in Japanese morbidly obese patients. In addition, LSG has been approved as a special advanced technique in some Japanese institutes by the Ministry of Health, Labour and Welfare since this year, which is partly covered by the government health insurance. Now, LSG has been rapidly spread in Japan and will play an important role in treatments for morbid obesity.

Update in the outcomes of over 800 sleeve gastrectomies with 6 years of followup.

¹Mercy Bariatrics Perth Australia

Leon Cohen¹, Jon Armstrong¹, Harsha Chandraratnah¹

Since 2004 we have performed over 850 sleeve gastrectomies. This is a heterogenous group that includes 770 primary cases and 80 revisional sleeves. The first 107 sleeves were calibrated against a 50fr bougie and the next 680 against a 40 Fr bougie. We are now using a 36 Fr bougie (63) in most cases. Results in our largest series of 618, 40 Fr primary sleeves show an excess weight loss that peaks at 18 months at 74% and is now at 61% out to 4 years. In the earlier 50 Fr series the weight loss peaked at 62 % at 24 months and had fallen to 42 % by 60 months. So far in the earlier 50 fr series 12 of the patients have been re sleeved with their EWL returning to an average of 55 % EWL at 24 months. Only one 40 fr patient has required resleeve so far. Impact of sleeve size , surgical technique, commencement BMI, age and sex on outcomes will be discussed.

Conclusion:

We believe that sleeve gastrectomy produces robust weight loss in the medium term providing an appropriate size bougie is selected. (no more than 40Fr) Late weight regain is in line with the natural history of other bariatric approaches and can be adequately managed by resleeve gastrectomy.

Single Incision Transumbilical Laparoscopic Sleeve Gastrectomy (SITU-LSG), How I Do it?

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BACKGROUND: Sleeve gastrectomy has been recently proposed as a sole bariatric procedure because of the resulting considerable weight loss in Asian morbidly obese patients. Traditionally, laparoscopic sleeve gastrectomy requires 5-6 skin incisions to allow for placement of multiple trocars. With the progression of scarless concept, multiple abdominal procedures have been performed using a single incision trans-umbilical (SITU) incision, with good cosmetic outcomes.

METHODS: We retrospectively reviewed our patients receiving sleeve gastrectomy from November 2008 till September 2010 .A total of 27 consecutive patients underwent laparoscopic sleeve gastrectomy with single incision and trans-umbilical approach. Three trocars were inserted via the umbilical incision after pneumoperitoneum.

RESULTS: Of the 27 patients, 19 were women and 8 were men, with a mean age of 32 years (range, 20-46). The mean preoperative body mass index was 35.9 kg/m (range, 32.4-42.3). The mean operative time was 70 minutes (range, 30-170). Intra-operative novel liver suspension tape was used in all patients, and no perioperative or postoperative complications happened. No conversion or need for adding trocar during the procedure was found.No mortality was noted.

CONCLUSIONS: SITU laparoscopic sleeve gastrectomy is safe, technically feasible, and reproducible. Intra-operative modification of liver retraction is the key element in improving surgical field and decreasing operation time.

Possible mechanisms of rapid improvement of glucose tolerance and insulin secretion after laparoscopic sleeve gastrectomy (LSG)

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【Objective】 LSG has been designed as the first of a two-stage procedure for the high-risk, super-obese patient. Recently LSG has been applied as a single-stage procedure because of excellent weight loss and low incidence of complications. More recently, the accumulating data suggested that LSG produces remission or cure of type 2 diabetes mellitus (DM). To investigate the mechanism which LSG improves glucose tolerance, oral glucose tolerance test (OGTT) was performed at preoperative and 3 months after surgery.

【Methods】 We performed LSG on two diabetic patients, one patient with impaired glucose tolerance (IGT) and two non-diabetic patients. Plasma glucose, insulin and Glucagon-like peptide-1 (GLP-1) levels during OGTT were measured. Fasting ghrelin levels were also measured. To assess gastro-intestinal motility during OGTT, we used cine MRI.

【Results】 Diabetic patients discontinued oral hypoglycemic agent or insulin immediately after surgery. HbA1c was improved in diabetic patients. OGTT showed that great improvement of glucose tolerance with enhancement of insulin and GLP-1 secretion in diabetic patients. Area under the curves (AUC) for insulin and GLP-1 were increased after LSG. Fasting ghrelin levels were decreased in all patients. Cine MRI during OGTT revealed that gastro-intestinal motility was remarkably induced after LSG.

【Conclusion】 These results suggest that LSG can lead to rapid improvement of glucose tolerance and insulin secretion. Increased GLP-1 secretion and decreased fasting ghrelin levels may play a role of improvement of glucose tolerance and insulin secretion after LSG. Induced gastro-intestinal motility during OGTT may lead to increased GLP-1 secretion after LSG.

Complications after laparoscopic sleeve gastrectomy for morbid obesity

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Background: Laparoscopic sleeve gastrectomy (LSG) is a quick and relatively simple type of bariatric surgery which shows good resolution of co-morbidities and good weight loss. We report on complications after LSG as a single-stage bariatric surgery and the results of a survey on LSGs conducted by the Japan Research Society for Endoscopic and Laparoscopic Treatments of Obesity.

Methods: Data were collected on all patients undergoing bariatric surgery between January 2005 and December 2009, which included 340 patients from nine hospitals in Japan. We evaluated short-term morbidity in 102 patients undergoing LSG and excluded patients undergoing LSG with duodenojejunal bypass.

Results: A total of 102 LSGs were successfully performed without conversions to an open surgery. In 2004, there were no LSGs reported. In 2009, the most commonly-performed procedures were LSG (50 patients), laparoscopic gastric bypass (8), LSG with duodenojejunal bypass (8), and laparoscopic adjustable gastric banding (4). Approximately 8% of patients had perioperative complications. The most common complications were staple line leaks (4%). Reoperation occurred in seven patients (7%), four with bleedings and three with staple line leaks. No mortalities occurred. In our eight LSG patients, late gastric leak occurred in one patient; and it was treated with an endoscopic mucosal closure after failed attempts to treat the percutaneous abdominal drainage.

Conclusion: The frequency of serious complications among patients undergoing LSG was relatively low. It is a safe single-stage bariatric surgery for Japanese morbid obesity.

Is LSG perfect for Asian?

Ruby Hall Clinic, Pune, Maharashtra , India
Dr. Shashank Shah

Laparoscopic Sleeve Gastrectomy(LSG) was initially introduced as a primary stage in super obese patients to optimize their medical / anaesthesiological fitness and also to ease the surgical technique for the index bariatric operation at a later date. With evolving technique it has become popular stand alone procedure with proven results of an efficient Bariatric operation in terms of effective excess weight loss , co morbidity evolution and improvement in the quality of life. Our center has performed more than 700 LSG till date. The longitudinal data analysis of them is presented at multiple International Bariatric and Metabolic conferences. With Asian peculiarities of high adiposity, prone for type 2 diabetes, high carbohydrate diet ,these studies have highlighted LSG with a favorable effect on hyperglycemia ,with difficulty to monitor or treat nutritional deficiencies. Before we call it as an ideal Bariatric operation, some facets need to be thrown light on: like longevity of the results, recidivism etc. Long term data with the large population and comparative studies with the existent bariatric operations is awaited.

National report: treatment of morbid obesity from Australia

President, Obesity Surgery Society of Australia and New Zealand(OSSANZ)

Lilian Kow

Obesity is considered the greatest public health challenges confronting Australia. Amongst developed nations, Australia is one of the most overweight, with over 60% of adults and 25% children overweight or obese.

PREVALENCE OF OBESITY BY AGE AND GENDER, 2008

Age Group	Males (%)	Females (%)	Males ('000)	Females ('000)	Total ('000)
0-4	0%	0%	0	0	0
5-19	7.8%	6.2%	165.4	124.9	290.3
20-24	11.1%	9.3%	84.7	68.2	152.9
25-34	19.4%	13.5%	281.8	193.0	474.8
35-44	19.9%	21.2%	301.5	324.6	626.1
45-54	23.2%	29.2%	338.6	430.8	769.4
55-64	28.5%	35.6%	344.9	431.7	776.6
65-74	22.2%	31.9%	164.4	244.2	408.6
75+	14.2%	16.9%	79.6	134.3	213.9
Total	16.5%	18.5%	1,760.8	1,951.8	3,712.5

5% of Australians have Type 2 diabetes. Of these, 10.8% are as a result of being obese.

OSSANZ (est 1980) represent the obesity society in Australia and New Zealand. Membership: 350 health professional: surgeons, physicians and Allied Health.

The OSSANZ Bariatric Surgical Standards(OBSS) are the credentialing guidelines . A National registry is being set up. The average cost for bariatric surgery in Australia is about \$15000-20000

National Report from Taiwan (Republic of China)

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In the past decade, the incidence of obesity (BMI > 27) increased from 10.5% to 19% in male Taiwanese. Among them, those with moderate or severe obesity increases more rapidly, from 2.4% to 6%. This alarming phenomenon is more common in rural than in urban area. Although the incidence of overweight remained stationary (20.3% to 19.3%) in female Taiwanese, the incidence of mild obesity still increased from 7.6% to 10.5%. More importantly, diabetes (Glucose > 126 mg/dl) incidence increased from 4.6% to 9.3% of adult male in the past decade.

