

PERSPECTIVE:

General perspective of the alternative obesity surgical treatments Gastric Restriction Procedure. Vertical Gastroplasty with the band.

Vertical gastroplasty with the band is a completely restrictive procedure. In this operation, the upper part of the stomach, proximate with the esophagus, is stapled in a vertical extension of approximately 2 ½ inches (6 cm) to create a smaller gastric bag. The bags exit orifice is reduced with a band or a ring that slows down the draining of food and generates a satiety sensation.

Advantages

The main advantage of this restrictive procedure is the reduced amount of well-chewed food that enters and goes through the digestive tract in its habitual form. This allows all the nutrients and vitamins (as well as the calories) to be totally absorbed by the body.

After ten years, studies reveal that in these cases 50% of the patients can maintain their desired weight loss.

Risks

After the operation, the stapling of the stomach takes along with it the risk or rupture that can produce a leak or a serious infection. This may require a long hospitalization, accompanied by a antibiotic treatment or an additional operation.

The rupture of the stapling line can also, on a long run, cause weight gain. For these reasons some surgeons divide the wall of the stapling line from the rest of the stomach to lower the risk of rupture as time passes.

The application of the band or ring can lead to obstruction or piercing complications that may require surgical intervention.

Although these procedures are known to create a satiety sensation, they don't leave you with the necessary sensation that you have eaten enough.

Given that the restrictive procedures depend only on a small gastric bag to reduce the ingestion of food, there is a risk that the bag will widen or that the restrictive band or ring can break, permitting the patients to eat more than they have to.

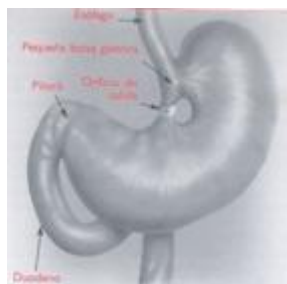


Illustration 4

Around 40% of the patients that submit themselves to these procedures have lost more than half of their body weight.

Like in any weight reduction surgery, hospitalization to replace fluids or dietary support can be required if too much vomiting occurs and if the patient can't maintain regular food ingestion.

Combination of bad absorption and restrictive procedure. Gastric derivation or gastric bypass with ROUX.

Over the recent years, the best clinical understandings of the combined restrictive procedures and of bad absorption have increased the successful alternative weight loss surgeries for thousands of patients. By adding the bad absorption method, the mixing of the food with the bile and pancreatic juices slows down, which helps the nutrients to be absorbed. The result is a quick sensation of satiety combined with satisfaction that diminishes the anxiety to eat.

According to the United States Bariatric Surgery Society and the Health National Institutes, nowadays the gastric derivation or gastric bypass with y Roux is the model procedure in weight reduction surgery.

It's one of the most frequent weight loss surgeries done in The United States. In this procedure the stapling creates a small bag (15 to 20cc) in the stomach. The remaining stomach is not extracted but it remains complete closed by the staples and separated from the gastric bag.

The exit orifice of the recently formed bag evacuates directly to the lower part of the jejunum, eluding this way the absorption of calories. This is done dividing the small intestine just after the duodenum, with the purpose to lift and form a union with the recently formed gastric bag.

The other extreme is put together to the lateral ramification of the Roux (look at the 3er illustration) intestine, which creates a "y" which gives it its technical name. The length of any of the 2 segments of the intestine can grow with the objective of producing inferior or superior levels of bad absorption.

Advantages

- The average of weight reduction after the Roux "y" procedure is in general higher in a collaborating patient than in a patient with purely restrictive procedures.
- A year after the surgery, the weight reduction can range from 77% of the body's overweight.

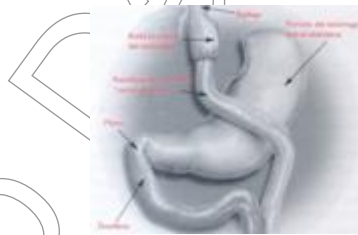


Illustration 5

- There are studies that reveal that after 10 to 14 years some of the patients maintain from 50% to 60% of the weight reduction.
- In the year 2000 a study of 500 patients showed that 96% of certain health conditions associated with obesity (back aches, sleep apnea, high blood pressure, diabetes and depression) improved or totally healed.

Risks

Given that the food digestion is omitted by the duodenum, the absorption of calcium and iron, which can produce a lowering of the iron level in the body and an anemic predisposal caused by a deficiency of this element.

