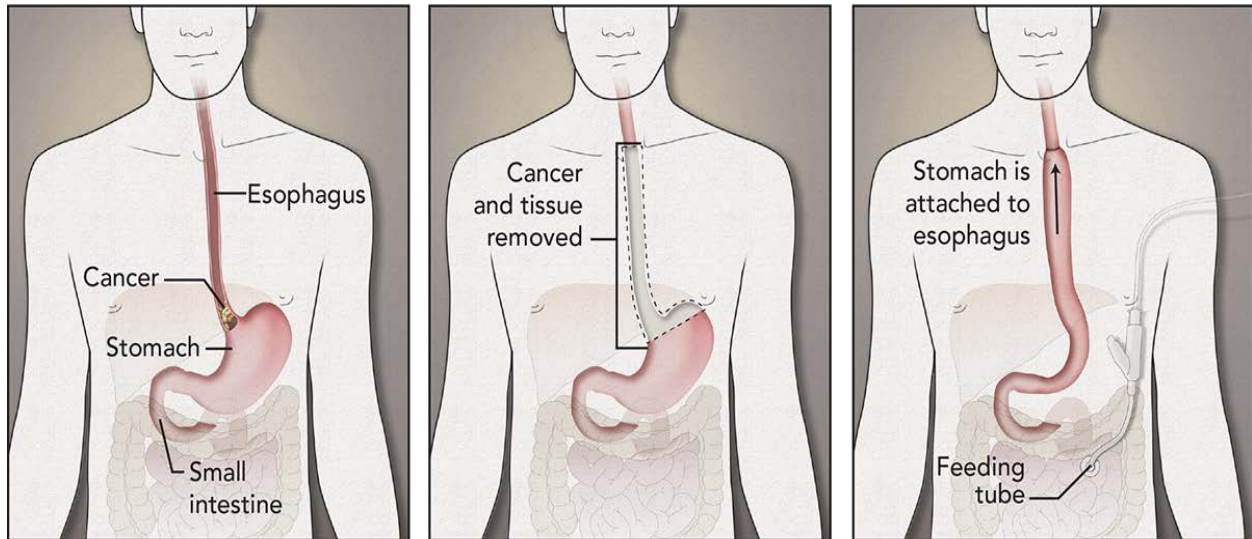


Thoracic Surgical Oncology

Esophagectomy

Esophagectomy



You are scheduled to have an operation on your esophagus (swallowing tube) to remove a tumor. This operation is called an esophagectomy. The doctor will make two or more incisions and remove all or part of the esophagus, and a portion of your stomach. Your doctor will then connect the remaining healthy part of the esophagus to the remaining stomach. Your doctor will also remove lymph nodes around the esophagus. The lymph nodes and surrounding tissues will be looked at under a microscope to see if they have cancer cells. The results of your pathology report will be ready in 5 to 7 days after the procedure and your surgeon will call you with those results as soon as they are available.

What can I expect?

There are three approaches to perform this surgery:

1. Minimally invasive transthoracic,
2. Trans hiatal
3. Three-field esophagectomy.

All 3 require similar postoperative care however your incisions may be in slightly different locations. You will be in the hospital about 5-8 days following your procedure however it may be anywhere from 5-15 days until you can start to eat again. During surgery, the doctor will insert a feeding tube (jejunostomy tube) through your belly and into the small intestine. You will be fed a formula through the tube. The formula has calories, protein, vitamins, minerals and fluids that your body needs. The tube will allow time for your body to heal before you start to eat again. It will remain in place for about 1 month to make sure that you get enough food. You will

be tired and weak following the hospitalization, but you need to get up and walk around the house to regain your strength.

Smoking

Do not smoke before or after surgery. If you are a smoker, you should quit smoking at least 2 weeks before surgery. Smoking may cause medical problems after your surgery. Programs are available to help you to stop smoking. For more information, ask your doctor or nurse.

Preparation for Surgery

Preoperative Tests

Before surgery, you may be scheduled for the following tests:

- Computerized tomography (CT) scan of the chest and abdomen - a computer uses x-rays to make 3-D pictures.
- Positron emission tomography (PET) - a test that shows where the cancer is located.
- Pulmonary function test - a diagnostic test that measures the amount of air that flows into and out of the lungs. The test can determine how well the lungs move oxygen into and carbon dioxide out of your blood. It can also detect obstructions in the air passages.
- Electrocardiogram (ECG) - a record of the electrical activity of the heart. You will have this test if you are over 40 years old or have a history of heart disease.
- Stress test with nuclear cardiac scan - a test which will show how well your coronary arteries supply blood to your heart during exercise. It also will determine if any areas of your heart muscle are not receiving the amount of blood that the body needs.