Bariatric surgeries steadily increased in the past 5 years in Taiwan. IFSO Taiwan chapter was founded in 2009. There are more than 5 comprehensive bariatric centers now in Taiwan. In a survey from IFSO Taiwan chapter, the total registered number of bariatric surgeries increased from 255 cases in 2005 to 726 cases in 2009. Laparoscopic gastric bypass is the most commonly performed procedure, followed by sleeve gastrectomy and gastric banding. The results of bariatric surgery in Taiwan are comparative to international standard.

National report of treatment of obesity and metabolic disorder from (India).

Dr. Mahendra Narwaria, MS, FICS.

President, Obesity and Metabolic Surgery Society of India

Asian Indians exhibit unique features of obesity; excess body fat, abdominal adiposity, increased subcutaneous and intra-abdominal fat, and deposition of fat in ectopic sites (liver, muscle, etc.). Obesity is a major driver for the widely prevalent metabolic syndrome and type 2 diabetes mellitus (T2DM) in Asian Indians in India and those residing in other countries. Based on percentage body fat and morbidity data, limits of normal BMI are narrower and lower in Asian Indians than in white Caucasians. A consensus statement, was published for revised guidelines for diagnosis of obesity, abdominal obesity, the metabolic syndrome, physical activity, and drug therapy and bariatric surgery for obesity in Asian Indians after consultations with experts from various regions of India belonging to the various medical disciplines representing reputed medical institutions, hospitals, government funded research institutions, and policy making bodies.

According to National Family and health Survey (NFHS), approximately 7.1% of Indian population is under obesity risk. Almost 65% of adult urban Indian are –either over weight, obese or have abdominal obesity. The highest incidence is observed in North western (Punjab) part of India (M: F- 30.3/37.5%), followed by South (M: F-24.3/34%) and North east (M: F-17.3/21%).

With an estimated 50.8 million people living with diabetes, India has the world's largest diabetes population, followed by china with 43.2 million. The prevalence of type II DM in adult population ranges from 9% to 16%, with 14.2 % of male and 17.5 of female.

The Obesity and Metabolic Surgery Society of India was established in 2001. The indication for surgery is generally in accordance with guidelines using the WHO standard for obesity on Asia, i.e. BMI >37.5/32.5 with co-morbidities. There are few no of bariatric and metabolic surgeries carried out outside the standard guidelines for obesity surgery but they are mainly as part of some clinical trials.

There are about 80 surgeons (certified general, GI surgeons with training and experience) performing bariatric surgery regularly in India, carrying out 2000 procedures per year.

There are 5 high volume centres and few of them applied for centre of excellence (ICE) certification from ASMBS.OSSI is jointly working with SRC to develop centre of excellence in India. Cost of bariatric treatment depends upon

the types and location of the operative procedure. We accept and operate the international patients.

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Current status of Bariatric surgery in Korea

Dr. Lee' s Bariatric Surgery Center in Seoul, Korea
(*The Korean Metabolic and Bariatric Surgery Society*)

Hongchan Lee, M.D., Ph.D

Obesity is not only a health problem in western countries, but also in Korea. According to 2009 Korean National Health & Nutrition Examination Survey (KNHANES), prevalence of obesity in adults was 32.4% which is a big change over the last 10 years. More alarming is the problem of children and adolescent. From 2003 to 2009, number of bariatric procedures was increased in 622%.

All surgeries were performed through laparoscopic procedures. 63.3% adjustable gastric bandings, 12.6% gastric sleeve resections, 5.9% VBGs (with or without sleeve resection) were the restrictive operations performed. 12.0% Roux-en-Y gastric bypass, 12.6% Mini-gastric bypass, 2.6% Duodeno-jejunal Bypass were the malabsorptive (both restrictive) procedures since 2003.

Based on the statistics, the surgeon were performed in most hospitals when the BMI was over 35kg/m² while more than 2 significant obesity related co-morbidities were found with BMI over 30kg/m². Currently the bariatric surgery in Korea is still at a developing level, and has not been performed very much compared with the number of patients who need it.

As the bariatric surgery will gain more important as the number of obesity people increases every day, physicians need to make more efforts to help the public to have correct understanding about the bariatric surgery. Insurance coverage is another concern in my country because bariatric surgery is not covered by National Health Insurance in Korea. So, it became an expensive surgery, not accessible for everybody. As obese people are often from middle to lower socioeconomic class, access to surgery is very limited. As these people are in need, we have to raise our voice about reimbursement for bariatric patients.

BARIATRIC & METABOLIC SURGERY in the Philippines

President, Philippine Society for Metabolic and Bariatric Surgery
Hildegardes C. Dineros, MD, FPCS FACS

Third world countries like the Philippines was not immune to the epidemic of Obesity, with a progressively rising prevalence, one in four being overweight and one out of twenty is obese. Roughly, there are 4 million obese Filipinos and close to a million are morbidly obese. Of about 90 million population, the extrapolated prevalence of Diabetes is 5 million, more than 90% of which belong to Type 2 category.

The Philippine experience in Bariatric Surgery started in 2001 as VBG. The following year, Open Gastric Bypass was performed and 5 years later, Laparoscopic techniques were done for RYGBP, Gastric Banding, BPD-DS, and Sleeve Gastrectomy. Class II Obesity, defined as BMI $30\text{kg}/\text{m}^2$ was the baseline criterion for weight loss surgery since at this level, co-morbid conditions are already observed.

The Philippine Society for Metabolic and Bariatric Surgery was established in 2007, composed of about 25 surgeon members, half of which are doing bariatric surgical procedures already, and majority doing mostly Gastric Banding. Certified General Surgeons with training and experience in laparoscopic bariatric surgery, have up to the present, performed close to 600 bariatric operations. Surgery for Non-obese Type 2 Diabetes was first done in 2008 using LSG with Loop DJB.

National report from Hong Kong

Wilfred Mui

Hong Kong Bariatric and Metabolic Institute

Bariatric surgery is a new specialty in Hong Kong and it is growing from its infancy stage. It was introduced in Hong Kong in 2001 and the development was very rapid in the past ten years. Bariatric procedure in Hong Kong is evolving from a single surgical procedure (gastric banding) to the full package of both endoscopic and laparoscopic surgeries. The primary procedures in Hong Kong at the moment are restrictive procedures (intra-gastric balloon, gastric banding, sleeve gastrectomy and sleeve plication), whereas malabsorptive procedures (mini-gastric bypass and sleeve gastrectomy with DJB) are reserved as second-line therapy. Initially, we encountered difficulties in persuading patients and even doctors in accepting such an invasive treatment for obesity. Now, more and more physicians and patients understand the importance of weight control in severe obesity and agree that the beneficial effect of surgery seems out-weighted its risk in selective group of patients. We will report the development of this specialty in Hong Kong.

National Report from Malaysia

Professor Dr Chin Kin Fah (Presenter), Dr Pok Eng Hong
Department of Surgery, Faculty of Medicine, University Malaya, Kuala Lumpur, Malaysia.

In Malaysia, a developing country, the increasing prevalence of obesity and associated metabolic syndrome has created major healthcare problem due to the adoption of more westernized lifestyle and diet. Population surveys have found the prevalence of obesity has rapidly increased 3 folds in recent decade. The National Health & Morbidity Study in 1996 and 2006 revealed that the prevalence of overweight (BMI 25-30) rose from 16.6% to 29.1%. The prevalence of obesity (BMI>30) increased from 4.4% to 14%. It was also showed our female population, ethnicity of Indian & Malay and house wife tend to be obese. It was noted the prevalence of diabetes mellitus in this population also increased from 8.3% to 14.9% with substantially portion of them undiagnosed. There is an estimated about 1.5 million diabetes patient (5.7%) which is a significant healthcare burden in Malaysia with a small population of about 26 million people in 2006. Although the bariatric surgery has been prove to be cost-effective treatment of obesity and associated co-morbidity especially DM, the adoption of this advanced surgery is still slow in Malaysia. Currently, only hospitals with qualified and experienced laparoscopic surgeon are routinely offering this procedure. The lack of surgical training opportunity, public awareness and no insurance coverage for obesity might be the factors that hinder the progress of this surgery. Lastly, we foresee, with the rising prevalence of T2DM affecting younger age group and the promising effectiveness of bariatric surgery as a form of metabolic procedure, the most cost effective therapy for early obese T2DM should be surgery, as a first line modality in future.

National Report on Bariatric Surgery from Japan

Department of Weight Loss Surgery, Yotsuya Medical Cube, Tokyo, Japan

Kazunori Kasama MD, FACS

Obesity among adults is defined as a BMI of 25 or higher in Japan. The obesity prevalence (BMI \geq 25) has increased to 28.6% in male and 20.6% in female over the past decade. Obesity prevalence (BMI \geq 30) is 3.2%.

The prevalence of diabetes mellitus with HbA1c $>$ 6.5 or under treatment has increased from 6.9 million in 1997 to 8.9 million in 2007.

Recently, one of our bariatric societies (Japanese Society for Surgery of Obesity and Metabolic disorders) has announced a statement on BMI criteria for bariatric surgery in Japan. The criteria recommends bariatric surgery for people who have BMI \geq 35 or BMI \geq 32 with obesity-related comorbidities. But bariatric surgery for people with BMI between 32 to 35 remained to be positioned on a clinical trial.

From 2000 to 2009, totally, 340 laparoscopic bariatric procedures were performed in 9 institutes. The most popular procedure was laparoscopic Roux-en-Y gastric bypass (LRYGB, n=147), then the second one was laparoscopic sleeve gastrectomy (LSG, n=102) and the third one laparoscopic adjustable gastric banding (LAGB, n=55). However, the number of LRYGB has decreased and in contrast, the number of LSG has rapidly increased.