This constitutes a particular concern for the patients experimenting chronic reduction of blood through their menstrual cycles or bleeding hemorrhoids. Women should be conscious of the elevated potential loss of calcium in their bones, being inherent with the risk of osteoporosis appearing after menopause.

The omission of the food transit through the duodenum has caused osseous metabolic diseases in some patients and has produced pain in the bones, reduction in height, lordosis, rib and hip fractures. Never the less, all the recently described deficiencies can be managed with a appropriate diet and vitamin supplements.

Chronic anemia can be caused by the lack of vitamin B12. Regularly this problem can be handled with pills and injections of this vitamin.

One condition known as "evacuation syndrome" can occur as a result of fast evacuation of the stomachs volume toward the small intestine. This sometimes occurs when too much sugar or a great deal of food is consumed. Although, its not considered a serious health risk the results can be extremely nasty and may include nausea, sweat debility, fainting feelings, and in some cases diarrhea after eating. Some patients are incapable of eating any kind of sweet foods after de surgery

In some cases the effectiveness of the procedure can be affected if the gastric bag widens or if it lodges a volume higher than 15-20 cc.

If problems like ulcers, bleeding or malignity occur the abandoned portion of the stomach, the duodenum and segments of the small intestines will not be easily visualized when x-rays or endoscopies are being done.

3.- Gastric Restriction Procedure- Adjustable Gastric Band

The Swedish Adjustable Gastric Band (SAGB) was developed in Sweden almost 20 years ago (1985) and has been used ever since. Nowadays, the majority of the surgeries with the SAGB are performed with a minimal invasive approach, meaning a laparoscopic procedure.

This means that a big incision on the abdominal wall is not need because the procedure is done with devices that allow surgical instruments inside de abdomen through small incisions (approximately 1 cm). The surgeon can see and control the instruments on a television screen due to a small camera that is introduced in the abdomen through the special devices (**see illustration 9**).

The SAGB procedure also consists of surrounding the stomach in the upper part (**like a belt, see illustration 2**). The band narrows and divides the stomach in two sections forming a sand clock. There is no need no cut, staple or remove any part of the stomach or intestine to place the SAGB.

This gives as a result two important facts: first, the procedure with the SAGB is the surgery that least alters the digestive tract, avoiding many secondary effects associated with other obesity surgery treatments. Second, in isolated cases when a re operation is needed; the SAGB can be easily removed, reestablishing the stomachs original form and structure.

This is not the case of many obesity surgery treatments, were the original anatomy of the stomach or intestine is returned because it is extremely difficult and almost impossible. According to the optimal weight loss required and the general well being of the patient the SAGB is adjusted after the initial surgery. It is performed through the access port that is left under the skin (in the same surgery when the band is placed), where liquid is injected or removed from the band, assuring that the content of the stomach evacuates slower or faster.

This adjustment is done in an ambulatory manner without the use of anesthesia or analgesics. If any other elective or emergency surgery should be needed in the future, the gastric band system is not a contraindication to any other procedure. Never the less the surgeon that will perform the operation should be previously notified about the gastric band.



Illustration 2

Selection for the surgery

There are various alternatives for the treatment of obesity. Each patient should be individually evaluated. In the end, the best recommended treatment will depend on the criteria of a variety of selections carefully revised by obesity specialists. The final decision of the best treatment method should be handed to you from your doctor, surgeon or specialist.

How does the SAGB work?

The gastric band induces an early sensation of satiety. You will feel satisfied rapidly after you have eaten a small portion of food, enough to fill the small bag recently created in your stomach. The stretching of the stomach's wall, where the nervous fibers transmit this sensation to the satiety center in the brain, causes this sensation.

This effect can last several hours until the patient is hungry again and can eat another small portion again. The SAGB will help you avoid eating too much or will decrease your general food intake (calories). The nature of the SAGB's function should make you eat less, feel less hunger, and gradually lose your overweight.

A healthier lifestyle takes with it a lower risk of secondary diseases associated with obesity. Never the less you will have to modify your eating habits as well. Although the SAGB is a tool to help you induce a long-term weight loss, it is not an artifact that works on its own. Your commitment, in terms of diet and post-op habits, are essentially important to achieve a correct weight loss to avoid complications.



