WHAT TO EXPECT BEFORE AND AFTER SURGERY

Preparing For Your Surgery:
To prepare for your surgery, be sure to follow all of the pre-operative instructions given to you by your doctor. This may include:

- Breathing exercises
- Keep fit and exercise
- Stop smoking if you smoke

Length of stay in the hospital, the use of chest tubes and post-surgical breathing treatments all contribute to your recovery experience. The length of hospital stay will depend on:

- Your post-operative course in the hospital
- Overall health before surgery
- Type of surgical approach (traditional or minimally invasive)

Recovering From Your Surgery
After your lung cancer is removed, you will have one or more chest tubes for a few days after the operation. These tubes are used to drain air and fluid to allow the remaining lung to fully expand. Chest tubes are removed when the drainage is low and is leaking from the healing lung.

Your doctor may also recommend respiratory treatments as a way to recover from surgery. To improve your lung function, surgical breathing treatments all contribute to your recovery experience. The length of hospital stay will depend on:

- Your post-operative course in the hospital
- Overall health before surgery
- Type of surgical approach (traditional or minimally invasive)

FREQUENTLY ASKED QUESTIONS

How would a doctor determine if I have lung cancer? A doctor may screen for lung cancer based on your risk factor(s) (see “How Do You Get Cancer?” section) or may see a nodule during other tests. A final confirmation of the disease should come from one of these tests: bronchoscopy, electromagnetic navigation bronchoscopy (ENB), endobronchial ultrasound (EBUS), transthoracic needle aspiration (TTNA), thoracoscopy, mediastinoscopy, thoracoscopy or thoracotomy. For more information on these tests, please talk with your doctor.

If I am a candidate for surgical treatment, am I eligible for VATS? VATS is generally used in non-small cell lung cancer patients with stage I or II cancer and select stage IIIA patients. And in many patients for whom surgery is an option, it may be the preferred treatment. Whether VATS is the appropriate procedure for you is highly dependent on your situation and should be decided by you, your oncologist and surgeon.

Additional Resources for You
American Lung Association | lung.org
The American Lung Association (ALA) organization works to save lives by improving lung health and preventing lung disease through education, advocacy, and research.

National Cancer Institute | cancer.gov/types/lung
The National Cancer Institute (NCI) is part of the federal government’s National Institute of Health (NIH) and focuses on cancer research and training.

Lung Cancer Alliance | lungcanceralliance.org/eirc/
Lung Cancer Alliance (LCA) is a national nonprofit organization dedicated to providing patient support and advocacy for people living with or at risk for the disease.

Why should I choose VATS?
VATS offers patients a number of advantages over traditional open approach:

- Less pain after the operation
- Better immune system response†
- Better chance of breathing normally
- Better quality of life

This document is not meant to replace medical advice. All surgery presents risk. And any cancer surgery is major surgery. Complications may occur. Your individual risk can be determined in consultation with your surgeon. And only your surgeon can determine if a VATS procedure is right for you.

References

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A cancer grows faster than surrounding cells and results from the uncontrolled growth of the abnormal cells. The surrounding tissue. A tumor results from the DNA of normal cells, which in turn leads to the abnormal cells. Recreational activities. These factors can damage to the normal growth controls of the abnormal cells. Cancer can be caused by a variety of factors including genetics, lifestyle, diet, environment and personal habits. How Do You Get Cancer?

How to Diagnose Affects Your Treatment

Once you are diagnosed with lung cancer, the next step is to figure out if the cancer is only in one area of if it has spread. Using imaging tests and a possible biopsy, your physician will be able to stage your cancer and develop a personalized treatment plan.

Doctors must conduct several tests to determine the presence and stage of your cancer and what treatment will be necessary. Scans can measure the size of the tumor as well as the presence of cancer in surrounding lymph nodes and distant organs. Once tests help identify the stage and severity of the cancer, your doctor will be in a better position to determine the appropriate treatment options for the type of lung cancer.