The medical cost of bariatric surgery is approximately 10,000–20,000 dollars. It depends on the types of procedures.

There are several problems to prevent and treat obesity. Modern lifestyle and foods are out of alignment with true health. Nation's recognition of obesity is an obstacle to civilization and enlightenment of bariatric surgery in Japan.

In conclusion, we are still ill-equipped to deal with the crisis of obesity and diabetes mellitus. It is essential to establish the international network in APC for development in this field.

National report on surgical treatment of obesity and metabolic disorder in Singapore

KTP Hospital Singapore
Dr Anton Cheng

According to the Singapore National Health Survey 2004, obesity rate (BMI > 30) in Singapore was 7.3% in female and 6.4% in male. Among the three major racial groups in Singapore, 4.2% of Chinese, 19.3% of Malays and 13.4% if Indians are obese. In 2004, 8.2% of the population was diabetic , with 8.9% of male and 7.6% of female. The latest unpublished data showed obesity rate has gone to 10.8% of the population in the 2010 National Health Survey, With the Malay population showing 25% obesity. DM rate however, has not changed over the last 12 years.

The Obesity and Metabolic Surgery Society of Singapore is registered as of January 2011. A national database is being set up. Indication for surgery is generally in accordance with the Singapore Ministry of Health guidelines using the WHO standard for obesity on Asia, i.e. BMI > 37.5 or BMI > 32.5 with obesity associated co-morbidities. There is no metabolic surgery carried out outside the standard guidelines for obesity surgery.

There are about 10 surgeons performing bariatric surgery regularly in Singapore, carrying out about 200 procedures per year. 80% of these, divided equally, are sleeve gastrectomies and gastric bands. There are smaller numbers of bypass and other procedures.

There is no certified center of excellence in Bariatric surgery in Singapore. Cost varies according to where these procedures are carried out. A lot of those performed in government hospitals are heavily subsidised.

National report of treatment of morbid obesity and metabolic disorder from Thailand countries

Suthep Udomsawaengsup

Slide-1

- Obesity and overweight prevalence in adults in your country
 - Grade I Obesity = 15.4%
 - Grade II Obesity = 2.2%
- Obesity prevalence in children in your country
 - Age 2-5 = 7.9%
 - Age 6-12 = 6.7%
- Gender and age distribution (possibly)

*use most recent statistics

Slide-2

T2DM prevalence in adults in your country
9.6% 4.8% previously diagnosed and 4.8% newly
diagnosed diabetes

Gender and age distribution (possibly)

Male 33.8% Female 66.2%

Mean age = 60.9 + 11.5 and duration of diabetes 10.5+ 7.6 years,

Slide-3

- Do you perform bariatric surgery in your country?
Yes
- If yes, who is a candidate for bariatric surgery?
BMI >40kg/m² or >35 with co-morbidity and had try non surgical Rx
- Do you have a bariatric society in your country?
Yes Thai Society of Metabolic and Bariatric Surgery (TSMBS)
<http://www.thaibariatric.org>

Slide-4

- Approximately how many bariatric surgery operations are being done in your country yearly 100
- What is your estimate as to the relative percentages (adding up to 100%) distribution of bariatric operations in your country RYGB 63% LAGB 29% Sleeve 8%

Slide-5

- Who performs bariatric surgery in your country
general surgeon- endoscopic surgeon 9 , certified bariatric surgeon 6

- Approximately how many surgeons practice bariatric surgery in your country?
= 15 surgeons

Slide-6

- Is there any credential system (surgeon, facility)?
Yes, For Surgeons: the Royal College of Surgeons of Thailand and the Medical Council of Thailand
Facility: Hospital credential
- If any, what type of professional education or training currently exists for the bariatric surgeon?
Yes Clinical fellow in Bariatric surgery (2 institute / 4 regular fellow a year)

Slide-6

- Is there any nationwide database for sharing the pre- and post-operative data results to provide a cumulative picture of the success of bariatric surgery?
Not yet applied

Slide-7

- Roughly, what is the average cost for bariatric surgery in your country?
*In US dollars
RYGB = 6000 USD (Government) 20000 USD (private)
LAGB = 5000 USD (Gov) 15000 USD (pri)
Lap Sleeve =3000 USD (Gov) 13000 USD (pri)
- Are insurances (government, public, private) paying for the cost of surgery?
Yes Partially

Slide-8

- Do you perform metabolic surgery for the patients with lower BMI (beyond indication for bariatric surgery) in your country? Yes for Some
- Do you perform revision bariatric surgery in your country?
Yes
- Do you accept patients from overseas (so called “medical tourist”) in your country?
Yes

Slide-9

- Which are the problems you face in your country to prevent the obesity disease from spreading?
Availability and advertising of Junk food Philosophy of Living, Some Believe such as Obese is a sign of Wealthy
- Which are the problems you face in your country to treat the obesity disease?
Reimbursement system, Acceptance for medical co-worker, Cost of Treatment
- Which are the needs?

Slide 10

- Your favorite topics,
Metabolic result of Bariatric Surgery in Thais
- Particularity of your country regarding Bariatric/Metabolic surgery.

Slide-11

- Your conclusions to the obesity problems in your country
The incidence of obesity in Thailand is increasing. Prevention is certainly important. Public has been alerted more about effect and hazard of obesity. Media takes more involvement and helps very much in distributing medical information
- Recommendations

National report of treatment of morbid obesity and metabolic disorders from Turkey

Alper Celik, M.D.

Yeniyuzyil University Faculty of Medicine

Department of General Surgery,

Istanbul / Turkey.

Slide-1

- *Approximately 66% of whole Turkish population is under obesity risk.
- *The incidence of obesity is 24% for males and 31% for females.
- *The highest incidence is observed in Southeastern part of Turkey (61%), followed by mid-Anatolia (55%), Northern west (50%), and West parts (15%)
- *The percentage of normal weight adults is 13.6% in females and 20% males.
- *The incidence of overweight children is 24% for females and 31% for males.
- *The incidence of obesity among children below age 15 is 9% for females and 12% for males.

Slide-2

- *The prevalence of T2DM in adult population (35-70 y) is 14.7%
- *The prevalence of Glucose Intolerance in adult population is 9.6%.
- *T2DM prevalence increases with age, 50 years being the cut-off point. After age 50, T2DM prevalence reaches 30%.

Slide-3

- *We have a national bariatric and metabolic surgery society in Turkey.
- *I perform both metabolic and bariatric surgery.
- *For bariatric surgery purposes my indication is BMI over 40
- *For patients with T2 Diabetes or Metabolic Syndrome, BMI (unless over 20) is not a limitation in my surgical practice.

Slide-4

- *The annual number of bariatric operations is estimated to be around 500 cases.
- *I performed 76 operations within 2 years on my own (7.6%).

Slide-5

- *There are no specified or certified bariatric surgeons in Turkey.
- *The number of surgeons mainly doing bariatric surgery is around 10.

Slide-6

*There is no credential system in Turkey and bariatric surgery is not regarded as a specification.

Slide-6

*There is no nationwide database for sharing the pre- and post-operative data of bariatric surgery.

Slide-7

*The average cost for bariatric surgery in Turkey varies between 5000 and 20000 USD, depending on the type and location of the operative procedure.

*The government only pays 30-40% of the bill if the patient obtains a multidisciplinary council approval. (The council mainly consists of endocrinologists!)

Slide-8

*For patients with T2DM, I operate on all patients with a BMI above 20, if they meet the metabolic criteria for the operation.

*I did 4 revision bariatric surgeries. (1 anastomotic stricture, two band removals with sleeve and one band removal with BIB).

*I work at a private university and its private hospitals in Istanbul. We accept and operate on overseas patients.

Slide-9

*The main problem, also affecting my country from obesity pandemic is the so called "Coca-colonization", which refers to global standardization of refined or saccharified food.

*From my (surgical) aspect, the main problem is internists and endocrinologists who are trying to discover America once again.

*The main need is education and social awareness.

Slide-10

*Protection is more important than treatment. I personally believe that we should worldwide keep away from refined and saccharified food. However, these products are easy to keep, suitable for overseas transport and unfortunately, they are tasty.

*Each government should establish their policy for nationwide food supplies and consumption of childhood food products.

*Turkish people like to eat bread with spaghetti and/or rice. I think that we should at first educate people, than we should raise a social awareness about the global food industry, metabolic syndrome and the importance of physical exercise.

*For those with already settled metabolic syndrome, the importance and affectivity of surgical treatment should be emphasized, with particular notation on the advantages of laparoscopic surgery.

Slide 11

*From bariatric point of view, the importance of a team work has always been emphasized. I have recently moved to a new institute in Istanbul and am trying to settle my own team.

*From metabolic point of view, I operate on T2DM patients with end-organ damage. I have operated on 46 non-obese, overweight or type 1 obese (BMI=30-35) patients with T2DM. I believe that we should also emphasize and try to produce a global awareness for surgical treatment of Diabetes.

National report

Bariatric surgery in Brazil: Current status

Joel Faintuch , Francisco Karkow, Fernanda Pezzi (Sao Paulo University Medical School and Fatima Faculty, Caxias do Sul)

Introduction

Obesity is a growing epidemic not only in industrialized countries but also in the developing world. The main difference in places like Brazil is the phenomenon of nutrition transition. Till the recent past undernutrition was the main problem. The rapid shift toward excessive body weight resulted in the relatively frequent coexistence, in the same family and in the same house, of examples of the two derangements, namely undernourished children with obese parents, or the opposite association.