Illustration 3

New eating habits after the surgery

Immediately after the surgery your eating habits will change. You will receive a detailed dietary plan with the necessary and important advice of your doctor or surgeon, and in the post-op period your doctor will recommend the assistance of a specialized nutritionist. In general, the first four weeks you will be allowed liquid foods like light soups, tea, coffee, non-gassy diet drinks, fruit and vegetable juices, yogurt etc. Never the less, you should restrict the amount of liquids you consume at the same time and eat smaller portions more often instead of eating or drinking bigger portions at a time.

In the following two weeks you will be able to consume small portions of triturated food. From now on your diet will be gradually supplied with regular food. Please obtain more detailed individual instructions from your doctor or bariatric specialist. These gradual nutritional adjustments are important and will permit your body to heal. During this process, the band will be fixed by the reaction of the corporal tissue in the correct spot in the stomach. Eating in bigger portions or eating solid foods too soon, increases the risk of misplacing the band from its position and this will develop an enlargement of the new superior gastric bag.

This can produce little weight loss and in some cases the need to operate again. You can find that some foods are harder to eat. The majority will need you to chew them more carefully before the operation. You should know that there is no quick solution to lose weight, even after the surgery, and that the results of any weight loss program can vary depending on your ability to follow nutritional and health recommendations. This is why the success of the surgery depends on each individual.

Secondary effects, risks, recommendations and general advices.

Like any surgical procedure, this weight loss surgery can present some risks. Make sure you have all the possible information about the complications that can be associated with this kind of procedure and surgeries in general from your doctor or bariatric specialist. Your doctor will know better and will explain what the associated risks are, giving you complete and detailed information about this subject.

Medicines: you should consult your doctor about the regular medicines you take. As you lose weight, your medication might need a change of doses.

Vitamins: during the first period of your rapid weight loss, vitamin supplements will be recommended. Vitamin drinks are recommended for several months after the surgery, on the discretion of your doctor.

Pregnancy: it is recommended to female patients not to get pregnant during the weight loss period, in consideration to the nutritional needs of the mother and the fetus. It is better to wait until the weight is stabilized.

Physical activity: it is important not only to change your eating behavior and habits but also your level of physical activity. In a general way, you should start to gradually increase exercise in your lifestyle. As weight loss is achieved, physical activity becomes easier.

Regular check ups: after the surgery you should have regular check ups with your doctor, who should inform you about your personal appointment plan. In the first phase one check up every four weeks is usual, followed with appointments with longer intervals.

During the first eighteen months after the surgery a small port for injections located under your skin can gradually adjust your band. Once your weight is stabilized, the check ups will be programmed in an annual way.

4. Bad absorption procedures. Bile pancreatic derivation.

Although these procedures also diminish the size of the stomach, the gastric bag that is created is much larger than in other procedures. The objective is to limit the amount of food consumed and alter the regular digestive process but in a higher level.

The anatomy of the small intestine is modified with the purpose to deviate the bile and pancreatic juices so that these meet with the food ingested closer than the middle or extreme part of the small intestine.

With these three methods listed below you can also reduce the absorption of nutrients and calories, but in a much bigger amount than with previous mentioned procedures. Each one of the three ways differs in the way and in the moment when the pancreatic juices (example: bile) come in contact with the food. Given that this last one doesn't go through the duodenum, all the risk considerations mentioned in the section related with the gastric derivation or gastric bypass in relation to the bad absorption of some vitamins and minerals can also apply in this technique, but in a bigger way.

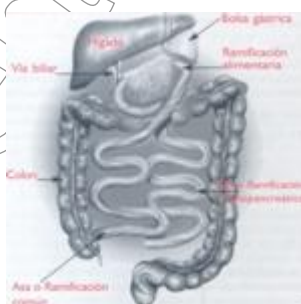


Illustration 6



Illustration 7

Bile pancreatic derivation

The BPD reduces approximately $\frac{3}{4}$ of the stomach to produce the restriction of the foods ingestion as well as the reduction in the production of acids. It's important to leave a reasonable amount of the superior part of the stomach to maintain an adequate nutrition.

The small intestine is divided with one end tied to the gastric bag to create what is known as alimentary ramification. All the food goes through this segment but it's not absorbed in big amounts.

The bile and pancreatic juices go through the bile pancreatic ramification that is joined to the lateral part of the intestine that is now denominated the common ramification. The surgeon can vary with the longitude of the ramification to regulate the amount of absorption of proteins, fat, and fat-soluble vitamins.

