

Patient Education Literature

We recommend that you read this handout carefully in order to prepare yourself or family members for the proposed procedure. In doing so, you will benefit both the outcome and safety of the procedure. ***If you still have any questions or concerns, we strongly encourage you to contact our office prior to your procedure so that we may clarify any pertinent issues. An educated patient is the best patient.***

Esophageal Myotomy

Definition

Esophagus = the tube that transports food from the mouth to the stomach

Myotomy = opening up muscle tissue

Although there are a few minor variations, the procedure is performed most commonly through a thoracotomy incision on the left side of the body. This incision extends in the same direction as your ribs and between two ribs on the side of the body. Some surgeons perform this procedure without making a long incision. This is termed thoracoscopy, and is the same technique used in many abdominal procedures (termed laparoscopy). Thoracoscopy is when surgery in the chest is performed through a few small holes in the chest wall as opposed to through a single larger incision. A thoracoscope (camera) is placed into the chest cavity and is used to project the operation onto a television.

Preparation

As with any procedure in which anesthesia is administered, you will be asked not to eat or drink anything after midnight on the evening prior to your surgery. If you are on medications that must be taken, you will have discussed this with us and/or the anesthesiologist and instructions will have been given to you. The procedure will not be performed if you are currently taking, or have recently taken any medication that may interfere with your ability to clot your blood (blood thinners, aspirin, anti-inflammatory medicines, etc...). ***Please refer to the attached list and tell us if you took any of these within the past 10 days.*** If your new medication is not on the list, alert us immediately so that we may ensure optimal procedure safety. We will have reviewed all of your current medications with you during the pre-operative consultation. You are obligated to inform us if anything has changed (medication or otherwise) since your previous visit.

Bowel Preparation

In order to safely perform the surgery and minimize the chance of infection, it may be necessary to clean out all or part of the digestive tract. Sometimes, the esophagus, stomach and small intestines are cleaned by doing nothing more than drinking plenty of fluids and not eating for eight to twelve hours. Other times, a clear liquid diet the day prior is enough. In other instances, your surgeon may want you to ingest special agents (called cathartics) that help to flush out the intestine and colon. The method chosen and the agents used will depend on your surgeon's experience and preference and possibly by restrictions posed by your age and overall health. Although drinking cathartics (laxative agents) and/or administering enemas can be an unpleasant experience, it is of utmost importance that you carefully follow the instructions. The success and safety of your procedure depend on it.

Procedure

General anesthesia (complete sleep) is typically used for these procedures. If you have any significant other health issues, your surgeon may request a letter of medical evaluation and clearance from your primary care physician and possibly other medical specialists (i.e. cardiologist, pulmonologist).

The procedure can take several hours depending on an individual's anatomy and the technique employed. A nasogastric tube or NG tube (tube that goes from the nose down into the stomach) may be placed once you are asleep. The tube will keep the esophagus, stomach, and small intestine empty during the surgery as well as in the recovery period. A catheter may be placed in the bladder to monitor the amount of urine that you produce during the procedure and for perhaps a couple of days after.

The incision is made in the left chest wall. An incision is made through the muscular layer of the esophagus but not completely through into the center of the esophagus. If there is a discreet area where the esophagus is known to be particularly narrow, the incision will go above and below this region. The incision extends down to the point where the esophagus enters into the stomach. The edges of the muscular layer are then partially stripped away from the inner lining of the esophagus so that the inner lining is no longer completely under the tight constricting lining. If there were a concern about reflux, a fundoplication procedure would then be performed where the esophagus connects to the stomach. The incision is then closed. One or several drains (plastic tubes) may be placed around the area of the surgery and attached to bags or suction devices. A chest tube will come out of a separate small hole in the side of the chest and will remain for a few days to allow the lung to re-expand. A suture will be used to anchor it to the skin.

If the procedure is being done thoracoscopically, several very short incisions will be made in the chest cavity to permit only the surgical instruments and not the surgeon's hands. The same procedure is done once the instruments are inside.

Your surgeon will decide on the material used to close the skin. In most cases, staples are used on the skin to minimize the chance of infection. After the skin is closed, a sterile dressing will be applied over the incision site and around any existing drains or tubes.

Post Procedure

You will be in the recovery room before being transferred to a permanent room. As mentioned, you will have a NG tube and a urethral (bladder) catheter. You may also feel cloth boots on your legs gently inflating and deflating. They will help to decrease the chance of developing a DVT or deep vein thrombosis (blood clots).

It is expected for you to feel sore in the area of your incision(s). You will receive appropriate pain medication so that you are comfortable. Over the next one to three days, the tubes, catheter and drains (when present) will be removed as your surgeon deems appropriate. Your diet will be advanced until you are tolerating solid foods.

If you had a formal abdominal incision you may be sent home with no dressing over your incision. Patients that had laparoscopy are more likely to have small plastic dressings over their small incision sites. In either instance, you may usually shower once you are home; no baths or swimming however unless otherwise instructed. You should refrain from any strenuous activity or any heavy lifting until your follow up. Every patient has some degree of discomfort and it is not possible to predict in whom this might be minimal or significant. We strongly encourage you to take time off from work until you and your surgeon agree that it is appropriate for you to resume.

Although you should not over-exert yourself, it is important that you walk around several times per day. This will help minimize muscle stiffness, keep the intestines moving well, and decrease the incidence of pneumonia or formation of blood clots in the legs. We will provide you with a prescription for pain medication but you certainly may take an over-the-counter medication to which you are not allergic. Other prescriptions, such as antibiotics, will depend on the preference of your surgeon and your particular circumstances. Upon your follow

up in the office, we will examine you and remove any staples or sutures. If you were discharged home with any of the drains, they might be removed as well.

