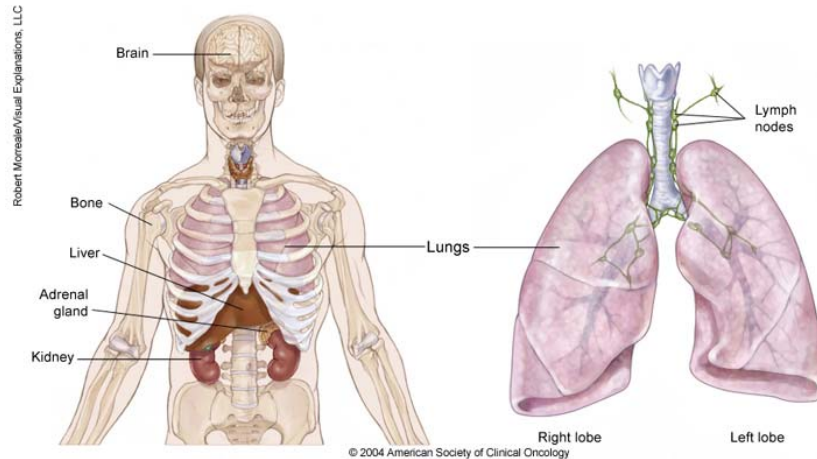


SMALL CELL LUNG CANCER

The lungs are a pair of sponge-like, cone-shaped organs. The right lung has three lobes and the left lung has two lobes. Oxygen is brought into the lungs with inhalation of air. Lung tissue carries oxygen to the bloodstream for delivery to the rest of the body. Cells release carbon dioxide as they use oxygen. The bloodstream takes carbon dioxide back to the lungs. Carbon dioxide then leaves the body with exhalation.



Lung cancer is a disease of abnormal cells multiplying and growing into a tumor. Cancer cells can be carried away from the lungs in blood, or lymph fluid that surrounds lung tissue. Lymph flows through lymphatic vessels. These drain into lymph nodes located in the lungs and in the center of the chest. Lung cancer often spreads toward the center of the chest because the natural flow of lymph out of the lungs is toward the center of the chest. Metastasis occurs when a cancer cell leaves the site where it began and moves into a lymph node or to another part of the body.

Small cell lung cancer accounts for about one eighth of lung cancers. It grows quickly and is likely to spread to other parts of the body. "Small cell" refers to the size and shape of the cancer cells.

Risk Factors

Most causes of lung cancer are related to the use of tobacco including cigarettes, cigars, and pipes. Exposure to Environmental Tobacco Smoke (ETS), radiation, radon, asbestos, and certain air and industrial pollutants, as well as a history of tuberculosis (TB) also increases risk of lung cancer.

Screening:

Spiral Computed Tomography scans have been used in clinical trials to find early stage lung cancers for patients at risk. There is presently no proof that screening changes the cure rate for lung cancer. Care providers should be consulted for advice about risk of lung cancer and any need for screening tests.

Symptoms to report:

Cough that doesn't go away, but gets worse over time; constant chest pain; coughing up blood; shortness of breath, wheezing, or hoarseness; repeated episodes of pneumonia or bronchitis; loss of appetite or weight; swelling of the neck and face; or fatigue.

Diagnosis of lung cancer is made by these medical tests:

Sputum cytology is an examination of mucus under a microscope.

Biopsy is the removal of a piece of lung tissue, either with a needle through the skin or with surgery. A pathologist examines the tissue under a microscope to check for cancer cells. The pathologist will determine if any cancer cells are small cell or non-small cell cancer, based on the appearance.

Bronchoscopy is a procedure with a thin, flexible tube. The tube has a light on the end and is inserted through the mouth or nose, and into the breathing passages of the lungs. Cells or small samples or tissues or fluid can be collected through the tube. Mild anesthesia is given during a bronchoscopy.

Needle aspiration is the insertion of a small needle through numbed skin on the chest directly into the tumor to remove a sample of tissue.

Bone marrow biopsy uses a special needle to remove a piece of bone (typically from the hip) in order to determine whether small cell cancer is present within the bones. Local anesthesia is used.

Thoracentesis uses a small needle inserted through numbed skin on the chest to withdraw fluid from the area between the lung and the wall of the chest.

Thoracotomy is a major operation and is performed in a hospital under general anesthesia. An incision is made in the chest to directly examine the lung and take biopsies. This is the procedure most often used to completely remove a lung tumor.

Thoracoscopy uses small video cameras to examine the inside of the chest through small incisions. Patients still require general anesthesia, but recovery time may be shorter because of the smaller incisions.

Mediastinoscopy is surgery to examine and sample lymph nodes in the center of the chest. Surgery is through a small incision at the top of the breastbone. This also requires general anesthesia.

Radiologic scans are also vital to the diagnosis and care of lung cancer:

Computerized tomography (CT) and **magnetic resonance imaging (MRI)** scans produce images that define the size and location of tumors and/or metastases.

Bone scan uses a tracer of radioactive molecules that concentrate in damaged bone, which may indicate the presence of bone metastases, or other conditions.

Positron emission tomography (PET) scan uses radioactive sugar molecules injected intravenously. Lung cancer cells absorb sugar more quickly than normal cells, so they "light up" on the PET scan.

Stage and Treatment for Small Cell Lung Cancer

Stage refers to the size and location of the tumor. Small cell lung cancer spreads quickly and rarely responds well to surgery or radiation therapy alone. A **limited stage** tumor is located on one side of the chest and involves a single region of the lung and nearby lymph nodes. Patients with limited stage small cell lung cancer are treated with chemotherapy plus radiation therapy. **Extensive stage** cancer has spread to other regions of the chest, or outside of the chest. Patients with extensive stage disease are treated with chemotherapy only. In patients whose tumors have disappeared after chemotherapy, radiation may help prevent cancer from later attacking the brain.

Chemotherapy is use of anticancer drugs to kill cancer cells, control cancer growth or relieve symptoms. It is given by injection into a vein or as pills taken by mouth.

Radiation therapy uses high-energy rays, externally from a machine or internally from an implant, to kill cancer cells. The rays are directed to a limited area and affect only the cells in that area. It can be used before surgery to shrink a tumor or after surgery to destroy any remaining cancer cells. It can also be used as the main treatment instead of surgery or to relieve symptoms.

Photodynamic therapy (PDT) is a type of laser therapy that involves the use of a special chemical that is injected into the bloodstream and absorbed by cells all over the body. The chemical rapidly leaves normal cells but remains in cancer cells for a longer time. A laser light aimed at the cancer activates the chemical, which then kills the cancer cells that have absorbed it.

Surgery for small cell lung cancer may be used if the cancer is a small, solitary nodule and does not involve any lymph nodes. This is rare. Types of surgery are:

Wedge resection: removes only a small part of lung

Lobectomy: removes an entire lobe of one lung

Pneumonectomy: removal of an entire lung

adapted from National Cancer Institute (NCI)
and People Living with Cancer, January, 2007