Antiobesity procedures were started in this country in the 1970's, in the form of jejunoileal bypass. Multiple modalities were tested along the years, especially in Hospital das Clinicas, Sao Paulo, which was the pioneer institution, till the creation of the Brazilian Society of Bariatric and Metabolic Society (BSBMS) in 1999, by Artur Garrido Jr.

Yearly congresses have been organized since that time, and the Society counts more than 900 members including surgeons as well as allied health professionals. Current president is Ricardo Cohen. A Bulletin was created in 2000 by Joel Faintuch and Artur Garrido Jr and converted into a quarterly Journal five years later. Now the Journal has merged with the Brazilian Archives of Digestive Surgery, which also appears every three months.

Acceptance of the specialty

Until the early 1990's just a few dozen surgeons had interest in bariatric operations and very few surgical residents had exposure to such the techniques. However after the establishment of BSBMS growth has been exponential, notably after government and private health providers accepted reimbursing the operations. At this moment such procedures are very well established all over the country, and actively sought by obese patients. Indeed, public hospital often suffer with long waiting lines.

Surgical residents in large academic hospitals and also in certain private ones have the chance of operating bariatric candidates during their rotations, and a couple of Centers of Excellence in Bariatric Surgery has been created in Sao Paulo, with a tendency to grow towards other cities as well.

Surgical procedures

The most practiced modality in the country is the Roux-en-Y gastric bypass (RYGB), which is the first intervention recognized and funded by the Federal Social Security System. Approximately 75% of the candidates undergo this treatment, but multiple other options are endorsed by BSBMS, namely vertical banded gastroplasty, sleeve gastrectomy, gastric banding, Scopinaro procedure and duodenal switch, along with the endoscopically placed intragastric balloon.

Patient care and hospital facilities

A national consensus signed by six surgical and clinical professional societies in 2007 established directives for most routines and indications concerning bariatric interventions, from patient selection to hospital equipment and postoperative care.

Current statistics

Brazil has roughly 190 million inhabitants of which between 2 and 4 million are morbidly obese, depending on the estimate. About 30 000 bariatric procedures are conducted each year, of which 25-30% are paid by the Federal Social Security System, 60-70% by commercial Health Providers, and around 5% privately financed.

Distribution of morbid obesity

A national survey under the initiative of BSBMS revealed that though morbid obesity doesn't spare any of the regions of Brazil, distribution is not homogeneous. The two poorest areas, namely the North and Northeast, display the lowest proportion (2%). The rich Southeastern region, which includes Sao Paulo, wasn't bad either with 2.5% prevalence. The highest rates corresponded to the Western region and to the South, both with 5% values.

As concerns the South there is a rather obvious explanation. This area is quite affordable, there is strong immigrant influence especially from Italian and German people, and the population appreciates hearty meals. The Western region was a surprise and no obvious explanation is available, though meat is particularly abundant in that area because of vast cattle-raising farms.

Metabolic surgery

In the last five years several groups have engaged in standard bariatric or tailor-made operations for non-morbidly-obese diabetics, with variable results. Animal investigations were started in a number of University laboratories, and Master's as well as PhD theses are going on. Some controversy occurred when a couple of teams started performing such interventions on a routine basis. A consensus established in 2009 decided that these treatments are still experimental and should be conducted under approval of an Ethical Committee, for the purposes of scientific investigation only.

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Metabolic Surgery in Asia

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Type 2 diabetes mellitus (T2DM) is now a global health priority. It was estimated that more than 240 million people in the world are affected with T2DM and that number is expected to 360 million by the year 2025. More than 60% of the world's population with diabetes comes from Asia and the incidence of T2DM in Asia is increasing more rapid than the rest of the world. In Taiwan, the T2DM incidence of adult male increased more than double from 4.6% to 9.3% in the past decade. Unlike in the west, where older population is most affected, the burden of diabetes in Asian countries is disproportionately high in young to middle-age adults. For those early onset T2DM patients, the incidence rate of diabetic nephropathy is alarmingly high, especially in those not well controlled patients. In Asia, 55% of newly diagnosed end staged renal disease patients are due to T2DM. How to control this chronic and debilitating disease will be a very important health issue in Asia.

There are strong evidences that bariatric surgery can cure most of the associated T2DM morbid obese patients ($BMI > 35 \text{ Kg/m}^2$). However, the mechanism for diabetes remission after gastric bypass remained speculative. Optimal outcomes for diabetes remission after metabolic surgery will occur if the mechanism is understood and patients best suited to the surgery are selected and those who will predictably have a poor result are excluded. To be able to make such decisions, we need a collaborative study from Asia for the Asian. This information is helpful for applying gastric bypass surgery as metabolic surgery for type 2 diabetes treatments in the future.

"Asian particularity on Obesity and Metabolic disorder"

The personality of the patients with morbid obesity

Kohji Shirai

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Bariatric surgery might become indispensable for the therapy of morbid obesity. Metabolic disorders could be well improved by bariatric surgery. In some cases, weight reduction relief the insulin therapy in obese type 2 diabetes mellitus. But, following up term after operation is very important, because actual body weight reduction can be obtained in this term. The trouble in this term seems to be not so few. One is psychological unstableness. We had already experienced them during semi-starvation therapy. For example, depression, refusal diet, trial of suicide, solitary and so on.

To understand the causes for that unstableness, personalities of the patients were analyzed using Rorschach test by applying Ender' s methods. In many cases, depression and organic psychological diseases were concealed. One of conspicuous features was high lambda style, in which, passive attitude, superficial understanding, apparent obedience were observed. Those people were controlled well in the hospital, but, they easily show rebounds once outside of the hospital. The percentage of high lambda style is increasing as the degree of obesity.

Before operations of the patients, we had better understand the personality of the patient, beforehand. Moreover, psychotherapy such as enforcement will improve the benefit of surgery. And, how to understand the personality of the patients need further studies.

Bariatric surgery in Asia. A literature review.

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Cube, Tokyo, Japan

Yosuke Seki, Kazunori Kasama, Hideharu Shimizu

Like in Western countries, bariatric and metabolic surgery in Asia has been steadily gaining popularity although the pace of spread is gradual. The purpose of the present review is to evaluate the current evidence regarding weight loss, complication rates, postoperative mortality, and co-morbidity improvement after bariatric surgery for Asians. Pubmed was searched for citations.

Laparoscopic Roux-en-Y Gastric Bypass for Normal Weight Type II Diabetes Mellitus

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Chih-Kun Huang, MD*†‡, Chi-Hsien Lo, MD*, Jer-Yiing Houg, PhD‡, Yaw-Sen Chen, MD†, Po-Huang Lee, MD†

Background: Laparoscopic Roux-en-Y gastric bypass (LRYGB) can dramatically ameliorate type 2 diabetes mellitus (T2DM) in morbidly obese patients. However, little evidence supports the effectiveness of LRYGB in normal weight patients.

Methods: After getting E-Da IRB approval, twelve normal weight patients with T2DM underwent LRYGB. Data, including patient demographics; BMI; co-morbidities; and details of diabetes mellitus, including disease duration, family history, medication use, and remission were prospectively collected and analyzed.

Results: The mean age of 5 men and 7 women was 51 years (range, 35-65 years); mean BMI, 23.6 (range, 22.9-24.7 kg/m²); and mean duration of T2DM onset was 11 years (range, 3-20 years). Mean operation time was 89 min (range, 46-229). Mean hospitalization was 2 days (range, 1-4). There was no mortality. One patient received laparoscopic repair of Peterson's defect due to symptoms from internal hernia 6 months later after surgery. The result of diabetic remission would be reported.

Conclusions: In this preliminary report, LRYGB is safe in normal-BMI Diabetic patients; result of long-term follow up for diabetic remission is expectable.

Ileal Interposition for Control of Type-2 Diabetes

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Kirloskar Hospital,
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Ileal Interposition is a specific surgery directed to control type -2 diabetes & can be performed for patients of any weight. We present 48 cases of Ileal Interposition surgeries for control of type-2 diabetes done since Feb.2008 under clinical protocol after Institutional Ethics Committee approval.

Selection of patients was done after checking C-Peptide levels and Insulin resistance with HOMA-IR and excluding any cases of LADA. All procedures were completed laparoscopically with 6 ports, performing 3 transections, 3 anastomosis, closure of all 3 mesenteric gaps and a variable sleeve gastrectomy depending on BMI levels. The ileal segment was 170 cms long with transections at 30 cms proximal to I-C junction and 20 cms distal to Lig of Trietz to perform the Standard procedure utilizing the hindgut hypothesis mainly. A Diverted option, using duodeno-jejunal bypass was added for the difficult diabetic situations to also include the foregut hypothesis.

In a follow up of 18 months we have found significant improvement in blood glucose, HbA1c, triglycerides & microalbuminuria. Results were statistically significant for Blood glucose, HbA1c, triglycerides & microalbumin at all times upto 24 months. Malabsorption as measured Vit B12, Ca²⁺, Iron-- was not observed.

We conclude that Ileal Interposition can be done with safety & is effective in controlling type -2 diabetes in patients with any BMI, without any malabsorption.