You will also see an anesthesiologist (a doctor who gives anesthesia to patients during surgery). This doctor will talk to you about the anesthetic (a medicine that causes a total lack of feeling and consciousness) that causes you to sleep during surgery.

Diet

Good nutrition is essential before and after surgery. Before surgery, you will see a dietitian to assist with any problems that you are having:

- Have trouble eating or swallowing
- Feel full soon after taking a few bites of food
- Are losing weight

The dietitian may discuss supplements and ways to make sure you get enough nutrition. They will also determine which tube feeding formula is right for you and we will get the feeding pump and your formula ordered and delivered to your home prior to your discharge.

Blood Thinning Medicines to Avoid Before Surgery

Certain medicines thin the blood. Since they keep the blood from clotting, you may need to stop taking them before surgery.

Tell your doctor about all medicines you are taking or have taken recently. Include prescriptions, over-the-counter medicines, nutritional supplements, vitamins, minerals and herbal products, even if they are not listed below. Your doctor or nurse will tell you which medicines you will need to avoid.

Listed below are just some of the medicines that affect how the blood clots.

- **Anti-platelet Agents**
 - Clopidogrel (Plavix®)
 - Aspirin
 - Ephedra/Ma Huang®
 - Ticagrelor (Brilinta®)
 - Prasugrel (Effient®)
- **Glycoprotein IIb/IIIa Inhibitors**
 - Tirofiban (Aggrastat®)
 - Eptifibatide (Integrilin®)
 - Abciximab (ReoPro®)
- **Factor Xa Inhibitors**
 - Fondaparinux (Arixta®)
 - Rivaroxaban (Xarelto®)
 - Apixaban (Eliquis®)
- **Heparin**
 - Low-molecular Weight Heparins
 - Dalteparin (Fragmin®)
 - Enoxaparin (Lovenox®)
 - Tinzaparin (Innohep®)
- **Warfarin (Coumadin®)**
- **Over-the-Counter Medicines**
 - Celecoxib (Celebrex®)
 - Ginseng
 - Garlic
 - Gingko biloba
 - Naproxen (Anaprox®, Aleve®, Naprosyn®)
 - Ibuprofen (Motrin®, Advil®, Nuprin®)
 - St. John's Wort

Before Surgery

- Drink clear liquids **only** for 24 hours before surgery.
- You may be given medicine to ensure that your bowel is clean for surgery. **Do not** eat or drink anything after midnight the night before surgery.

- You may brush your teeth and rinse your mouth with mouthwash. Avoid swallowing any water or mouthwash.
- Talk with your anesthesiologist about taking any medicine before surgery.

Preparing Your Skin

Take a shower using the special soap given to you. Wash your chest, neck and underarms as instructed. After your shower, **do not** put anything on your skin – not even deodorant. You may wash your hair the night before surgery. You may not be able to wash it for several days afterwards.

What to Bring to the Hospital

- These educational materials
- Basic toiletries such as a comb, toothbrush, toothpaste and deodorant
- Slippers and a robe. **Immediately** after surgery, you will wear a hospital gown.

Do not bring jewelry. You may need to bring money or credit cards in order to pay for your take home prescriptions. If you do bring valuables, ask your family or friends to keep them until you return to your hospital room after surgery. If no one can help, ask the nurse to store them. The hospital is not responsible for any lost items.

Day of Surgery

Getting Ready for Surgery

- Report for surgery as you were instructed.
- Remove **all** your clothing and put on a hospital gown.
- **Do not** wear anything that can come off during surgery. This includes dentures or partial plates, eyeglasses or contact lenses, jewelry, bobby pins, wigs or any removable prosthesis (such as an artificial eye or leg).
- Go to the bathroom and empty your bladder
- You may be given medicine to help you relax.
- You will be helped onto a stretcher and moved to the holding area (a patient waiting room near the operating room).

In the Holding Area

- A blood pressure cuff will be put on your arm.
- An IV (a small tube inserted into a vein, through which you will receive medicine and fluids) will be placed in a vein in your hand or arm.
- A nurse will ask you questions to verify any drug allergies or to discuss concerns you may have.

In the Operating Room

- You will come into the operating room on a stretcher. A nurse will help you move to the operating table.

