As patients begin investigating surgical weight-loss options, one of the first questions to arise is “what procedure is best for me?” The answer to this question must come after thorough research regarding the risk and benefits of each procedure and an evaluation to determine the individual patient’s risk for undergoing surgery.

About 80 percent of the bariatric procedures performed in the United States are gastric bypass procedures. The other 20 percent are comprised of restrictive procedures, such as the laparoscopic adjustable gastric band. The laparoscopic sleeve gastrectomy (LSG), a relative newcomer to bariatric surgery, is growing in popularity.

The sleeve gastrectomy originated as the restrictive part of the duodenal switch operation. In the last several years, though, it has been used by some surgeons as a staging procedure prior to a gastric bypass or duodenal switch in very high risk patients. It has also been used as a primary, stand-alone procedure by some surgeons.

How is Sleeve Gastrectomy Performed?
The majority of sleeve gastrectomies performed today are completed laparoscopically. This involves making five or six small incisions in the abdomen and performing the procedure using a video camera (laparoscope) and long instruments that are placed through these small incisions.

During the sleeve gastrectomy, about 75 percent of the stomach is removed leaving a narrow gastric tube or “sleeve” (see picture on page 7). No intestines are removed or bypassed during the sleeve gastrectomy. This procedure takes one to two hours to complete. This short operative time is an important advantage for patients with severe heart or lung disease.

How Does the Sleeve Gastrectomy Cause Weight-Loss?
Sleeve gastrectomy is a restrictive procedure. It greatly reduces the size of the stomach and limits the amount of food that can be eaten at one time. It does not cause decreased absorption of nutrients or bypass the intestines. After this surgery, patients feel full after eating very small amounts of food. Sleeve gastrectomy may also cause a decrease in appetite. In addition to reducing the size of the stomach, the procedure reduces the amount of the “hunger hormone,” ghrelin, produced by the stomach.1 The duration of this effect is not clear yet, but most patients have significantly decreased hunger after the operation.

Who Should Have a Sleeve Gastrectomy?
This operation has been used successfully for many different types of bariatric patients.2 Since it is a relatively new procedure, there is no data regarding weight-loss, complications or weight regain beyond three years. At the Cleveland Clinic, we use this procedure as part of a staged approach for high-risk patients. Patients who have a very high body mass index (BMI) or severe heart or lung disease may benefit from a shorter, lower risk operation such as the sleeve gastrectomy as a first stage procedure. Sometimes, the decision to proceed with the sleeve gastrectomy is made in the operating room due to an excessively large liver or extensive scar tissue to the intestines that make gastric bypass impossible.

In patients who undergo LSG as a first stage procedure, the second stage (gastric bypass) is performed 12 to 18 months later after significant weight-loss has occurred, the liver has decreased in size and the risk of anesthesia is much lower. Though this approach involves two procedures, we believe it a safe and effective strategy for selected high-risk patients.

LSG is also being used as a primary weight-loss procedure in lower BMI patients. Because this is a more recent application...
How Much Weight-loss Occurs after LSG?

Several studies have documented excellent weight-loss up to three years after LSG. In higher BMI patients who undergo LSG as a first stage procedure, the average patient will lose 40 – 50 percent of their excess weight in the first two years after the procedure. This typically equates to about 125 pounds of weight-loss for patients with a BMI greater than 60.

Patients with lower BMI’s who undergo LSG will lose a larger proportion of their excess weight (60 – 80 percent) within three years of the surgery. Weight-loss after LSG has been directly compared to Laparoscopic Adjustable Gastric Banding (LAGB). In a randomized trial comparing LSG to LAGB, LSG resulted in better weight-loss at three years (66 percent versus 48 percent excess weight-loss). Additionally, more than 75 percent of patients will have significant improvement or resolution of major obesity-related co-morbidities such as diabetes, hypertension, sleep apnea and hyperlipidemia following sleeve gastrectomy.

What are the Risks of Sleeve Gastrectomy?

The risk of major post-operative complications after LSG is 5-10 percent, which is less than the risk associated with gastric bypass or malabsorptive procedures such as duodenal switch. This is primarily because the small intestine is not divided and reconnected during LSG as it is during the bypass procedures. This lower risk and shorter operative time is the main reason we use it as a staging procedure for high-risk patients.

Complications that can occur after LSG include a leak from the sleeve resulting in an infection or abscess, deep venous thrombosis or pulmonary embolism, narrowing of the sleeve (stricture) requiring endoscopic dilation and bleeding. Major complications requiring re-operation are uncommon after sleeve gastrectomy and occur in less than 5 percent of patients.