Expectations of Outcome

Usually, these procedures are not associated with long recovery periods. Thoracoscopic procedures are typically associated with even shorter recovery. Return to normal diet is usually over a period of a few days to a week. It is not uncommon to have decreased appetite in the post-operative period.

Most myotomy procedures (open or thoracoscopic) have good initial and long-term success rates. However it is possible for the surgery to not correct the problem. There could be immediate failure or recurrence of the problem in the future. Patients should understand that even following surgery, it might be necessary to continue prescribed dietary modifications, lifestyle changes and medications.

In any thoracoscopic surgery, your surgeon will have told you that there is a chance of conversion to an open procedure. This means that a thoracoscopic procedure has to be changed to an open operation. The indication to do so may be one of two scenarios. The first is that there are findings (scarring, unexpected anatomy) that prevent the surgeon from completing the procedure effectively or safely. The second is that there is a problem during thoracoscopy that the surgeon feels might be more effectively handled through a larger incision. Conversion is a decision made by the surgeon that is in the patient's best interest, and it should not be considered to be a complication. It simply means that your surgery will be completed in the open fashion.

Possible Complications of the Procedure

All surgical procedures, regardless of complexity or time, can be associated with unforeseen problems. There may be immediate or even quite delayed in presentation. While we have discussed these and possibly others in your consultation, we would like you to have a list so that you may ask questions if you are still concerned. Aside from anesthesia complications, it is important that every patient be made aware of possible outcomes that may include, but are not limited to:

- **Blood Loss/Transfusion:** If your surgeon believes that the amount of blood loss can pose a danger to your heart or other vital organs, you might need a transfusion.
- **Hematoma:** This is when a small blood vessel continues to ooze or bleed under the suture line resulting in swelling and bruising. Drainage is rarely necessary and it almost always resolved over time. In rare instances, a hematoma can be large or rapidly expanding, requiring the wound to be opened to drain the blood. In extreme emergencies, this is done at the bedside. Localizing and sealing the bleeding vessels(s) may require that you return to the operating room.
- **Wound Infection/Fascial Dehiscence:** A wound can become infected; warm compresses and antibiotics may cure the infection. When more severe, the wound may need to be opened, drained, and cleaned. An infection trapped in a confined space (an abscess) may require surgical drainage either by needle placement or open surgery. If the deep tissue under the skin opens and exposes the organs, this is a wound dehiscence. While a rare problem, it is usually closed surgically.
- **Perforation of the Stomach or Esophagus:** The esophagus or stomach may be injured. When recognized immediately, the hole can usually be repaired without complication. If unrecognized, a severe infection can occur. Often, surgical drainage or another operation could be necessary.
- **Gastroesophageal reflux:** Immediately, or in the future, there could be a problem of acid reflux from the stomach into the esophagus, requiring another procedure.

- Dysphagia/Odynophagia: This is difficulty or discomfort when swallowing.
- Ileus/Small Bowel Obstruction: After any intra-abdominal procedure, the small intestine takes days to fully wake up. When the bowel remains asleep or is in spasm, this is termed an *ileus*. An ileus usually responds to keeping the patient NPO (Latin for without oral food or liquid) and leaving the NG tube in place until the ileus resolves. It is uncommon for an ileus to progress to a full obstruction. Obstruction often requires a second operation and possibly removal of a small section of the small intestine. Small bowel obstruction may occur weeks, months or even years after any intra-abdominal procedure secondary to the formation of scar tissue that kink the intestine. Patients who have had adhesions are at greater risk for more adhesions.
- Adjacent Organ Injury: Surgery can result in injury to other vital organs. These problems may be obvious during the operation or can present hours or days later. Other surgeries may be needed to repair the injury. Damage to the small intestine or colon could result in the need for an ostomy procedure which is when the intestine or colon is brought up to the abdominal wall with the need for a bag for stool. In most cases this is reversible.
- Pneumothorax: When surgery is performed through a thoracotomy, a lung will collapse requiring a chest tube. Surgery high in the abdomen can result in pneumothorax and the need for a chest tube. This tube is removed a few days later without problems or upon removal, the lung can collapse again requiring replacement of the tube.
- Urinary Tract Infection/Sepsis: Despite sterile placement of the urinary catheter, an infection can occur, which typically responds to antibiotics. Urinary infections and other infections can less commonly progress to *sepsis* (fever, chills, etc. due to spread of the infection into the blood). Patients at greater risk for sepsis are patients with diabetes, on steroids, or with immune system disorders.
- Deep Vein Thrombosis (DVT) or Pulmonary Embolus (PE): We take all precautions to ensure that you do not get blood clots in your legs. Getting out of bed early and exercising your legs in bed also help to reduce the incidence. ***If you develop pain or swelling in your calf area after hospital discharge, it is very important that you go to an emergency room or contact our office immediately.*** In the worst-case scenario, a DVT results in a pulmonary embolus (blood clot traveling to the lung). This is not a common occurrence, but is an emergency that is managed by the medical doctors.
- Incisional Hernia: A hernia is a weakening or bulging of the fascia. It may be repaired with one's own tissue or placement of a piece of artificial mesh.
- Chronic Pain: As with any procedure, a patient can develop chronic pain in an area that has undergone surgery. Typically, the pain disappears over time. If persistent, further evaluation may be necessary.

We provide this literature for patients and family members. It is intended to be an educational supplement that highlights some of the important points of what we have previously discussed in the office. Alternative treatments, the purpose of the procedure/surgery, and the points in this handout have been covered in our face-to-face consultation(s).