

## Thoracoscopy

### What is it?

Thoracoscopy is minimally invasive thoracic surgery performed with the use of small fiber optic cameras to look inside the chest. Thoracoscopy is also known by the initials VATS, or Video Assisted Thoracic Surgery. Thoracoscopy is similar to laparoscopy, except that “lapar” refers to the abdomen, and “thorac” refers to the chest. (The term “oscopy” is derived from Latin, loosely interpreted as “to look”.) Thoracoscopy is performed using small incisions and small instruments to examine the inside of the chest and to perform limited operations inside the chest.

A video thoracoscope is made up of three basic parts: a light source, a fiber optic tube that feeds the light into the chest, and a digital video camera. It works like this: very bright light is fed through the fiber optic tube into the chest. The view inside the chest is transmitted back through the tube (the endoscope) to the camera, allowing the image from inside the chest to be displayed on a television screen. The surgeon can look around freely inside the chest, watching the image on the television screen.

In addition to the thoracoscope, other small instruments may be inserted into the chest through additional small incisions to perform biopsies of tissue, excisions of masses, or division of nerves.

### What procedures can be done?

A number of procedures can be done using VATS to treat a variety of disorders.

<p><b>Biopsies</b></p> <ul style="list-style-type: none"> <li>Lung nodules (SPN's)</li> <li>Interstitial lung disease</li> <li>Mediastinal lymph nodes</li> <li>Mediastinal masses</li> <li>Pleural abnormalities</li> <li>Chest wall masses</li> <li>Esophageal tumors</li> </ul>	<p><b>Drainage</b></p> <ul style="list-style-type: none"> <li>Pleural effusion</li> <li>Empyema</li> <li>Lung abscess</li> </ul>
<p><b>Excision</b></p> <ul style="list-style-type: none"> <li>Lung nodules</li> <li>Lung biopsies</li> <li>Apical blebs (for pneumothorax)</li> <li>Mediastinal masses</li> <li>Mediastinal lymph nodes</li> <li>Pleura</li> <li>For pleurodesis</li> </ul>	<p><b>Treatment of</b></p> <ul style="list-style-type: none"> <li>Hyperhydrosis</li> <li>Causalgia</li> <li>Reflex sympathetic dystrophy</li> <li>Pneumothorax</li> <li>Pleural effusion</li> <li>Empyema</li> <li>Limited stage lung cancer</li> <li>In high risk patients</li> <li>Spinal disc disease</li> </ul>

VATS operations can last from about a half an hour to an hour and a half. Several operations are particularly suited for a VATS minimally invasive approach, such as thoracic sympathectomy for hyperhidrosis and causalgia, and resection of apical blebs for pneumothorax. Both of these operations were traditionally done in the past by means of a thoracotomy (a large incision on the chest). The development of very small endoscopes and tiny surgical instruments now makes these operations safer and equally effective by use of tiny incisions.

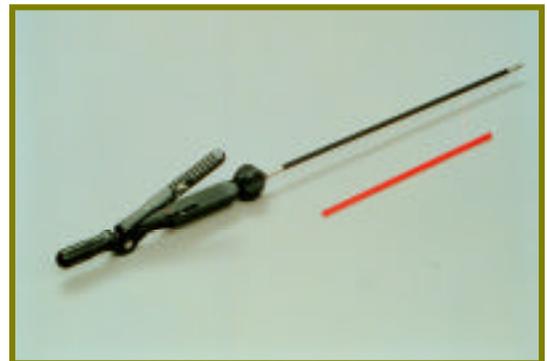
### **How is VATS (thoracoscopy) done?**

The surgeons of Thoracic Surgery Associates, PC, use particularly small endoscopes and instruments for thoracoscopy. These endoscopes and instruments were specifically designed for use in Thoracic and Cardiovascular Surgery, for the purpose of minimally invasive thoracic procedures.

