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Achalasia and Laparoscopic Heller Myotomy

Introduction

Achalasia is an uncommon, but not rare, disease of the esophagus in which patients develop progressive loss of normal contraction of the muscles of the body of the esophagus obstruction of the lower esophageal sphincter. There is no known “cure” for achalasia, but there are highly effective treatments that should allow patients to live normal lives.

Laparoscopic Heller Myotomy is a surgical treatment of achalasia, in which the muscles of the lower esophageal sphincter are carefully divided in a laparoscopic surgical procedure. This has become the most common method of treating achalasia these days, although it is not the only acceptable option.

The Problem

Normally, the muscles of the body of the esophagus contract in a coordinated fashion that pushes food down into the stomach. At the junction of the esophagus with the stomach there is a valve, which is referred to as the *lower esophageal sphincter (LES)*, which relaxes with swallowing, allowing food to enter the stomach. That valve then tightens, preventing food from refluxing from the stomach back up into the esophagus. To convince yourself how well this system works, watch a baby drink a bottle. Lying flat on its back, the child’s esophagus knows to push the milk in the proper direction, down into the stomach. The sphincter opens to let the milk enter the stomach, and then tightens to keep it there. It is a marvelous system that most of us take for granted.

In achalasia the esophagus loses many of these functions. The body of the esophagus loses its ability to contract, so that it can no longer push food and liquid into the stomach. It empties, therefore, only by gravity. Also, the lower esophageal sphincter normally has a resting pressure of 10-30 mm Hg and relaxes with swallowing almost completely. In achalasia the lower esophageal sphincter tends to be tighter than normal or at the upper limits of normal tightness. More importantly, it fails to relax with swallowing, so that food and liquids cannot pass into the stomach. The normal esophagus is a slender organ that will fit snugly around your finger. Over time, the esophagus dilates so that it may become the diameter of your clenched fist, or greater, and may store a gallon or more of liquid.

Most patients learn to adapt to their achalasia surprisingly well. By eating slowly, and perhaps frequently, they are able to maintain their weight. Some, but not most patients, may have pain. Some patients may have problems with food or liquid backing up into their lungs at night, but serious pneumonia from this is not terribly common. Untreated, the esophagus may not only dilate, but may elongate into an “S” shape. At this stage, the only option for some patients may be to remove the esophagus and pull the stomach up to the throat. Most patients can eat and live completely normal lives after such a procedure, but this is a major operation. If patients are cared for before the achalasia gets to this stage, there are much simpler, and possibly more effective, procedures that can be performed.

Treatment Options

Medication:

A variety of medications have been tried to relax the lower esophageal sphincter, and a small minority of patients may achieve temporary relief from these medications. They are only temporarily and incompletely effective, however, and are not a long-term solution.

Botulinum toxin injection:

Injection of this chemical into the lower esophageal sphincter will cause paralysis of those muscles, temporarily lowering the sphincter pressure. Most patients will be symptomatically improved by this procedure, but almost all patients will have return of their symptoms within several months to 1 1/2 years and no patients are cured by this procedure. Its utility, therefore, is limited primarily to patients who are too ill to tolerate more definitive procedures, or who are expected to live 2-3 years or less.

Ballon dilatation:

For many years the most common method of treating achalasia was with balloon dilatation of the lower esophageal sphincter. In this procedure, endoscopy is performed under light sedation. A balloon catheter is placed so that it straddles the lower esophageal sphincter. It is then dilated by inflating the balloon, usually to about 3 cm in size. This produces tearing of the muscular fibers of the esophagus. In about 65% of patients this procedure will cure their achalasia and no other procedures will be necessary. Side effects are few. The main drawback is that there is a small risk of perforation of the esophagus with this procedure. This risk varies from about 2 1/2 to 8 percent, and is directly proportional to how vigorously the esophagus is dilated. (It is therefore also proportional to how likely the procedure is to be successful.) The likelihood of success goes down with each unsuccessful dilatation, and the procedure may be more successful in older patients than in younger ones.