Classifying Your Lung Cancer

Lung cancer is subdivided based on the ways the cells look. The two major classifications for lung cancer are small cell or non-small cell – and they are treated differently. The majority of cases of lung cancer are non-small cell, which usually spreads more slowly than small cell.

TREATING YOUR LUNG CANCER

You Have Treatment Options

Treatment options for lung cancer are varied and may be used alone or in combination with each other. Your oncologist, or cancer doctor, and surgeon will discuss these different options with you and explain the goal of each.

- Surgery: surgery treats the cancer by removing it and the surrounding lymph nodes. The lung is divided into three lobes on the right and two lobes on the left. When removing the lung cancer, the surgeons can remove a section (wedge or segmentectomy), a lobe (lobectomy) or the entire lung (pneumonectomy).
- Chemotherapy: chemotherapy can be ingested in pill form or injected by needle into a vein or muscle. This treatment is considered a systemic therapy, meaning that the drug enters the bloodstream and circulates throughout the body to reach and destroy cancer cells in the lung and beyond.
- Radiation therapy: radiation therapy is a treatment using high-energy rays or particles to destroy cancer cells. This treatment can be used to kill cancer cells by itself or can be used in conjunction with surgery and chemotherapy.
- Other treatment options exist. Your oncologist and surgeon will discuss these different options with you and explain the goal of each.

The Two Types of Surgery

Your doctor may recommend surgery as part of your treatment plan if you have been diagnosed with lung cancer, particularly non-small cell lung cancer. Surgery to remove the cancer is typically an option when your cancer is confined to one area of the lung and shows no to minimal spread. Surgery is the most effective treatment for early stage non-small cell lung cancers.

There are two major surgical approaches to treat lung cancer. A thoracotomy requires a large incision between the ribs and chest as well as spreading of the ribs to allow access to the lungs. This is often referred to as an open approach. While in some cases an open approach is needed, more advanced minimally invasive techniques have been developed.

In contrast, minimally invasive surgery is accomplished with advanced instruments that are inserted through a small incision and maneuvered to the problem site. In general, minimally invasive lung surgery is performed through a procedure called video-assisted thoracic surgery (VATS). Your surgeon should work with you to determine which approach would be best to treat your cancer.

The MINIMALLY INVASIVE SURGERY OPTION

In video-assisted thoracic surgery (VATS), a surgeon inserts an endoscope with an attached camera into the chest through small incisions made between the ribs (see image below). The scope allows the surgeons to view, under high magnification, the cancerous lung tissue and manipulate the instruments to effectively remove the tissue from the body. There are important differences between VATS and traditional surgery, and we outline those below.

Thoracotomy (Traditional) vs. VATS (Minimally Invasive)

<table>
<thead>
<tr>
<th>TRADITIONAL</th>
<th>MINIMALLY INVASIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain: Incisions and your chest area may be painful for several weeks to months after surgery and sometimes longer</td>
<td>While pain in the hospital will occur, it is usually less than that experienced with a thoracotomy</td>
</tr>
<tr>
<td>Incision Size: One large incision 10-15 cm</td>
<td>One main incision 4-6 cm (usually 4.5 cm) / multiple additional incisions typically 2-4 cm</td>
</tr>
<tr>
<td>Anesthesia: General</td>
<td>General</td>
</tr>
<tr>
<td>Eligibility: Stages I-IIIA</td>
<td>Stages I-IIIA</td>
</tr>
<tr>
<td>Length of Hospital Stay: Up to seven days</td>
<td>Three to four days</td>
</tr>
<tr>
<td>Incision Placement: Up through the chest area may be</td>
<td>TRADITIONAL MINIMALLY INVASIVE</td>
</tr>
</tbody>
</table>

*Occasionally patients can suffer longer term pain; however, current data indicates that two-thirds of patients do not require major pain management beyond three weeks. 