Thoracoscopy, Video Assisted Thoracic Surgery (VATS)

Thoracoscopy is a procedure in which an *endoscope* (an instrument like a thin telescope) is put through a small *incision* (cut) in the chest wall. This procedure makes it possible for your caregiver to look at the lungs or other structures in the *thorax* (chest cavity). It is a more minor procedure compared to a *thoracotomy* which opens the chest cavity with a large incision. Many surgical procedures, especially taking tissue samples (*biopsies*), can also be done using thoracoscopy.

Video-assisted thoracic surgery (VATS) is surgery using a thoracic endoscope. This instrument is like a long, thin flexible telescope. It lets the surgeon look inside the chest. The lung being worked on is collapsed and several small incisions are made to insert instruments. This allows the surgeon to look inside the chest using a monitor like a television screen. The endoscope may be removed put into different areas as needed. When the surgery is finished, the surgeon expands the lung and puts in a chest tube in one of the incision sites. The remaining incisions are stitched up or sealed with adhesive.

PURPOSE OF THE PROCEDURE

- To study diseases or problems in the chest.
- To take a *biopsy* (tissue sample) to study under a microscope.
- Putting medications directly into the lungs
- To remove collections of fluid, pus (*empyema*), or blood in the chest.
- Thoracoscopy often is used in place of thoracotomy. This simpler procedure can avoid many of the *complications* (problems) of opening the chest with conventional surgery. It will usually reduce pain, length of hospital stay and recovery time.
- A common reason for a thoracoscopy is to look at a lung that has a tumor or cancerous growth and determine if it has spread from another location. Often a *biopsy* (small piece of tissue) is taken. A specialist looking at the biopsy can tell where the tumor started or came from. The lung to be examined is deflated (the air is let out) to create a space between the chest wall and the lung. The patient breathes with the other lung and with the assistance of the *ventilator* (a breathing machine controlled by your caregiver).

LIMITATIONS OF THE PROCEDURE

- Because one lung is partially collapsed during thoracoscopy, the procedure cannot be done on patients whose lung function is poor. They may not receive enough oxygen during a procedure that collapses a lung.
- Patients who have had previous chest surgery may not be good candidates for this procedure.
- Patients with blood problems such as *hemophilia* (hard to stop bleeding), or other blood clotting problems, may also not be able to have this procedure.

DESCRIPTION OF PROCEDURE

- Thoracoscopy is most often performed in a hospital, using *general anesthesia* (putting patient to sleep). Some procedures are done as outpatient services and local anesthesia is used. This would be using a numbing medication like Novocain.
- Often procedures are named according to what is being done. If a physician intends to look at the surface of the lungs, the procedure called a *pleuroscopy*. This name comes from the name of the lining of the lung, the *pleura*.
- The procedure usually takes two to four hours depending on the problem found and what needs to be done.
- Several small incisions are made in the chest wall, often between the ribs. By making the incisions between the ribs, the surgeon is able to decrease damage to muscle and nerves and the ribs themselves.

- A tube (called an endotracheal tube) is inserted in the trachea and connected to a ventilator. The *ventilator* is a mechanical device that helps the patient breathe during the procedure. The *trachea* is the tube of cartilage that allows the air to get from the nose and mouth to the lungs.
- An endoscope is inserted through the chest wall. Instruments for taking necessary tissue samples are inserted through other small incisions.
- After *biopsies* (tissue samples) are taken, the lung is inflated to normal again. All incisions are stitched closed except one, which is used to insert a drainage tube. This tube helps keep the lung expanded and removes collections of blood or fluid.
- The tissue samples are sent to a laboratory for study by a *pathologist*. This is someone who specializes in looking at tissues.

PREPARATION FOR SURGERY

- Prior to thoracoscopy, if not already done, the patient may have other routine tests, such as blood, urine and chest x-ray. An *electrocardiogram* (a trace record of the heart activity) may be done to make sure the heart is OK before the procedure.
- The patient should not eat or drink after midnight the night before surgery. The reason for this is anesthesia may cause vomiting, and anesthesia also causes the loss of the gag reflex. A person who vomits is in danger of moving food into the lungs, which can cause serious complications and death.

HOME CARE INSTRUCTIONS

- A chest tube is left in for several days to drain fluid or air which remain from the chest cavity. The bottle attached to this should be kept below the level of the tube entering the chest. It should be clamped if it must be placed above that level temporarily.
- Hospital stays range from two to five days depending on the procedure and treatment.
- Medications for pain are given as needed.
- Continue with a nutritious diet.
- After returning home, patients should do only light lifting for several weeks, or as directed.

RISKS

- The main risks of thoracoscopy are those which you have while receiving the anesthetic which puts you to sleep.
- If too much bleeding occurs, it may be necessary to open the chest to control it (perform a thoracotomy).
- When the drainage tube is removed, the lung may collapse (*pneumothorax*). If this happens the tube may need to be reinserted and left in until a time when the lung will remain expanded when the tube is removed.

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