The most common problem with the procedure is that it may not work. Repeated dilatations may occasionally be effective. Much more feared, but much less common, is the risk of perforation. If this occurs, it will be necessary to perform an emergency surgical operation possibly through a large chest or upper abdominal incision. Most patients will do well after such a procedure, despite the perforation.

Surgical myotomy:

The most definitive treatment of achalasia (short of removing the esophagus) is to perform a surgical myotomy. In this procedure the muscular layers of the esophagus are surgically divided. Traditionally, this procedure had been performed through an incision made in the left chest. Considered a major operation, this technique had been reserved in the past for patients who had failed attempts at balloon dilatation.

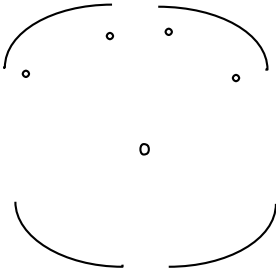
Today, this procedure is most commonly performed using laparoscopy, in which the abdomen is distended with carbon dioxide and then entered using long, slender surgical instruments through incisions about as big around as a drinking straw. The area of the surgery is visualized on a video screen. By this technique we are able to avoid large incisions in the chest or abdomen, minimizing pain, scarring, complications, and duration of recovery after surgery. The muscular layers of the lower esophagus are divided so that the lower esophageal sphincter no longer in spasm. Because this procedure is so effective at destroying the sphincter, about 15% of patients who have had this procedure may have reflux of stomach contents up into the esophagus. Most surgeons now partially wrap the upper stomach over the cut edge of the esophagus, which is intended to reduce such reflux.

This procedure, referred to as a “laparoscopic myotomy,” is effective at improving swallowing in greater than 90% of patients. Most patients have few, and relatively mild side effects. It requires a general anesthetic, the operation lasts approximately 1 1/2 hours, and most patients stay in the hospital for one night after the procedure. Most patients return to work 7-14 days after the procedure.

Potential complications of the laparoscopic myotomy include, but are not limited to, bleeding that could require transfusion, infection, perforation of the esophagus or stomach, injury to the spleen, the need to convert to an open, traditional operation, the possibility that the operation may not permit adequate swallowing, and anesthetic complications. All of these are quite rare. Rarely, obstruction of the esophagus may recur following what appears to have been a successful operation. This may be due to external scarring, or more commonly to reflux of stomach acid into the esophagus, producing scarring and stricture.

Technical Aspects of the Procedure

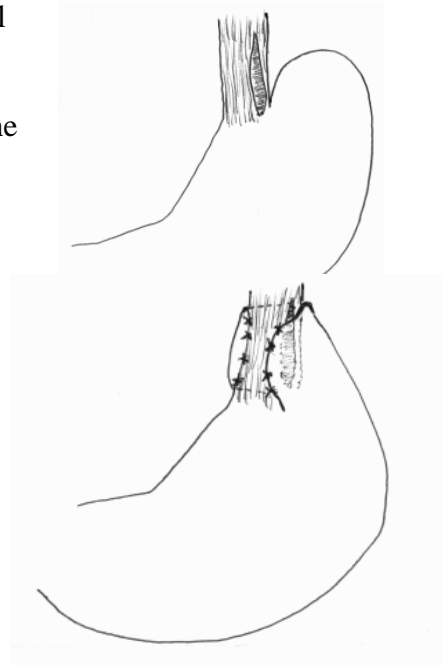
During the procedure you will be completely asleep (general anesthesia). We usually use 5 small punctures of the abdomen to introduce instruments that will include a videotelescope, graspers, scissors, needles and suture, and instruments that can cut and coagulate blood vessels. They are usually placed something like this:



One puncture is placed in the navel or slightly above this; the other four are placed just below the rib cage. The largest puncture site is about the size of a drinking straw in diameter. The punctures are closed with absorbable sutures or tape

strips, so that there are no sutures to remove.