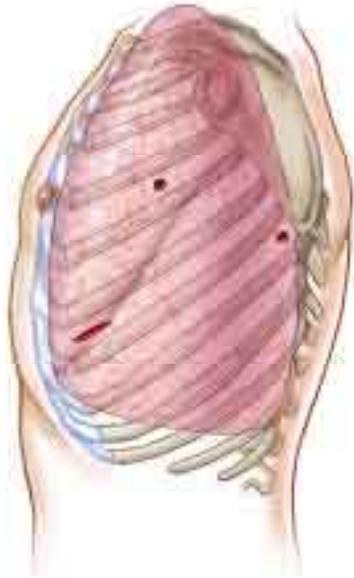


We use a 5 millimeter diameter endoscope, which is as small in diameter as a normal drinking straw.

We use surgical instruments that are 3 millimeters in diameter, as small as a coffee stirrer.



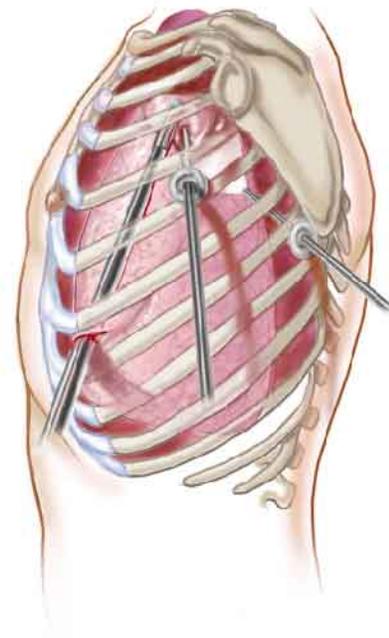
The purpose of such small instruments is to prevent significant trauma to the nerves that travel along the bottom edge of each rib, and to allow maximum mobility inside the chest without putting pressure on the ribs. Smaller incisions reduce the post-operative pain, speed recovery, and provide a superior cosmetic result.



With the patient asleep and lying comfortably on their side, a small,  $\frac{1}{2}$  inch incision is made near the tip of the scapula, or wing bone, on the back. A 5 mm diameter port, or introducer, is placed through the incision into the chest cavity, and air is introduced into the space around the lung. By introducing air, the space around the lung is enlarged, making the lung smaller. As the lung becomes smaller inside the chest, the surgeon can see more of the structures on and around the lung. When an adequate space has developed, a small 3 mm incision is made below the armpit, and another tiny port is placed. Through this port, thin surgical instruments may be inserted. In addition, another incision, approximately  $\frac{1}{4}$  of an inch, may be made on the lower chest wall in order to insert surgical devices and/or a drain.

As seen in this illustration of a VATS procedure, the space around the lung has been developed, and the lung is smaller than normal. The endoscope has been inserted through a port near the tip of the scapula, allowing the surgeon to see the apex of the lung. A 3 mm grasper has been inserted below the armpit, and is grasping the apex of the lung.

A 10 mm surgical device has been inserted through a small incision on the front of the chest, and is beginning to excise some of the lung.



Depending upon the nature of the operation to be done, and the location of the tissue to be

removed, the location, number, and size of small incisions may vary.

#### Post operative care and recovery

The advantages of thoracoscopy over thoracotomy include improvement in post-operative pain, and more rapid recovery from surgery. The smaller incisions create much less pain, and only require band-aids for dressings. In patients who do not have lung resections, a chest tube (drain) may not be required, and the patient may go home on the day of surgery (see article on thoracic sympathectomy.)

Recovery from thoracoscopy depends upon which operation was done using this technique. IF a lung resection is performed, or if a chest tube is placed, then the patient must remain in the hospital for three to five days until drainage from the chest tube diminishes, and any air leak from the lung has healed.

When the patient goes home, he or she is restricted from driving for a week or so, or until pain medications are no longer necessary. The effects of anesthesia will make the patient tire a little more quickly than usual.

We usually see the patient back in the office in one to three weeks, or at any time that the patient perceives that there is a problem.