Is LSG a Good Choice for Me?

You should first know the risks and benefits of sleeve gastrectomy, adjustable gastric banding and gastric bypass. For high-risk patients and patients with very high BMI’s, we discuss LSG as a first-stage procedure prior to gastric bypass. We are also conducting a clinical trial that includes sleeve gastrectomy for lower BMI patients with diabetes. Ultimately, the decision regarding which procedure to perform is based on each patient’s operative risk and their expectations and goals for surgical weight-loss.

Sleeve gastrectomy may be performed for the following reasons:

- Body Mass Index is greater than 60
- Severe comorbidities (cardiac, pulmonary, liver disease)
- Advanced age
- Inflammatory bowel disease (Crohn’s disease)
- Need to continue specific medications (anti-inflammatory medicines, transplant medications)
- Need for continued surveillance of the stomach (that couldn’t be evaluated after a gastric bypass)
- Severely enlarged liver found during the operation
- Severe adhesions (scarring) to the bowel found during the operation
- Any combination of the above that significantly increases the patient’s risk

About the Authors:

Stacy Brethauer, MD, is a staff surgeon at the Cleveland Clinic specializing in advanced laparoscopy and bariatric surgery. He is an active member of the American Society for Metabolic & Bariatric Surgery and is co-editor of Minimally Invasive Bariatric Surgery. He has a special interest in endoscopic procedures and emerging technologies that benefit bariatric patients.

Philip Schauer, MD, is past president of the American Society for Metabolic & Bariatric Surgery and is the Director of the Bariatric and Metabolic Institute at the Cleveland Clinic. He has been published extensively on bariatric procedures and outcomes and has been instrumental in promoting the field of bariatric surgery worldwide through his many leadership roles.
About the OAC
The Obesity Action Coalition (OAC) is a non-profit patient organization dedicated to educating and advocating on behalf of those affected by obesity, morbid obesity, and childhood obesity. The OAC distributes balanced and comprehensive patient educational materials and advocacy tools.

The OAC believes that patients should first be educated about obesity and its treatments and also encourages proactive patient advocacy. The OAC focuses its advocacy efforts on helping patients gain access to the treatments for morbid obesity. As a membership organization, the OAC was formed to bring patients together to have a voice with issues affecting their lives and health. To learn more about the OAC, visit www.obesityaction.org or contact us at (800) 717-3117.

OAC Resources
The OAC provides numerous beneficial resources for patients, as well as professionals. All OAC resources are complimentary and may be ordered in bulk. To request materials, please contact the OAC National Office at (800) 717-3117 or send an email to info@obesityaction.org.

Newsletters
- Obesity Action Alert - the OAC’s free monthly electronic newsletter
- OAC News - OAC’s quarterly education and advocacy newsletter

Brochures/Guides
- Are you living with Obesity? Brochure
- Advocacy Primer: Your Voice Makes a Difference
- BMI Chart
- OAC Insurance Guide
- State-specific Advocacy Guides
- Understanding Obesity Series
- Understanding Obesity Brochure
- Understanding Obesity Poster
- Understanding Morbid Obesity Brochure
- Understanding Childhood Obesity Brochure
- Understanding Childhood Obesity Poster
- Understanding Obesity Stigma Brochure

OAC Membership
The OAC was founded as the “patient voice” in obesity. As a membership organization, the OAC exists to represent the needs and interests of those affected by obesity and provide balanced and comprehensive education and advocacy resources. Membership in the OAC is integral in strengthening the voice of the millions affected by obesity. Various membership levels are available and each is accompanied with several valuable benefits such as:

- Official membership card/certificate
- Annual subscription to OAC News – OAC’s quarterly educational and advocacy newsletter
- Subscription to Obesity Action Alert – monthly e-newsletter distributed on the 1st of each month
- Access to valuable educational resources and tools
- Patient representation through advocacy, in addition to information on advocacy issues concerning patients

Yes! I would like to join the OAC’s efforts. I would like to join as a/an:
- Patient/Family Member: $20
- Professional Member: $50
- Physician Member: $100
- Surgeon Member: $150
- Institutional Member*: $500 (Surgery centers, doctors’ offices, weight-loss centers, etc.)
- OAC Chairman’s Council*: $1,000 +
* These membership levels have exclusive benefits.

Payment Information
Enclosed is my check (payable to the OAC) for $ _______. Please charge my credit card for my membership fee:

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