The esophageal muscle is divided with a delicate electrical current to coagulate small bleeders from the muscle edge. This relieves the obstruction. During this part of the procedure an endoscope or dilator is usually passed into the esophagus to assure that we have completely relieved the obstruction. This is what is referred to as the “Heller Myotomy.”



The top of the stomach is then folded half-way around the esophagus to cover the myotomy and to help prevent reflux of stomach contents into the mouth. Fine sutures are used to secure the stomach in place.

Following the procedure the patient is awakened and taken to the recovery room. Most patients will stay there about 2 hours before going to their room.

Postoperative Recovery

Most patients are begun on a liquid diet and liquid pain medication on the evening of their operation, and most are discharged to home the following day. You will be asked to return to see us two weeks postoperatively and 6 weeks postoperatively and thereafter as needed.

Diet

For the first two weeks restrict yourself to a diet that is of blenderized consistency. Anything of this consistency or any food that you have actually put through a blender is acceptable. Spices, etc., can be used according to your preference, and there is no particular reason to avoid coffee or alcohol.

After the first two weeks you may gradually introduce normal foods, adding whole fresh fruits and vegetables, red meat and bread last. Expect it to take about 6 weeks for your swallowing to optimize.

Activity

You may resume all normal activities as comfort permits, including vigorous exercise. You may shower on the day of discharge, but you should not soak in a tub or swim for about a week. You may return to work as you feel up to it; for most people, this is about 1-2 weeks postoperatively. The tape strips on the wounds can stay there until they begin to peel off on their own -- usually about a week postoperatively, at which time you can help them to fall off.

Pain Medications

For the first day after surgery you will have liquid pain medicine by mouth ordered, and supplemental narcotics can be given intravenously if you need them. Thereafter you will be given liquid pain medication to take as needed, including after discharge from the hospital.

Other Medications

You should take an acid suppressant medication for the first 6 weeks at least, and preferably for 2-3 months. Any of the prescription medications are acceptable, such as Prevacid, Nexium, Protonix or Aciphex if you are already taking them; if not, Prilosec OTC should suffice.

For at least the first several weeks you should try to avoid any caustic medications -- medications that could directly injure the esophagus if they were to hang up for any period of time. These include aspirin, ibuprofen (Motrin, Advil), naproxen (Aleve), and Fosamax. If you take them be sure to take them with some food and plenty of liquid to make sure that they find their way into the stomach promptly.

Longterm Issues

Most people who have undergone laparoscopic myotomy will never have more difficulty with achalasia. Most of them will think that they swallow normally, and they have minimal side effects. There are no standard recommendations for medication or followup.

My main concern following myotomy is the possibility of significant gastroesophageal reflux that can cause problems in the lower esophagus. Some patients will have the sensation of heartburn, but if carefully tested have no evidence of acid refluxing from the stomach into the esophagus. Other patients may have reflux, but will have no symptoms of this at all. The most common complication that concerns me is the possibility of long-standing irritation which can lead to scarring of the lower esophageal sphincter. It therefore seems to me prudent that patients with achalasia should undergo at least infrequent upper endoscopy as part of their followup. I would suggest an endoscopy a few months after surgery, possibly at a time when they have not been taking acid suppressive medication, to see whether there is evidence of irritation of the lower esophagus. If not, then that patient can probably be followed without medication. If there is irritation, it is probably best to remain on acid suppressive medication, and perhaps undergo periodic infrequent endoscopy to make sure that there is not progressive injury. Please realize that this is my bias -- these are not necessarily standard recommendations, and your gastroenterologist may feel otherwise.

Problems, questions or concerns

If you have problems during the week call the office at 831-649-0808. For emergencies, nights or weekends, call the same number and ask for the surgeon from our group who is on call.