Title: Laparoscopic Sleeve Gastrectomy with Duodenojejunal Bypass for Type 2 diabetes with BMI under 35 kg/m²

Kazunori Kasama MD, FACS. Yosuke Seki MD, Hideharu Shimizu MD,

Abstract:

Background

We introduced laparoscopic sleeve gastrectomy with duodenojejunal bypass (LSGB) for Japanese obese patients with a risk of gastric cancer in 2007. Forty-three patients underwent LSGB from April 2007 to December 2010. Regarding anti-diabetic effect, the remission rate of Type 2 diabetes (T2DM) was 93%. This result showed that LSGB could achieve comparable or better remission of T2DM, compared with other bariatric procedures. The metabolic surgery for patients with BMI lower than 35 kg/m² is still controversial. We evaluated the effect of LSGB on T2DM with BMI under 35.

Methods

Seven patients with T2DM underwent LSGB. The preoperative mean BMI and weight were 33.4 ±1.5 kg/m² and 97.4 ±11.0kg, respectively. There were six patients with T2DM and one patient with IGT. The data on T2DM, lipid profile and blood pressure of the subjects were studied before and 12 months after surgery.

Results

The mean excess weight loss at 12-month follow up point was 82.7%. The mean fasting plasma glucose and HbA1c before and 12 months after surgery were 154.7 mg/dl, 8.1% and 128.5 mg/dl, 6.1%. The remission rate of T2DM was 83%. The mean systolic blood pressure and LDL before and 12 months after surgery were 147.5 mmHg, 158.4 mg/dl and 131.0 mmHg and 140.0 mg/dl. There was one patient who could not achieve the remission of T2DM with 20-year history and preoperative insulin required status (more than 100 U/day). The other CVD risk factors related to T2DM were improved clinically.

Conclusion

This result showed that LSGB for low BMI patients with T2DM could achieve the considerable remission rate of T2DM and reduce the other CVD risk factors.

Metabolic surgery in Korea : Remission of hyperglycemia with modified mini-gastric bypass for the patients with BMI less than 30 kg/m²

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Background: Type 2 Diabetes mellitus (T2DM) has become an epidemic health problem. Compared to western countries, Asian T2DM occurs in patients with lower body mass index (BMI) due to central obesity and decreased pancreatic β -cell function. The efficacy of laparoscopic mini-gastric bypass (LMGB) in obese patients with T2DM is proven by numerous studies. Treatment outcomes of LMGB for non-obese T2DM patients are also estimated to be excellent. The aim of our pilot study was to evaluate the efficacy and safety of LMGB in non-obese T2DM patients (BMI < 30 kg/m²).

Methods: Eighty-eight patients underwent LMGB at Soonchunhyang University Hospital from August 2009 to November 2010. Preoperative data including glycosylated hemoglobin (HbA1c), fasting plasma glucose (FPG), and 2-hour post prandial glucose (2-hr PPG) were compared with data collected at 1, 3, 6 and 12 months postoperatively.

Results: All procedures were completed laparoscopically. Mean age was 47.1 years, mean BMI was 25.3 kg/m², mean operative time was 96.2 minutes, and mean postoperative hospital stay was 4.6 days. Neither mortality nor major complications occurred. Mean preoperative HbA1c, FPG, 2-hr PPG, and C-peptide level were 9.7%, 222 mg/dl, 343 mg/dl, and 2.78 ng/ml, respectively. 12months follow-up was possible in 13 patients. HbA1c, FPG, 2-hr PPG, and C-peptide level at 12th post-operative month were 6.3%, 124 mg/dl, 194 mg/dl, and 2.18 ng/ml, respectively.

Conclusion: The present preliminary study demonstrated resolution of hyperglycemia in non-obese T2DM patients (BMI < 30 kg/m²). Although long-term follow-up data are required, early operative outcomes were satisfactory in terms of glycemic control and safety of the procedure.

Metabolic Surgery in Hong Kong

Wilfred Mui

Hong Kong Bariatric and Metabolic Institute

Asians have higher fat content and different indications for bariatric surgery as compared to western population. In response to DSS in Rome, Asia Consensus Meetings on Metabolic Surgery, endorsed by the Asia Pacific Bariatric and Metabolic Surgical Society were held at Trivandrum in India in 2008 and Taipei 2010 to discuss the situation in Asia. Most experts agreed that Asians are more prone to develop diabetes at lower BMI and early consensus for the use of metabolic surgery to treat Type II diabetes mellitus in Asia were laid and stated as the followings:

1. Bariatric/Gastrointestinal Metabolic surgery should be considered as a treatment option for obesity in people with Asian ethnicity with a BMI more than 35 kg/m² with or without co-morbidities.
2. Bariatric/Gastrointestinal Metabolic surgery should be considered as a treatment option for obesity in people with Asian ethnicity above a BMI of 30 if they have central obesity (waist circumference more than 80 cm in females and more than 90 cm in males) along with-at least two of the additional criteria for metabolic syndrome: raised triglycerides, reduced HDL cholesterol levels, high blood pressure and raised fasting plasma glucose levels or Type II diabetes mellitus patients who are inadequately controlled by life-style and medical therapy.
3. A surgical approach may also be appropriate as a non-primary procedure alternative to treat Type II diabetes mellitus patients with BMI >27 and central obesity (waist circumference more than 80 cm in females and more than 90 cm in males) who are inadequately controlled by life-style and medical therapy.

Most clinicians and patients in Hong Kong at present are not aware of the option of surgery for treating Type II diabetes. Increasing evidences demonstrate that gastrointestinal surgery including current bariatric surgery has a specific and independent effect on the disease. We have introduced metabolic surgery to treat Type II diabetes since 2008 in Hong Kong. At the moment, we limit our patients to BMI >27 with poorly controlled DM. Options would be sleeve gastrectomy vs. gastric bypass vs. sleeve gastrectomy with DJB.

Experience of diabetes surgery in India

Muffazal Lakdawala

Abstract

Diabetes is believed to be a quintessential medical disease. The notion that surgery is effective and can lead to a virtual cure is a revolutionary concept that evolved when long term results of bariatric surgery started coming in. This led to a major shift in the goal of treatment from improving life with diabetes towards curing it. These reports have far reaching implications for a country like India which is the diabetic capital of the world. It is postulated that by 2025 there will be 57 million Indians suffering from type 2 diabetes mellitus. Almost 70% of the diabetics are overweight.

It is a well known fact that Asians have a higher body fat percentage as compared to their western counterparts. Asians are metabolically obese and tend to develop comorbidities like type 2 diabetes at a much lower weight. Visceral fat as measured by the waist circumference holds a lot more importance in Asians. In the wake of these observations 1st Asian consensus meeting on metabolic surgery was organized to contend the existing NIH criteria for defining obesity in the Asian perspective.

Presently laparoscopic roux-en-y gastric bypass (RYGB) and laparoscopic sleeve gastrectomy (LSG) are the most commonly performed bariatric procedures in India. Indian studies have shown about 98% resolution of type 2 diabetes after RYGB in morbidly obese. Recent reports suggest comparable results after LSG albeit it takes longer than after RYGB. Presently these procedures are being recommended for patients with a BMI of 32 and above with type 2 diabetes mellitus. It has also been recommended for patients with a BMI of 30 and above in conjunction with waist circumference and presence of comorbidities.

The contention is whether the same results can be simulated in diabetics who are not obese. Whether metabolic procedures like ileal transposition and duodenojejunal bypass will stand the test of time is yet to be seen. Trials are going on in various parts of the world. India has the biggest diabetic load and stands to benefit the maximum from any positive outcomes. There is immense hope riding on this concept as any positive results would prove to be a boon to the millions of diabetics who can then hope of a pill or insulin free life.

Overview of Metabolic Surgery Worldwide

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Henry Buchwald, Department of Surgery, University of Minnesota USA

An email survey was sent to the leadership of the 36 International Federation for the Surgery of Obesity and Metabolic Disorders nations or national groupings, as well as Denmark, Norway, and Sweden. Responses were tabulated; calculation of relative prevalence of specific procedures was done by weighted averages. Out of a potential 39, 36 nations or national groupings responded. In 2008, 344,221 bariatric surgery operations were performed by 4,680 bariatric surgeons; 220,000 of these operations were performed in USA/Canada by 1,625 surgeons. The most commonly performed procedures were laparoscopic adjustable gastric banding (AGB; 42.3%), laparoscopic standard Roux-Y gastric bypass (RYGB; 39.7%), and total sleeve gastrectomies 4.5%. Over 90% of procedures were performed laparoscopically. Comparing the 5-year trend from 2003 to 2008, all categories of procedures, with the exception of biliopancreatic diversion/duodenal switch, increased in absolute numbers performed. However, the relative percent of all RYGBs decreased from 65.1% to 49.0%; whereas, AGB increased from 24.4% to 42.3%. Markedly, different trends were found for Europe and USA/Canada: in Europe, AGB decreased from 63.7% to 43.2% and RYGB increased from 11.1% to 39.0%; whereas, in USA/Canada, AGB increased from 9.0% to 44.0% and RYGB decreased from 85.0% to 51.0%. The absolute growth rate of bariatric surgery decreased over the past 5 years (135% increase), in comparison to the preceding 5 years (266% increase). Bariatric surgery continues to grow worldwide, but less so than in the past. The types of procedures are in flux; trends in Europe vs USA/Canada are diametrically opposed.

System of Obesity Surgery: overview

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Lilian Kow

Obesity is a disease in which fat has accumulated to the point where health is impaired. It is a rapidly growing problem not only in the western society but also more recently in the Asia Pacific region. Worldwide, the incidence of morbid obesity has doubled, and about 300 million people are now considered obese.

