

Thymus Cancer

Information for people with cancer

This information should not be used to diagnose yourself or in place of a doctor's care.

Thymus cancers are very rare.

The thymus is a small organ inside your chest, behind your sternum (breastbone). It sits just in front of and above your heart and may extend up to the bottom of your neck.

Image of thymus: visualsonline.cancer.gov/retrieve.cfm?imageid=9266&dpi=72&fileformat=jpg

The thymus is part of the lymphatic system. T Lymphocytes are a type of white blood cell that develop in the thymus, especially in early life. These cells help protect the body from infections and viruses. If lymphocytes become cancerous, they can develop into lymphoma. For more information about lymphoma: www.bccancer.bc.ca/health-info/types-of-cancer/blood-lymphoid

One function of the thymus is to help control the immune system.

The thymus has two lobes (sections) that are surrounded by a thin layer of tissue. It is made up of two types of cells: epithelial cells and lymphocytes.

Epithelial cells line the thymus. Thymus-related cancers, such as thymoma and thymic carcinoma, start in these cells.

Thymus cancers have different names including thymomas, thymic carcinomas, and thymic epithelial tumour.

Thymic carcinoid tumours are very rare types of cancers called neuroendocrine tumours (NETs).

Diagnosis and Staging

What are the signs and symptoms of thymus cancer?

There are often no symptoms of thymus cancer. Because of this, many people diagnosed with thymus cancer will be at an advanced stage.

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If the tumour presses on other organs, you may have these symptoms:

- Coughing.
- Shortness of breath.
- Difficulty breathing (dyspnea).
- Difficulty swallowing (dysphagia).
- Chest tightness or pain.

If the tumour presses on your vena cava (large blood vessel that returns blood to your heart), you may have these symptoms:

- Swelling in your neck and face.
- Feeling light-headed.
- Headaches.

Advanced thymus cancer may cause chest pain.

Some people with this cancer may also have an immune disorder or low red blood cell counts.

If you have any signs or symptoms that you are worried about, please talk to your family doctor or nurse practitioner.

How is thymus cancer diagnosed?

Thymus tumours are often found when a chest x-ray is done for another reason.

Tests that may help diagnose thymus cancer include:

- **Chest x-ray or CT (Computed tomography) scan:** to see the tumour and if the cancer has spread.
- **Magnetic Resonance Imaging (MRI):** will show if cancer has spread.
- **Fine needle biopsy:** a doctor uses a needle to remove a small piece of tissue. A specialist doctor (pathologist) will examine the tissue under a microscope.

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For more information on tests used to diagnose cancer, see our Screening and Diagnosis pathfinder: bccancer.libguides.com/pathfinder-screening

What are the types of thymus cancer?

Thymoma (most common)

- Usually grows slowly.
- Non-invasive thymomas have not grown through the outer layer of the thymus (capsule). Often removed with surgery.
- Invasive thymomas have grown into other organs or areas around the thymus. Can be hard to remove.

Thymic carcinoma

- Less common.
- Grows quickly.
- Has often spread at time of diagnosis.

What are the stages of thymus cancer?

Staging describes the cancer. Staging is based on how much cancer is in the body, where it was first diagnosed, if the cancer has spread and where it has spread to.

The stage of the cancer can help your health care team plan your treatment. It can also tell them how your cancer might respond to treatment and the chance that your cancer may come back (recur).

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Thymoma staging: the modified Masaoka system is the most commonly used for this type of cancer.

- **Stage 1:** Tumour is only in the thymus.
- **Stage 2:** Tumour has grown through the thymus capsule. Tumour may have grown into fat around the thymus or tumour is attached to the pleura (layer of tissue covering lungs and lining chest cavity).
- **Stage 3:** Tumour has grown into nearby organs or tissues, such as the lungs.
- **Stage 4A:** Cancer has spread widely through the pleura or pericardium (the sac that surrounds your heart).
- **Stage 4B:** Cancer has spread to other parts of the body.

Thymoma and thymic carcinoma may also be staged using the TNM system:

- **Stage 1:** Tumour is in the thymus or has grown into surrounding fat. Tumour may also have grown into the pleura next to the thymus.
- **Stage 2:** Tumour has grown into the pericardium.
- **Stage 3A:** Tumour has grown into any of these areas:
 - Lungs.
 - Nearby large veins in the upper chest.
 - Large blood vessels going into or leaving the lung outside of the pericardium.
 - Nerve to the diaphragm (called the phrenic nerve).
 - Chest wall.
- **Stage 3B:** Tumour has grown into any of these areas:
 - Large artery leaving the heart (called the aorta).
 - An artery branching off the arch (top part) of the aorta.
 - Large blood vessels going into or leaving the lung within the pericardium.
 - Muscle layer of the heart (called the myocardium).
 - Trachea (windpipe).
 - Esophagus (swallowing tube that brings food to your stomach).