- If you feel cold, ask for a blanket.
- Your family and friends may stay in the surgery waiting area. They are not allowed in the operating room.
- Staff will be wearing uniforms, masks and caps.
- You will be secured to the operating table to keep you safe from sudden movements you may make during surgery or while waking from anesthesia.
- An ECG machine will monitor your heart rate.
- You will receive the anesthetic through your IV.
- After you are asleep, a tube will be put in your throat to help you breathe

After Surgery

- You will be taken to the PACU (Post Anesthesia Care Unit) immediately after surgery. After recovery you will go to your room.
- The breathing tube is generally removed in the operating room.
- A protective lubricant is put in your eyes while you are in the operating room. You may not see clearly when you first wake up. This is normal and lasts only a short time.
- The head of the bed will be elevated at a 30-degree angle to decrease swelling and to improve breathing. Do not lie flat!
- The first night after your surgery will be very busy. You will be expected to walk every 4 hours with the assistance of your health team member. You will be doing breathing and coughing exercises hourly throughout the night.
- It is recommended that the family not spend the first night in the hospital but come the next day.
- You will have:
 - An IV
 - A nasal cannula (a tube which fits behind the ears and has two prongs which are placed in the nostrils) which will deliver additional oxygen. This cannula will remain in place until you no longer need additional oxygen
 - A nasogastric tube (a tube that extends from your nose to your stomach to drain stomach fluids). This tube will stay in place for about 4 to 6 days.
 - A jejunostomy tube or J-tube (a tube that goes through the abdomen and into the jejunum [the second part of the small bowel] to assist with feeding and nutrition).
 - A Foley catheter (a rubber tube with a balloon tip that is placed into the bladder to continually drain urine).
 - One or more chest tubes (to drain fluids that may surround the lung). The tubes stay in place for 5 to 8 days.
 - Stitches (sutures) or staples (metal clips) to hold the edges of your incision together. The dressing over the stitches or staples will be removed 48 hours after the surgery. Some sutures will naturally dissolve with time. The staples will be removed at the time of discharge or at your first post-operative clinic visit.
 - Anti-embolic stockings (a knee-high sock which applies pressure on the legs to prevent blood clots)

- You will receive an injection of blood thinners 2 to 3 times daily until discharge. This will help prevent blood clots.
- You will use your incentive spirometer (a small device used in breathing exercises to prevent complications such as pneumonia after surgery). Do breathing and coughing exercises every hour while you are awake and every 2 hours at night. A member of your health team will help you.

Your health care team will check on your progress regularly. If you are in pain, tell your nurse

Recovery after Surgery

You will stay in the hospital for about 5 to 8 days after your surgery.

Each Day of Your Hospital Stay

- Your health care team will check your progress and will:
 - Weigh you and listen to your heart and lungs.
 - Check and clean your incision and chest tube, J-tube, NG tube and IV sites.
 - Irrigate and/or suction your tubes.
 - Help you get out of bed and walk with you until you can walk without assistance.
 - Monitor the amounts of fluid that you take in (through your J-tube) and put out (through urine).
- Tell your nurse if you
 - Have pain or nausea.
 - Feel pain at your IV site.
 - Cough up anything red, rusty or brown.
 - Feel feverish or chilled.
 - Have difficulty sleeping.
- You will receive fluids and pain medication daily
- You will have a chest x-ray and blood tests, if needed.

Pain Medicine

The doctor will order several different types of medications to help control your pain including Tylenol, muscle relaxers and anti-inflammatories. We will use narcotics as needed for severe pain.

Day 1

- Your mouth will probably feel dry. You may rinse your mouth with water. Be careful and do not swallow.
- You will be OOB and walk every 4 hours. Ask for assistance from your health care team.
- You will use the incentive spirometer. Do breathing and coughing exercises every hour while awake and every 2 hours at night. Your nurse will show you how to do “splinting.” Using your blue pillow to support your chest will make the breathing and coughing exercises less painful.

- You may use an inhaler or receive a nebulizer treatment (a device used to administer medicine in the form of a mist inhaled into the lungs). A respiratory therapist (a licensed specialist who evaluates, treats and cares for patients with breathing problems) will assist you.
- You will not be allowed to eat or drink anything.
- You will receive medicine and fluids by IV.