Obesity surgery started more than 50 years ago. Tremendous advances have been observed in this practice of surgery. New techniques, new procedures, minimally invasive access and improvements in preoperative management have transformed the system of obesity surgery into a subspecialty of its own. To date, there is no effective diet or drug therapy available to treat the morbidly obese. On the other hand, bariatric surgery has been proven to be effective, providing marked and lasting weight loss, ranging from 47.5% to 70.1% of excess body weight. These results are achieved in relative safety, with operative mortality equal or less than that for other major operative procedures (about 0.5%). The weight loss outcome, results in dramatic improvement on the co-morbid conditions of morbid obesity.

The major medical co-morbid conditions can be divided into those where reversal or improvement has been proven such as type 2 diabetes, hyperlipidaemia, hypertension, obstructive sleep apnea, etc and those where reversal or improvement are reasonable and presumed such as cardiac and peripheral vascular disease, incidence of thrombophlebitis and pulmonary emboli and various carcinomas.

The ameliorating effects of bariatric surgery are not limited to medical co-morbidities. Socially, quality of life is vastly improved, as are body image, personal hygiene, and sexual activity. Many of the economic deprivations of the morbidly obese are reversed after marked weight

loss due to increased employment opportunities advancement potential, and level of income. The sum total of these co-morbidity benefits is an increase in longevity.

Role of incretins in metabolic surgery-induced remission of type 2 diabetes.

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Two hypotheses are proposed as a mechanism for remission of type 2 diabetes (T2DM) in metabolic surgery; one is foregut hypothesis associated with the exclusion of the duodenojejunum from the nutrient exposure, while another one is hindgut hypothesis associated with the rapid exposure of the ileum to the bile and nutrients. These hypotheses are tested using rat models of T2DM, including Goto-Kakizaki rats and obese Zucker rats. Two most representative procedures of metabolic surgery in rats are ileal interposition (II) and duodenojejunal bypass (DJB). II is considered as a model for hindgut hypothesis, whereas DJB as a model for foregut and partly hindgut hypothesis. These 2 procedures improve glucose metabolism, and there are no differences in T2DM remission effects between 2 procedures. Incretins including GIP and GLP-1 are assumed to play an important role in remission of T2DM in these procedures. Most studies reported that II does not affect fasted plasma GLP-1 levels but increases those after glucose or meal administration. Effects of II on the fasted and postprandial plasma GIP levels are still controversial. The effects of DJB on plasma GLP-1 and GIP levels are also controversial, and mechanisms independent of incretin are assumed in DJB-induced remission of T2DM. Clinically, ileal interposition with sleeve gastrectomy (II-SG) and ileal interposition with diverted sleeve gastrectomy (II-DSG) are being attempted. More than 90% of patients achieved adequate glycemic control (HbA1C<7%). Plasma levels of GLP-1, GIP, and PYY significantly increased, while plasma levels of ghrelin significantly decreased, after II-SG and II-DSG in the fasted and postprandial states. These results indicate the important role of incretins in metabolic surgery-induced remission of T2DM, but mechanisms other than incretins are also likely.

From the Aspect of Mental health

Tetsuya Nakazato

Yotsuya Medical Cube

Morbid obesity is a not only physically but also psycho-socially complicated disease. It is important to focus on the environment of the patients. For example, familial relationships, friendships, work relationships and other relationship.

Surgical treatments for morbid obesity have started in our institution since June 2006. The objective of the treatment is to improve quality of life (QOL). For improvement of QOL, physical, psychological, and social supports are important through pre- and post-treatment. Our multidisciplinary team consists of doctors, nurses, nutritionist, and social worker. This multidisciplinary approach is necessary to achieve highly effective treatment for obesity. To defeat the complexity of obesity, approach from different aspects is important. The key to success lies in a multidisciplinary team to empower the patients.

As the profession of social worker is to establish interaction between patients and their environments, The roles of the social worker in bariatric surgical team start from the first intake of all clients, conducting support groups, making an assessment of psycho-social problems and counseling.

The term "Mental illness" encompasses a wide variety of problems. The presence of psychiatric disorders is not an absolute contraindication to weight loss surgery.

The lecture will be regarding behavioral and psychological factors in the assessment and the treatment of bariatric surgery patients.

From the aspect of Nutrition; Formula diet

Atsuhito Saiki

Center of Diabetes, Endocrine and Metabolism, Toho University Sakura Medical Center

Formula diet is a powdered preparation and is composed of high-protein, low-carbohydrate, low-fat, vitamins and minerals. Formula diet is safe, convenience and effective in weight loss for treatment of obesity. However, the nutritional efficacy is not fully explored.

We compared the effects of partial use of formula diet (MicroDiet®; 170kcal/pack, protein 21.5g/pack, fat 2.4g/pack, carbohydrate 16.5g/pack) and conventional subcaloric diet on weight reduction, body fat distribution and related metabolic variables in obese patients with type 2 diabetes for 24 weeks. In formula diet group, weight reduction, visceral fat reduction, decrease in systolic blood pressure, HbA1c, triglyceride and increase in HDL-C was greater than in conventional diet group. Interestingly, improvements in visceral fat, HbA1c, triglyceride and HDL-C per reduced body weight were higher in formula diet group. These findings have given us a hypothesis that formula diet has specific nutritional effect, which is independent of calorie restriction. To clarify the hypothesis, we investigated the effects of formula diet on visceral fat, metabolic parameters and adipokines expression in Zucker diabetic fatty rats (low-calorie diet; 56kcal/g, P:F:C=25:15:60, formula diet (MicroDiet®); 56kcal/g, P:F:C=50:14:36). The changes in body weight were not different between groups, however in formula diet group, decrease in visceral fat volume and improvement in triglyceride and HDL-C were greater. Adiponectin, LPL, PGC-1 α and PPAR γ mRNA/protein expression in visceral fat tissue were higher in formula diet group. On the other hand, formula diet also led to greater reduction of liver fat content in Zucker rat.

Formula diet may be useful for prevention of malnutrition and long-term weight gain after bariatric surgery. Furthermore, the potent effect on liver fat reduction is also useful before surgery, because enlarged fatty liver in obesity compromises surgical access to gastroesophageal junction. Pre- and post-operative formula diet may be a key nutritional option when bariatric surgery is performed.

Consensus of Asian Diabetic Surgery Summit (ADSS) and APBSS

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2005 APBSG consensus meeting has modified the indication of bariatric surgery for Asian people to

1. Obese patients with their BMI over 37
2. Obese patients with their BMI over 32 in the presence of diabetes or other two significant obesity related co-morbidities.
3. Have been unable to lose or maintain weight loss by dietary or medical measures.
4. Age of patient > 18 years and < 65 years.

* Under special circumstance and inconsideration with a pediatrician, bariatric surgery may be used in children under age 18

2010 ADSS meeting in Taipei has proposed the indication of metabolic surgery for Asian diabetes people

1. Metabolic surgery should be recommended for diabetes patients with their BMI over 37
2. Metabolic surgery should be considered for diabetes patients with their BMI over 32 and not well controlled (HbA1c > 7.5%) after intensive medical treatment.
3. Metabolic surgery may be considered for diabetes patients with their BMI over 27 with many co-morbidities and not well controlled (HbA1c > 7.5%) after intensive medical treatment.
4. Age of patient > 18 years and < 70 years, with acceptable surgical risk and without end-organ damage.

*The patient should be cared and followed by multi-discipline medical team and pre-operative B-cell function evaluation is indicated

Consensus of Diabetic Surgery Summit (DSS)

Impact on Asian population

Wilfred Mui

Hong Kong Bariatric and Metabolic Institute

Background: The purpose of the Summit, led by Prof. Rubino is to formulate new consensus for surgical intervention for Type II diabetes mellitus in western population. It created tremendous impact on Asian population and in response to DSS guidelines, ADSS and ACOMOMS guidelines were developed specifically for Asian population.

Method: Multidisciplinary voting delegates around the world gathered at Roma in March 2007 for the 1st DSS. During the meeting, available scientific evidence were examined and discussed by the entire group. Consensus for diabetic surgery for western population was established.

Results and Conclusions:

1. GI surgery should be considered for the treatment of T2DM in acceptable surgical candidates with BMI $>35\text{kg/m}^2$ who are inadequately controlled by lifestyle and medical therapy.
2. A surgical approach may also be appropriate as a non-primary alternative to treat inadequately controlled T2DM in suitable surgical candidates with mild-to-moderate obesity (BMI 30–35 kg/m^2). RYGB may be an appropriate surgical option for diabetes treatment in this patient population.
3. Although novel GI surgical techniques (eg, duodenal-jejunal bypass, ileal interposition, sleeve gastrectomy, endoluminal sleeves) show promising results for the treatment of T2DM in early clinical studies, they should currently be used only in the context of IRB-approved and registered trials.
4. To improve quality of medical evidence, the development of standards for measuring clinical and physiological outcomes of surgical treatment for T2DM is a high priority.
5. Randomized controlled trials are strongly encouraged to assess the utility of GI surgery to treat T2DM.
6. Development of a standard registry/database is a high priority for research in this area. In addition to clinical trials, animal studies can provide useful information about the efficacy and mechanisms of GI metabolic surgery to treat T2DM.

National report of treatment of obesity and metabolic disorder from (India).

Dr. Mahendra Narwaria, MS, FICS.