Gastric derivation in extended Y de Roux (distal) (DGYR-E)

The DGYR-E is an alternate method to achieve malabsorption creating a small stapled or divided gastric bag leaving the rest of the stomach in its place. One long ramification of the small intestine is joined to the stomach to deviate the bile and pancreatic juices. This surgery comes along with smaller operative risks given the fact that it avoids the removal of $\frac{3}{4}$ of the lower part of the stomach. The size of the gastric bag and the longitude of the deviated portion of the intestine determine the risks of ulcers, malnutrition and other effects.

Bile pancreatic derivation with “duodenal changes”

This procedure is a variation of the DBP in which the gastric removal is limited to the exterior margin, which leaves a stomach bag with the pylorus and the initial part of the duodenum. The duodenum, the first part of the small intestine, is divided to deviate the pancreatic and bile drainage. It is later joined together with the next end of the alimentary ramification at the beginning of the duodenum while the common ramification is created in the same way described earlier.

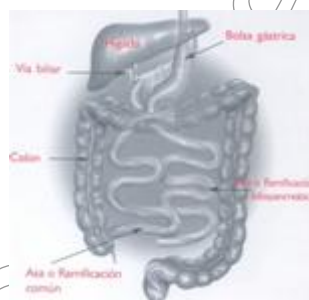


Illustration 8

Advantages:

These procedures regularly produce a high satisfaction in the patients because it lets them ingest food in a more abundant way than with a purely restrictive procedure or with a gastric derivation, bypass or a normal Y de Roux.

These procedures can produce a major weight loss because they provide a higher level of malabsorption. In a study of 125 patients, a reduction of 74% of weight loss was achieved in a year, 78% in 2 years, 81% in 3 years, 84% in 4 years and 91% in 5 years.

The long term maintenance of the reduction of corporal overweight can produce results if the patient adapts to a franc dietary, supplementary, exercise and conduct regime, and if it is observed carefully.

Risks:

In every procedure of malabsorption there is a period of intestinal adaptation in which the movements of the intestine can be very liquidly and frequent. This condition diminishes with time but can also become a permanent occurrence for the rest of the patient's life.

Abdominal inflammations can occur as well as fetid feces and gas.

A vital supervision regarding aspects of malnutrition of proteins, anemia and osseous diseases is recommended. A vital vitamin supplement is also required. It has been proven, in general terms, that if the instructions on food and vitamin supplements are not carefully observed, at least 25% of the patients develop problems and requires treatment.

The changes in the intestinal structure can produce a risk increasing the formation of bile calculus and the need to remove the vesicle.

The deviation of the bile, digestive pancreatic juices and other gastric juices can cause intestinal irritation and ulcers.

KNOW

What you should know in the moment of choosing a surgical treatment

The surgical treatment for obesity is a major surgery. Although most of the patients enjoy an improvement of their health conditions related to obesity (mobility, self-image, self-esteem) after the good results of a weight reduction surgery, this should not constitute the fundamental motivation of the patients to submit to this procedure. The goal is to live a better life, in a healthier and longer way.

This is the reason you should take the decision to undergo this operation only after carefully studying and consulting experienced surgeon or a general doctor familiarized with the subject. A qualified surgeon should answer your questions with clarity and explain the exact details of the procedure, the situation of the recovery and the reality of the post-op care required. As a part of the routine evaluation of the weight reduction surgery, they can ask you to consult a nutritionist and a psychiatrist or therapist. This will help you establish a clear understanding of the post-op conduct changes that are essential for good long lasting results.

It is important to remember that there is no absolute guarantee of any type of medical or surgical procedure. Even the simplest procedure can present unexpected results. Never the less what can be affirmed is that this surgical obesity treatment can only be successful when the patients acquire a life long commitment. Some of the challenges that a person confronts after this treatment can be unsuspected. The changes in the lifestyle can create tense relationships in the family and marriage environment. To help the patients achieve their goals and cop with the changes the surgery takes along with it the majority of surgeons offer follow up attention that includes support groups, nutritionists, and other forms of continued education.

The definite decision of submitting to this procedure depends entirely on you. After knowing all the information you must decide if the benefits weigh more than the secondary effects and possible complications. This surgery is only a tool. The definite success depends on the strict observation of the regime recommended of diet and exercise as well as the changes in your lifestyle.