Day 2

- The surgery dressing will be removed.
- The foley catheter in your bladder will be removed.
- Use the incentive spirometer. Do breathing and coughing exercises every hour while awake and every 2 hours at night.
- OOB and walk every 4 hours.
- If needed, you will consult with a physical therapist (a licensed specialist who treats patients to restore the ability to move, prevent disability, relieve pain, promote healing or who helps patients adapt to a permanent disability).
- If needed, you will consult with an occupational therapist (a licensed specialist who assists patients to resume various activities of daily living and to make the home and workplace easier to get around).
- The dietitian will meet with you and we will begin tube feedings and medications down your J-tube.
- You **will not** be allowed to eat or drink anything through your mouth.

Day 3-4

- Use the incentive spirometer every hour while awake and every 2 hours at night. Continue to do the breathing and coughing exercises.
- Walk every 4 hours.
- You will not be allowed to eat or drink but your doctor may allow you to have ice chips.
- Continue to receive J-tube feedings. The rate of infusion will be gradually increased daily.
- Your IV will be discontinued and all medications will then be given down your J-tube

Day 5-6

- The NG tube will be removed
- You may get a barium swallow test
- You may be able to start taking liquids by mouth
- Use the incentive spirometer. Do breathing and coughing exercises every hour while awake and every 3 to 4 hours at night.
- OOB and walk every 4 hours.
- Continue to receive J-tube feedings. Once you are tolerating the tube feedings, you will receive feedings during the night to allow you to be free of the pump during the day.
- The chest tube may be discontinued today, depending upon your doctor's preference.

Days 7 and 8

- Use the incentive spirometer. Do breathing and coughing exercises every hour while awake and every 3 to 4 hours at night.
- OOB and walk every 4 hours.
- Continue to receive J-tube feedings.
- You will not be allowed to eat or drink anything through your mouth.
- You will receive instructions for the J-tube feeding procedure, J-tube care, and incision care.
- You will be discharged to go home.

Follow-up Care

- You may go home from the hospital with a drain in your chest. The nurses will teach you how to care for and empty the drain prior to DC.
- The stitches and/or staples in your incision will be removed at the time of your first follow-up visit, if they have not already been removed.
- Future follow-up appointments are usually scheduled for 2 weeks and then 1 month after surgery and then as determined by your doctor.
- The feeding tube can be removed very easily in the office once you are eating well and don't need it anymore

After Discharge

What to Expect

- Some redness, swelling and drainage around your incision is normal and will go away in about a month, but may take longer.
- You may feel uncomfortable for 1 to 2 months. The pain should gradually lessen. Your doctor will give you all the prescriptions for pain medicine to take at home. The pain medicine will be taken through your J-tube until you have been given permission to eat and drink. If you still have pain, call your doctor.
- You may feel tired after surgery.
- Your skin may be numb in different places, such as near your incisions, for 4 to 6 months.
- If you have been given permission to begin eating and drinking:
 - Sit upright when you eat.
 - Take small bites. Chew food well.
 - Relax and eat slowly.
 - Stop eating when you feel full.
 - Eat several (6) small meals a day.
- You may have constipation. To help decrease constipation problems, increase your activity daily. You will be given a prescription for a mild laxative and stool softeners.
- If you have diarrhea or dumping syndrome (food moving too quickly through the stomach into the small intestines), talk to your nurse.
- Once you start taking pills by mouth, we want you to crush all your medications.

Activities of Daily Living

- You may shower and wash your incision every day with mild soap and water. Do not use antibiotic ointment on the incision unless instructed to do so by your surgeon.
- If pieces of tape (Steri-Strips™) are placed across your incision, they may be removed as they become loose.
- Wear clean, loose clothing over the incision.
- Walk a little more each day.
- Continue to do breathing and coughing exercises.
- Resume sexual activities whenever you feel well enough to do so.

Symptoms to Report

- Temperature of more than 101°F (38°C)
- Nausea, vomiting, diarrhea or constipation
- Increased shortness of breath
- Increased redness or drainage at the incision site
- Foul smelling drainage from your incision
- Increased pain or tenderness along the incision
- Difficulty swallowing
- Weight loss

Precautions after Surgery

- Once you are at home, it is important that you not lie flat. Keep the head of your bed raised like it was in the hospital (at 30°). You may try the following to raise your head:
 - Put wedge of foam under your pillow.
 - Put wedge of foam at the head of the bed between the box springs and mattress
 - Raise the head of your bed using bricks or cinder blocks.
- **For 6 weeks:**
 - **Do not** lift anything heavier than a gallon of milk. (10 pounds [4.5 kg]). This includes pushing a vacuum cleaner.
 - **Avoid** swimming, tennis, golf or other exercises that can overstretch the muscles in your arm and shoulder.
 - **Do not** drive for the first 2 weeks after surgery. Then, continue to avoid driving if your incision is painful or if you are taking pain medicine. Your reflexes may be slower than you think.
 - **Do not** drink alcohol if you are taking pain medicine.
 - **Do not** smoke.
 - **Avoid** tobacco smoke.
 - **Avoid** prolonged submersion in a bath or hot tub.