President, Obesity and Metabolic Surgery Society of India

Asian Indians exhibit unique features of obesity; excess body fat, abdominal adiposity, increased subcutaneous and intra-abdominal fat, and deposition of fat in ectopic sites (liver, muscle, etc.). Obesity is a major driver for the widely prevalent metabolic syndrome and type 2 diabetes mellitus (T2DM) in Asian Indians in India and those residing in other countries. Based on percentage body fat and morbidity data, limits of normal BMI are narrower and lower in Asian Indians than in white Caucasians. A consensus statement, was published for revised guidelines for diagnosis of obesity, abdominal obesity, the metabolic syndrome, physical activity, and drug therapy and bariatric surgery for obesity in Asian Indians after consultations with experts from various regions of India belonging to the various medical disciplines representing reputed medical institutions, hospitals, government funded research institutions, and policy making bodies.

According to National Family and health Survey (NFHS), approximately 7.1% of Indian population is under obesity risk. Almost 65% of adult urban Indian are –either over weight, obese or have abdominal obesity. The highest incidence is observed in North western (Punjab) part of India (M: F- 30.3/37.5%), followed by South (M: F-24.3/34%) and North east (M: F-17.3/21%).

With an estimated 50.8 million people living with diabetes, India has the world's largest diabetes population, followed by china with 43.2 million. The prevalence of type II DM in adult population ranges from 9% to 16%, with 14.2 % of male and 17.5 of female.

The Obesity and Metabolic Surgery Society of India was established in 2001. The indication for surgery is generally in accordance with guidelines using the WHO standard for obesity on Asia, i.e. BMI >37.5/32.5 with co-morbidities. There are few no of bariatric and metabolic surgeries carried out outside the standard guidelines for obesity surgery but they are mainly as part of some clinical trials.

There are about 80 surgeons (certified general, GI surgeons with training and experience) performing bariatric surgery regularly in India, carrying out 2000 procedures per year.

There are 5 high volume centres and few of them applied for centre of excellence (ICE) certification from ASMBS.OSSI is jointly working with SRC to develop centre of excellence in India. Cost of bariatric treatment depends upon

the types and location of the operative procedure. We accept and operate the international patients.

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Consensus of OSSANZ National Report from Australia

President, Obesity Surgery Society of Australia and New Zealand
Lilian Kow

The OSSANZ Bariatric Surgical Standards (OBSS) was developed to ensure that all surgeons who undertake to perform Bariatric Surgery within any Health Service (Public or Private) are properly credentialed and have the scope of providing a quality bariatric surgical service in accordance with both their level of skill and experience and the capability of the Health Service. The following are the recommended OSSANZ Bariatric Surgical Standards for defining the scope of clinical practice for Bariatric Surgery.

An Australian standard has been developed to guide the process of credentialing and defining the scope of clinical practice (www.safetyandquality.org).

These recommendations have been developed to ensure the delivery of high quality bariatric service within any Health Service. It is recommended that these OBSS assists Credentialing Committees of Health Services to ensure their bariatric surgeons are performing operations commensurate with their skill and are also providing a quality bariatric service to their patients as defined below.

These OBSS apply to all surgeons who are practicing or considering bariatric surgery. They are guidelines recommended for Credentialing Committees of Health Services in the certification and recertification of bariatric surgeons in Australia and New Zealand.

For surgeon members, the process of their application for clinical practice of bariatric surgery (operation specific) within any Health Service should be of the following 3 categories:

1. Provisional Bariatric Surgical Accreditation

Provisional Bariatric Surgical is the first step for surgeons with FRACS or equivalent, who wish to become fully accredited Bariatric Surgeons in any Health Service. This is the agreed step to be taken when undergoing and completing training in bariatric surgery, and mentoring of cases, before being accredited as Bariatric Surgeon for a specific bariatric procedure:

- a. Nominated by 2 surgeons experienced in Bariatric Surgery.
- b. Successful completion of, and proof of, approved Bariatric Surgery Training or a Bariatric Course.
- c. Documentation of minimum of 3 mentored cases by another Bariatric Surgeon, with written approval by the mentor.
- d. The surgeon may then proceed to documenting 20 bariatric cases, (Logbook) which is to be forwarded to, and to be approved, by the Credentialing committee.
- e. Agree to contribute to the OSSANZ Bariatric Registry.

2. Full Bariatric Surgical Accreditation

Bariatric Surgical Service is applied for after fulfilling the requirements of the Provisional Bariatric Surgical Accreditation.

- a. Has fulfilled the criteria of Provisional Bariatric Surgeon and received the necessary written approvals.

- b. Maintains and updates clinical skills and bariatric knowledge which includes one bariatric surgical meeting (national or international) yearly.
- c. Continues to contribute to the ongoing OSSANZ Bariatric Registry and follow-up.
- d. Maintains surgical skills by at least 20 bariatric operations annually.
- e. Reviewed/renewed triennium.

3. Grandfather Clause

Surgeons already performing Bariatric surgery will need to provide the following when applying for recertification as Bariatric Surgeons by their Health Service

- a. Fully qualified and recognized General Surgeon
- b. Evidence of successful completion of a Bariatric Course or Training
- c. Evidence/experience and explanation of Bariatric Training
- d. Name of 2 referees - experienced in Bariatric Surgery.
- e. Evidence of having performed 100 Bariatric Cases and complication rate

JSSO Consensus Statement 2010

Chairman of the JSSO guideline committee, Isao Kawamura

JSSO, as a body member of IFSO, had been formulating its guidelines for about 3 years in order to enact them. These were completed and released as Statement 2010 in 2010. The basis of the guidelines was established by complying with the IFSO guidelines 2008, in consideration of the state of affairs in Japan and characteristics of obesity patients. However it also takes account of the flexibility to handle future revision if necessary. The first feature of JSSO is the fact that surgeons should have an idea the treatment of morbidly obese patients lasts a lifetime, does not end with surgical treatment only. Those are compared to lines and points. In other words, the treatment of morbid obesity needs multidisciplinary treatment with a team which includes physicians, psychiatrists, dieticians, counselors and so on. Surgical indications characterize the second feature of JSSO. Indications for bariatric surgery is applied for the patients with BMI ≥ 35 , because the criterion of Japanese obesity is defined by BMI ≥ 25 . We have defined the indication for metabolic surgery by BMI ≥ 32 and have positioned it as clinical study. It obliges a through follow-up for the patients under the rigid registration system. Our report mainly consists of these details.

Muffazal Lakdawala

Abstract

Background: The Asian consensus guidelines were the outcome of a two day deliberation that was organized in Trivandrum, India on the 9th and 10th August 2009.

Methods: Asian Consensus Meeting on Metabolic Surgery (ACMOMS) was the first ever meeting of its kind in Asia where 52 professionals involved in the field of bariatric surgery, metabolic surgery, diabetes, and medical research from countries across Asia and the GCC met at Trivandrum, India to vote for and create a new set of guidelines for the Asian phenotype, which were different from the NIH guidelines set for bariatric surgery. The aim was to set culturally, geographically, and genetically relevant standards for the management of obesity and metabolic syndrome.

Results: It is known that Asians have higher adiposity for a given level of obesity, and this is visceral obesity as compared to other populations. Currently, worldwide guidelines set by NIH in 1991 are being followed for bariatric surgery. Surgeons believe that NIH guidelines need to be revisited and modified. It is in light of these observations that the genesis of ACMOMS took place. At ACMOMS, it was recommended that the NIH guidelines are not suitable for Asians, and the BMI guidelines should be lowered for indication of surgery. Waist or waist-hip ratio must gain significance as compared to BMI alone for Asians. The recommendations were as under:

- Bariatric/Gastrointestinal Metabolic surgery should be considered as a treatment option for obesity in people with Asian ethnicity with a BMI more than 35 kg/m² with or without co-morbidities.
- Bariatric/Gastrointestinal Metabolic surgery should be considered as a treatment option for obesity in people with Asian ethnicity above a BMI of 32 kg/m² with co-morbidities.
- Bariatric/Gastrointestinal Metabolic surgery should be considered as a treatment option for obesity in people with Asian ethnicity above a BMI of 30 kg/m² if they have central obesity (waist circumference more than 80 cm in females and more than 90 cm in males) along with at least two of the additional criteria for metabolic syndrome: raised triglycerides, reduced HDL cholesterol levels, increased LDL levels, high blood pressure and raised fasting plasma glucose level.
- Any surgery done on diabetic patients with a BMI less than 30 kg/m² should be strictly done only under study protocol with an informed consent from the patient. The nature of these surgeries should be considered as yet purely experimental only as part of research projects with prior approval from the ethics committee.

Conclusions: The collective recommendations were submitted as a report to the executive committee for approval. These guidelines have now been accepted by the Asia Pacific Metabolic and Bariatric Surgery Society (APMBSS) and IFSO Asia Pacific Chapter and have been published in the journal of Obesity surgery.

Bariatric Training and Education

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Obesity surgery is not only a craft but it also signifies consideration of the disease as a whole. An Operation Primer undertakes the task of communicating basic surgical techniques. Only someone who knows all the technical possibilities and procedures is in a position to react flexibly and adequately in different situations. About 50 different surgical methods have been developed in obesity surgery in the past 50 years. It is obvious from this that the optimal surgical method for the obese patient does not exist. Experience has shown that peri- and postoperative complications can be reduced with with simplified working steps. An Operation Primer is an ideal format for communicating new operative methods but it does not replace training by an experienced surgeon. A surgeon cannot rest on his laurels but must always keep up with the latest techniques. I would therefore like to take this opportunity to thank the Industry for making Mental Training, training on the computer simulator and operations in the laboratory possible. First-class surgery is possible only through careful acquisition of knowledge, regular training and quality control. Additional mental training is an effective way of optimizing the outcomes of further training for laparoscopic procedures. It is associated with fewer costs and with better outcomes in some crucial assessment scales than additional practical training.