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- **Stage 4A:** Cancer has spread to lymph nodes around the thymus (perithymic lymph nodes) or cancer has spread to a part of the pleura or pericardium that is not attached to the main tumour.
- **Stage 4B:** Cancer has spread to lymph nodes deeper into the thorax (part of your body between your neck and abdomen) called the intrathoracic lymph nodes. Or cancer has spread to lymph nodes in the neck (cervical lymph nodes).

OR

Cancer has spread to other parts of the body (distant metastasis) such as the liver.

For more information on staging, see our About Cancer page:

bccancer.bc.ca/health-info/types-of-cancer/about-cancer

Treatment

What is the treatment for thymus cancer?

Cancer treatment may be different for each person. It depends on your particular cancer. Your treatment may be different from what is listed here.

Surgery

- The most effective treatment is if the tumour can be completely removed.
- If a stage 1 tumour is removed, there is no need for more treatment.

Radiation therapy (uses high energy x-rays to kill or shrink cancer)

- Given after surgery for invasive thymomas and for all thymic carcinomas.
- For more information about radiation therapy go to:

bccancer.bc.ca/our-services/treatments/radiation-therapy

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Systemic therapy (chemotherapy)

- If the tumour has spread into nearby tissues, may be given before surgery to shrink the tumour.
- May be used for advanced thymus cancers or recurrent thymus cancer (cancer that comes back after treatment).
- For more information about systemic therapy go to:
[bccancer.bc.ca/our-services/treatments/systemic-therapy-\(chemotherapy\)](http://bccancer.bc.ca/our-services/treatments/systemic-therapy-(chemotherapy))

What is the follow-up after treatment?

- Follow-up testing and appointments are based on your type of cancer.
- Guidelines for follow-up after treatment for thymus cancer are on our website:
www.bccancer.bc.ca/health-professionals/clinical-resources/cancer-management-manual/lung/thymoma#Management-Thymoma
- These are guidelines written for your doctor, nurse practitioner or specialist. You can look at them to see what appointments and tests you might need after treatment.
- After treatment, you may return to the care of your family doctor or specialist for regular follow-up. If you do not have a family doctor, please talk to your BC Cancer health care team.
- **Follow-up schedule and tests:**
 - For the first two years after treatment, a doctor should examine you every 4 months.
 - For the next 3 years, a doctor should examine you every 6 months.
 - After 5 years, you should see a doctor once each year.
 - You should have chest imaging around the same time you see the doctor.
- The BC Cancer Life after Cancer page has information on issues that cancer survivors may face: bccancer.bc.ca/lifeaftercancer

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More Information

What causes thymus cancer and who gets it?

We do not know what causes thymus cancer.

These are the risk factors for this cancer. Not all of these risk factors may cause this cancer, but they may help the cancer start growing.

- Being between 40 and 60 years old.
- Having myasthenia gravis (a chronic disease that causes muscle weakness).

Statistics on thymus cancer

- B.C. statistics: www.bccancer.bc.ca/health-info/disease-system-statistics/statistics-by-cancer-type
- Canada statistics: www.cancer.ca/en/cancer-information/cancer-type/thymus/statistics/?region=bc

Note: Available statistics do not have information about the inclusion of transgender and gender diverse participants. It is unknown how these statistics apply to transgender and gender diverse people. Patients are advised to speak with their primary care provider or specialists about their individual considerations and recommendations.

Can I help prevent thymus cancer?

There is no known way to prevent this cancer.

Is there screening for thymus cancer?

There is no screening program for this cancer.

People with myasthenia gravis should be checked regularly for thymus cancer.



Provincial Health Services Authority

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Where can I find more information?

- If you have questions about thymus cancer, please talk to your health care team.
- Our librarians can help you find the information you need. Visit our Library page: bccancer.bc.ca/our-services/services/library
- BC Cancer Library Thymus Cancer pathfinder: bccancer.libguides.com/pathfinder-thymus
- Managing Your Symptoms: www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects
- Emotional Support: www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support