Care of Your J-Tube

- Continue to do J-tube feeding as you were instructed in the hospital by your dietitian and nurse. Your doctor will determine when the tube feedings can be discontinued.

- Your J-tube goes into your small intestine near the stomach. It should be clamped unless you are using it to give yourself a feeding.
- The tube should always be secured to your body with a suture and tape. Let your doctor know if the sutures come loose. It is not uncommon for sutures to come loose. Make sure that the feeding tube is securely taped to your body.
- Clean around the tube with mild soap and water every day.
- Flush the tube with water before and after each feeding. Also flush the tube with water before and after all medicines.
- Additionally, flush the tube with water 4 times for hydration.
- If the tube comes out when you are at home:
 - Immediately rinse the tube with warm water.
 - Gently try to re-insert the tube along the tract.
 - Re-tape the tube in position.
 - Notify the Thoracic Clinic
 - Go to the Emergency Center for an x-ray, to check the placement of the tube.
 - If the tube does not go in easily, stop and immediately contact your nurse or doctor, or go to the nearest hospital emergency center.
- **It is very important that you do not delay in attempting to replace the J-tube. A delay of 2 to 3 hours may result in closure of the tract and will require a surgical procedure to replace the tube. Do not use the tube until the placement is verified by X-ray.**
- Once you are eating well enough to maintain your weight, your J-tube may be removed. This will be determined by your doctor and the dietitian.

What type of diet will I have?

Initially, you will not be allowed anything by mouth. Once beginning to eat, you will have several types of diet. Your surgeon will determine when you can begin to eat, and your diet will change slowly based on your rate of recovery and how well you can tolerate food. In general, your diet plan will advance as follows:

1. Clear liquid diet
2. Full liquid diet
3. Soft diet

Each person tolerates food in a different way. Your doctor will advance your diet plan based upon your progress after surgery. Information on individual diets is below. Your diet plan after surgery is designed to lessen your discomfort and allow you to enjoy eating.

What can I expect after surgery?

For the first few months after surgery, you may have problems such as:

- Weight loss
- Dumping syndrome (a reaction caused by over filling of the stomach, which can cause symptoms such as nausea, diarrhea, abdominal cramping, light-headedness)
- Excess gas

- Trouble swallowing

How can I help myself?

Follow the tips below to make eating more comfortable and enjoyable.

To reduce discomfort:

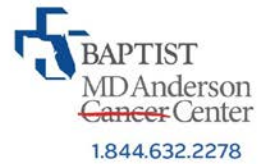
- Eat small, frequent meals (6 to 8 per day). This helps you get all the nutrients you need without overfilling.
- Take small bites and chew your food well. This helps you to swallow and digest your food easier.
- Drink most of your fluids between meals. Limit fluid with meals to ½ cup (4 ounces). Limit fluid with snacks to 1 cup (8 ounces).
- If you eat sweets, eat them at the end of your meal. Sweets are digested more quickly than other foods. Eating sweets first could lead to low blood sugar.
- Choose foods that are soft and moist because they can be easier to digest. Avoid gummy foods, such as bananas and some breads.
- Sit up straight when you eat. This way gravity can help food move through your digestive tract. After you eat, continue to sit upright for 30 to 60 minutes.
- Eat your last meal or snack at least 2 to 3 hours before you go to bed.

To avoid gas:

- **Do not** use a straw, chew gum, or smoke because these activities make you swallow air. Keeping extra air out of your digestive tract helps to reduce gas.
- **Avoid** foods and drinks that produce gas, such as:
 - Broccoli
 - Cabbage
 - Cauliflower
 - Corn
 - Dried beans
 - Lentils
 - Onions
 - Peas
 - Alcoholic drinks
 - Caffeine
 - Citrus and tomato products
 - Sodas (carbonated drinks)

You may use over the counter anti-gas medications like Simethicone and Gas X. They may help alleviate symptoms until you adjust to your new diet. Please crush all medications and mix with a small amount of jello, applesauce or pudding.

Patient Education



Emergency Center

In case of any emergency, call 911 or go to the nearest emergency center. *For non-emergencies during business hours, call our triage line at 904-202-7300 option 3.*