Bariatric Surgery clinical fellowship in the USA

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Bariatric surgery has been gaining popularity worldwide. It is still not easy to master the comprehensive perioperative bariatric patient care and advanced laparoscopic skills including intracorporeal hand-sewn anastomosis.

Currently there are 62 bariatric surgery fellowship training programs in the USA according to the Fellowship Council (<http://www.fellowshipcouncil.org/>). The organization monitors individual fellowship training and regulates the matching process to ensure high volume and high quality training. ?

I completed one year clinical laparoscopic bariatric surgery fellowship, predominantly LRYGB and LAGB, with some LSG at Legacy Good Samaritan Hospital in Portland, Oregon. Subsequently I am undergoing another clinical MIS/bariatric surgery fellowship predominantly LRYGB and LSG, with some LAGB at Baylor College of Medicine in Houston, Texas. Both hospitals are accredited as Bariatric Surgery Center of Excellence by Surgical Review Corporation.

I would like to share my experience with 7 bariatric surgeons and discuss the way to organize a bariatric training program.

Bariatric Fellowship in Australia

Dr Benjamin Woolven
St George Private Hospital

General Surgical Training in Australia requires a six year undergraduate or 4 year post graduate medical degree and two years of post graduate experience before commencement. General surgical training is undertaken over a minimum of 5 years and requires successful completion of a two part clinical examination. Further post fellowship training is at the discretion of the individual surgeon though non compulsory two year programs in upper gastrointestinal, colorectal and hepatobiliary surgery have been established. There is no centrally administered training program in bariatric surgery though a number of individual institutions offer one year fellowship programmes.

The authors experience is of a one year programme undertaken at St George Private Hospital in Sydney in Upper Gastrointestinal and Bariatric Surgery. During the fellowship there were 275 bariatric operations including 52 laparoscopic adjustable bands, 158 laparoscopic sleeve gastrectomies, 29 laparoscopic gastric bypasses and 61 revisional operations. There were 433 non bariatric operations. International candidates from Singapore, New Zealand and the United Kingdom have previously completed the programme. Future international candidates are welcome to apply for the St George Fellowship program and other bariatric training programmes throughout Australia.

Bariatric Fellowship Training in a Center of Excellence, Taiwan Experience

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Background: Bariatric surgery has gained more popularity in Asia-Pacific area. But, the multiple co-morbidities of morbid obesity and steep learning curve make comprehensive training program to be looked-for in recent years. Hereby, we present the fellowship training program in a unique International Bariatric Surgery Center of Excellence (BSCOE) in Taiwan.

Methods: From July 2009 to July 2010, fellowship training process, learning curve, patients demographic data, operation time and surgical complications were all collected from different stages of the learning. According to the bariatric training protocol of the institution, data was analyzed and compared.

Results: In this one-year period, totally 346 laparoscopic bariatric operations were performed in the BMI Surgery Center, E-Da Hospital. As a primary surgeon, the fellowship performed 169 bariatric cases independently after 43 assistance. Different type of bariatric surgeries were performed, as gastric banding with or without gastric plication, sleeve gastrectomy and Roux-en-Y gastric bypass. There were only 5 surgical complications (3.55%). There was no mortality. In this journey, we reviewed different stages of the fellowship training, as being from a mere assistant, progressed to primary surgeon, and then supervisor.

Conclusion: Low complication rates came from excellent supervised bariatric training program and we proposed a bariatric surgery training guideline in Asia-pacific area.

Better Short-term Weight Loss for Patients with Group Therapy after Gastric Banding

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Background:

Adjustable gastric band surgery is one of the standard surgeries for the treatment of morbid obesity. The results between, however, varies. Post-operative intensively follow-up and group therapy may offer the patients better concept of eating behavior and life style change, and further lead to better weight loss.

Materials and Methods:

From January 2008 to Dec 2009, 156 patients had received gastric banding surgery. Among these, 31 patients joined the post-operative group therapy including nutritional counseling, aerobic exercise and diet education willingly. Another 31 patients was selected without post-operative group therapy as comparative group. The data was collected retrospectively.

Results:

The mean BMI was 43.6 ± 5.3 kg/m² in the study group and 42.8 ± 6.5 kg/m² in comparison. The BMI at one year after surgery was 32.8 ± 3.6 kg/m² and 34.2 ± 4.6 kg/m² respectively. The average adjustment was 5.2 times in study group comparing to 3.8 times. The study group has better loss of body fat and higher percentage of muscle component.

Conclusion:

Post-operative group therapy is effective for better weight loss and greater improvement of body fat percentage for patients undergo gastric banding.

Laparoscopic adjustable gastric banding in a Japanese institute

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Background/Aim: Although bariatric surgery has not been popular in Japan, the most popular bariatric procedure is now laparoscopic sleeve gastrectomy. In 2005, we introduced laparoscopic adjustable gastric banding (LAGB) into Japan, and here, our data were presented and evaluated.

Methods: Between August 2005 and December 2010, 31 morbidly obese patients (18 women / 13 men, mean age of 39yr) received LAGB in our institute. All patients were morbidly obese (BMI>35 kg/m²), and the averaged weight was 118 kg and BMI was 43 kg/m². In regard to LAGB devices, LAP-BAND® (Allergan Medical) was used in 29 patients and SAGB® (OBTECH Medical GmbH) in 2 patients. All procedures of LAGB were performed through the pars flaccida pathway with band fixation using gastric-to-gastric sutures. Averaged follow-up duration was 35 months.

Results: All the procedures were completed laparoscopically. Two complications were experienced (postoperative bleeding and port trouble), and reoperations were needed in the patients. Weight loss and % excess weight loss on the average were 25kg and 44% after 1 year, 33 kg and 57% after 3 years and 29 kg and 51% after 5 years. Accordingly, comorbidities were frequently improved, and type 2 diabetes and metabolic syndrome were resolved in 9 of 10 patients (90%) and in 14 of 17 patients (82%), respectively.

Conclusions: LAGB is safe and effective in Japanese patients with morbid obesity, and our data seem to be equivalent to those previously reported in Western countries.

Patient Selection for Laparoscopic Adjustable Gastric Banding

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Surgery is the most effective treatment for morbid obesity. Various bariatric operations are available but the ideal operation remains unknown. Laparoscopic Adjustable Gastric Banding (LAGB) is one of commonest bariatric operations. It is simple, adjustable, reversible and minimally invasive. However, the outcome of weight loss is highly variable and band-related complications occasionally occur. To achieve the best outcomes, careful patient selection and a committed follow-up program are essential. Our centre started LAGB since 2004. In 2007 and 2008, we introduced laparoscopic sleeve gastrectomy (LSG) and gastric bypass (LRYGB) respectively. We reviewed our patients who underwent bariatric surgery in the past 6 years, and compared the results among these 3 procedures. We investigated potential predictors of outcomes after LAGB and we also reviewed published data for additional predictors. Till 2010, we had 72 patients who underwent bariatric surgery (42 LAGB, 22 LSG, 8 LRYGB). The median age was 44(range: 24-68) and the BMI was 41 (range: 30-57). Median follow-up among the three procedures was 45, 8 and 6 months respectively. The median excess weight loss (EWL) was 29, 34, 44% respectively. Among patients who underwent LAGB, 29 patients (69%) defaulted follow-up in long-term. Twenty-two (52%) patients had unsatisfactory weight loss (<30%EWL) and 6 (14%) patients developed band complications and required band removal. In general, predictive factors for poor outcomes include age, unwilling to change lifestyle habits and loss of follow-up. In conclusion, long-term results of LAGB are unsatisfactory in unselected patients. Careful patient selection is essential in achieving good outcomes in LAGB.

Lap banding in Thailand

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Professor Paisal Pongchairerks

Laparoscopic Gastric Banding was the first bariatric procedure done in Thailand in 2003. Its preference decreased gradually as Thai surgeons acquired more expertise in other more difficult procedures. The popularity of laparoscopic sleeve gastrectomy also seemed to contribute to this trend. However, banding still entertained the benefit of being a relatively easy procedure among all. Surgeons seemed to come across more long-term complication after more years of follow-up, including esophageal dilatation, reflux with or without esophagitis, slippage and band erosion. Some cases of reoperation were experienced. Nowadays, Thai surgeons have different opinions as for the indication of gastric banding.

Gastric Band in India

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Bariatric surgery started late in India. VBG was introduced in late 1990s. First gastric band surgery in India was done in 2000 & subsequently till 2005 almost all surgeons started bariatric career with gastric band. Most of experienced laparoscopic surgeons could adept gastric band comfortably & numbers of band surgeries increased rapidly till realization started settling in that band is not effective in almost 25% - 35% with 3 year explantation rates of 20% - 30% in different hands.

Introduction of gastric bypass & sleeve gastrectomy has led to further decline in gastric band surgery's fortunes in India. Gastric band now accounts for less than 1% of procedures in most of bariatric practices. Few recent centers have shown renewed interest in gastric band implantations with successful outcomes.

Various reasons attributed to poor results seen by Indian surgeons may be attributed to poor follow up due to failure to get regular adjustments due to long distances, incompletely developed bariatric program, high rate of oesophageal dilatation etc. Lack of patience, due to slow weight loss results, compared to other bariatric surgeries may also attribute to high explanation rate.

Gastric band surgery accounts for almost 50% of bariatric procedures in USA, but only long term follow up will show whether fate of bands will follow the Indian graph. As gastric sleeve is becoming the procedure of choice amongst bariatric surgeons & patients in India, the future of gastric band surgery in India is bleak.