

Lung Cancer

Small Cell Carcinoma

Definitions

Small cell carcinoma:

A type of cancerous or malignant tumor composed of small cells with distinctive microscopic features.

Bronchi: The system of air passages that penetrates the lungs to deliver air to minute lung tissue responsible for gas exchange.

Pathologist: A physician who examines tissues and fluids to diagnose disease in order to assist in making treatment decisions.

Sputum: Mucus coughed up from the lungs.

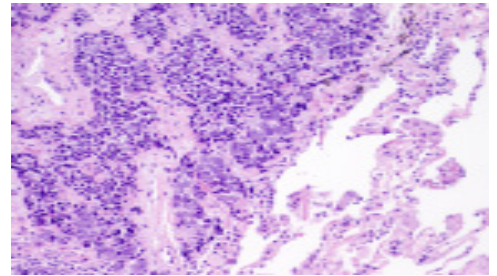
What is small cell lung carcinoma?

Small cell carcinoma has, in the past, been called oat cell cancer because the cells resemble oats when seen under a microscope. A fast-growing type of lung cancer, small cell carcinoma usually spreads faster than non-small cell lung cancer. There are three different types of small cell lung cancer:

- Small cell carcinoma, the most common
- Mixed small cell/large cell carcinoma
- Combined small cell carcinoma

According to the American Cancer Society, small cell carcinoma accounts for about 10 to 15 percent of all lung cancer cases. Small cell lung cancer usually starts in or near the lung's bronchi. The cells can quickly grow into large tumors that can rapidly spread to the brain, liver, bones, and other parts of the body. There are about 175,000 new cases of small cell carcinoma each year. The cancer has already spread beyond the lungs in about 60 to 70 percent of cases.

The cancer spreads easily because of the constant flow of blood and lymph through the lungs. The fluids can carry cancer cells to the other lung, lymph nodes, and organs outside of the chest.



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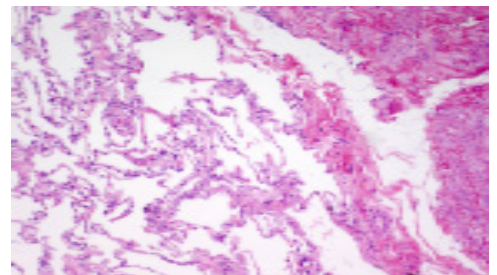
Who is most likely to have small cell lung carcinoma?

More common in men than women, small cell carcinoma is almost always caused by smoking and is rare among those who have never smoked. Heavy exposure to second-hand smoke or to asbestos or radon also can cause small cell carcinoma.

What characterizes small cell lung carcinoma?

Symptoms include coughing, bloody sputum, shortness of breath, wheezing, chest pain, loss of appetite, and weight loss.

The tumor cells cause increased secretion of adrenocorticotropic hormone (a hormone from the adrenal gland), causing Cushing's disease, which is characterized by a puffy face, weight gain, hump on the lower neck, or elevated blood sugar levels. Antidiuretic hormone, also secreted by these tumor cells, lead to water retention and low sodium, which can cause confusion. Small cell carcinoma antibodies also can cause weakness by the tumor-producing antibodies against normal tissues (autoantibodies).



Normal lung cells.

How does a pathologist diagnose small cell lung carcinoma?

Your primary care physician or specialist will conduct a thorough physical examination and gather a sample of sputum for the pathologist to examine for traces of blood, bacteria, infectious organisms, and cancer cells. If the sputum test does not provide a definite diagnosis, your primary care physician may prescribe further tests, which may include a **complete blood count** or a **chest x-ray**. By examining a chest x-ray, a physician can detect a mass in the lungs or enlarged lymph nodes in the chest.

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What kinds of questions should I ask my doctors?

Ask any question you want. There are no questions you should be reluctant to ask. Here are a few to consider:

- Please describe the type of cancer I have and what treatment options are available.
- What stage is the cancer in?
- What are the chances for full remission?
- What treatment options do you recommend? Why do you believe these are the best treatments?
- What are the pros and cons of these treatment options?
- What are the side effects?
- Should I receive a second opinion?
- Is your medical team experienced in treating the type of cancer I have?
- Can you provide me with information about the physicians and others on the medical team?

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If there appears there may be a mass in your lungs, your primary care physician or cancer specialist may order a **CT, MRI** or **PET scan** or perform a **biopsy**. CT (computed tomography), MRI (magnetic resonance imaging) or PET (positron emission tomography) scans produce chest images that assist pathologists to better determine the nature, position or extent of a mass. CT is sometimes used to guide biopsy, which gathers cell samples from the suspicious area for the pathologist to examine. Biopsy is sometimes combined with **bronchoscopy**, which examines the windpipe and lung branches with a flexible scope.

By reviewing these tests, your pathologist is able to rule out or confirm a diagnosis of cancer. If cancer exists, the pathologist can begin to determine whether or not it has spread.

What else does the pathologist look for?

Your pathologist may examine additional blood tests ordered by your primary care physician or specialist. These tests identify lung cancer **markers** – elements in the blood associated with lung cancer. Finding particular types of markers help the pathologist determine the exact type of cancer. Also, if fluid has accumulated in the chest, a pathologist may examine fluid sample obtained through a procedure called **thoracentesis**, in which a needle withdraws a fluid sample.

How do doctors determine what surgery or treatment will be necessary?

If the pathologist finds cancer, your primary physician or specialist may order a bone scan to see if the cancer has spread into your bones.

After reviewing the results of all your tests and procedures, your pathologist assigns a clinical **stage** to your small cell carcinoma. For this type of cancer, there are two stages: **limited** or **extensive**. Limited small cell carcinoma is confined inside the chest, and extensive small cell carcinoma has spread outside the chest.

Once the stage has been determined, your primary care physician or cancer specialist will discuss treatment options with you. Because most cases of small cell carcinoma have advanced to the extensive stage, physicians usually recommend combined **chemotherapy** and **radiation therapy** to increase the chances of remission. Chemotherapy delivers drugs throughout the body, slows the cancer's progression and reduces pain. Radiation therapy – pinpointed high-energy beams – is used to shrink localized tumors or cancer cells. This treatment is also used to relieve the symptoms of advanced lung cancer or to slow its spread.

Surgery is rarely used to treat small cell carcinoma because the disease has usually spread by the time it is diagnosed. Surgery is considered if the cancer hasn't spread and the tumor is still localized in the chest. Chemotherapy and radiation therapy are provided after surgery.

Because small cell carcinoma is a very aggressive type of cancer with a high chance of recurring after remission, patients are encouraged to investigate new treatments available in **clinical trials**. Information about clinical trials can be found at the National Cancer Institute's Web site — www.cancer.gov/clinicaltrials

For more information, go to: www.cancer.gov (National Cancer Institute) or www.cancer.org (American Cancer Society). Type the keywords **small cell lung carcinoma** or **lung cancer** into the search box.

Healing begins with the pathologist's diagnosis. Pathologists are core members of your patient care team.