What's New AND UPCOMING In Bariatric Surgery?

This is the first article in a series of articles on new technologies. Here's a sneak-peek at topics we will be covering in the future.

The field of bariatric surgery is constantly evolving and new procedures continue to develop. Bariatric surgery has evolved from open very invasive surgery like the "stomach stapling" or vertical banded gastroplasty to laparoscopic gastric bypass, laparoscopic adjustable gastric banding, laparoscopic sleeve gastrectomy, and laparoscopic duodenal switch, all of which are performed through tiny incisions in the abdomen. The medical development industry is constantly trying to discover new technology that requires less or no incisions to make bariatric surgery even less invasive in the future. These new technologies will help increase the likelihood that patients will choose surgery and help to decrease the epidemic of obesity in the United States.

One of the newest technologies currently being used in the United States is Single Incision Laparoscopic Surgery (SILS™) adjustable gastric banding. The procedure is a laparoscopic adjustable gastric banding that is performed through a single incision hidden inside the belly button instead of the traditional five incisions. This procedure results in much less pain, improved cosmesis, and quicker recovery. Patients are extremely happy that no one can even see that they had surgery with the one tiny scar hidden in the belly button. Presently this procedure is limited to lower risk patients with BMI closer to 40. The instrumentation and technology related to SILS™ surgery is evolving fast and as this technology improves the availability of SILS™ adjustable gastric banding will become widespread.

Another field of bariatric surgery that industry is trying to develop new procedures is for revision of previous gastric bypass procedures. It has been shown over time that gastric bypass patients will stretch their pouch and stretch the stoma or connection between the stomach pouch and the small intestine allowing the patients to eat more because the stomach pouch empties faster. Approximately 20 to 30 % of gastric bypass patients will have some weight gain many years after their surgery. The newest procedure is Revision Obesity Surgery Endoscopically (ROSE) using the Endoscopic Operating System by USGI Medical. This procedure is done completely through the mouth with no incisions and no recovery. The device sutures the stomach and slows the emptying of the stomach pouch as well as decreases the volume of the stomach pouch. This device has better durability than the StomaphyX™ procedure, which I have been performing for the past two years. One advantage of the ROSE procedure is that you use sutures with variable length to make the plications or folds in the stomach instead of a fixed length fastener that is used with the Stomaphyx™ device. This allows for variability of the thickness of the stomach tissue. Endogastric Solutions is about to release the new Stomaphyx Titan™ that will hopefully have better results by taking larger bits of the stomach than the traditional Stomaphyx™ device that had poor results. The goal of these procedures is to develop technology to eventually perform primary obesity procedures completely endoscopically or through the mouth.

The intragastric balloon made by Allergan called the BIB™ system is currently undergoing a multi-center clinical study to get FDA approval in the US. This device is placed endoscopically through the mouth. A balloon is then inflated in the stomach to help patients feel full or satisfied. This device will only be indicated for placement for six months at a time and is not a long-term solution for weight loss, but is good for high risk patients that need to loss some weight before undergoing some other type of surgery.

The Endobarrier™ by GI Dynamics is a liner of the gastrointestinal tract that acts as an impermeable barrier to prevent food from coming in contact with the wall of the intestine. This device is placed and removed endoscopically through the mouth. The hope is that this procedure will mimic the metabolic effects of the Roux-en-Y gastric bypass. The potential benefits include metabolic weight loss and control of type 2 diabetes, minimized potential for complications of traditional surgery, and is less invasive than surgical alternatives. An initial study of 12 patients demonstrated a 23.6% excess weight loss in 12 weeks and four diabetic patients had normal glucose levels for the entire 12 weeks of having the device in place. The big problem so far with this procedure is with the sleeve migrating too far down the gastrointestinal tract. If this problem can be resolved, this procedure shows lots of promise in the future of bariatric surgery. It is presently undergoing clinical studies in the US.

A clinical trial of the TOGA™ device by Satiety, Inc. has also begun in the US. This procedure is designed to perform a transoral gastroplasty or stomach stapling completely endoscopically through the mouth. In this new procedure, the surgeon introduces a set of flexible stapling devices through the mouth into the stomach, and uses them to create a restrictive pouch that is intended to catch food as it enters the stomach, giving patients a feeling of fullness after a small meal. A 2006-2007 pilot study in Mexico and Belgium found that patients receiving the TOGA™ procedure lost more than a third of their excess body weight. By 12 months, their excess weight loss averaged almost 40 percent. The potential problem with this procedure will be similar to the old stomach stapling or vertical banded gastroplasty because the staple lines may come apart over time. It will be interesting to see the long-term results of the durability of this procedure.

As you can see, industry is trying hard to find the ultimate minimally invasive or "non-invasive" weight loss surgery. As the epidemic of obesity in the US is growing fast, industry is trying to develop new procedures for this growing market of potential patients. The market for a patient with a body mass index between 30 and 35 is even larger. If a non-invasive or very minimally invasive effective procedure for obesity can be developed the potential will be endless.

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