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Thymus Cancer Early Detection, Diagnosis, and Staging

Know the signs and symptoms of thymus cancer. Find out how thymus cancer is tested for, diagnosed, and staged.

Detection and Diagnosis

Finding cancer early, when it's small and hasn't spread, often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- [Can Thymus Cancer Be Found Early?](#)
- [Signs and Symptoms of Thymus Cancers](#)
- [Tests for Thymus Cancer](#)

Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the amount of cancer in the body and expected response to treatment.

- [Thymus Cancer Stages](#)
- [Survival Rates for Thymus Cancer](#)

Questions to Ask About Thymus Cancer

Here are some questions you can ask your cancer care team to help you better understand your diagnosis and treatment options.

- [Questions to Ask Your Doctor About Thymus Cancer](#)

Can Thymus Cancer Be Found Early?

Screening is testing for a disease like cancer in people without any symptoms. Thymus cancers are uncommon, and there are no widely recommended screening tests for

Signs and Symptoms of Thymus Cancers

Many thymic tumors are found on an x-ray or scan done for some other reason, before the patient has symptoms. The rest are brought to the attention of a doctor after a person starts to have symptoms. These may be related to the tumor itself, or they may be part of a paraneoplastic syndrome.

Although these signs and symptoms might be caused by thymus tumors, they can also be caused by other conditions. Still, if you have any of these problems, it's important to see your doctor right away so the cause can be found and treated, if needed.

- [Symptoms caused by the tumor](#)
- [Paraneoplastic syndromes](#)

Symptoms caused by the tumor

The thymus is in the middle of the chest, near the airways and certain blood vessels. Tumors in the thymus can press on nearby structures, causing symptoms such as:

- Shortness of breath
- Cough (which may bring up bloody sputum)
- Chest pain
- Trouble swallowing
- Loss of appetite
- Weight loss

The thymus is near the superior vena cava, the main blood vessel bringing blood from the head and upper body to the heart. Tumors that press on this vessel can cause symptoms of *superior vena cava syndrome*, which can include:

- Swelling in the face, neck, and upper chest, sometimes with a bluish color
- Swelling of the visible veins in this part of the body
- Headaches
- Feeling dizzy or light-headed

Paraneoplastic syndromes

These are conditions that are related to the cancer but that are not caused directly by the tumor mass. For example, people with thymomas may develop autoimmune diseases, where the immune system starts to attack the body itself. Part of the normal

function of the thymus is to help keep the immune system in check, which may help explain why this happens.

Myasthenia gravis: About 30% to 65% of people with thymomas also have myasthenia gravis (MG). This is by far the most common autoimmune disease associated with thymomas. In this disease, the immune system forms antibodies that block the chemical signals that signal the muscles to move. This causes severe muscle weakness. People with MG tire easily. They may notice problems climbing stairs or walking long distances.

Although patients have decreased muscle strength throughout the body, symptoms caused by weakness of the muscles of the eyes, neck, and chest may be the most troublesome. Weakness of the eye muscles can cause blurred or double vision and drooping eyelids, while weak neck muscles can lead to problems with swallowing. Weakness of the chest muscles and diaphragm can cause problems breathing and shortness of breath.

Many people with thymomas have MG, but most people with MG don't have thymomas.

Many people with MG have other, noncancerous abnormalities like enlarged thymus glands.

- Rheumatoid arthritis
- Sjogren (Sjögren) syndrome
- Sarcoidosis
- Scleroderma

Most people who have these autoimmune diseases do not have a thymoma.

Hyperlinks

1. www.cancer.org/cancer/types/thymus-cancer/references.html

References

[See all references for Thymus Cancer](#)

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Tests for Thymus Cancer

If there is a reason to think you might have a thymus tumor (such as a thymoma or thymic carcinoma), your doctor will ask you about symptoms and use one or more exams or tests to check for one. Certain [signs and symptoms](#) might suggest that a person has a thymus tumor, but tests are needed to know for sure.

- [Medical history and physical exam](#)
- [Imaging tests](#)
- [Blood tests](#)
- [Biopsies](#)

Medical history and physical exam

CT scans can also be used to help guide a biopsy needle precisely into a suspected tumor or metastasis. This is called a **CT-guided needle biopsy**.

Magnetic resonance imaging (MRI) scan

Like CT scans, [MRI scans](#)³ provide detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays.

MRI of the chest may be done to look more closely at thymus tumors. This test is most often used for people who cannot have a CT scan for medical reasons (like problems with the IV contrast). MRI images are also particularly useful in looking for cancer that may have spread to the brain or spinal cord.

Positron emission tomography (PET) scan

For a [PET scan](#)⁴, you are injected with a slightly radioactive form of sugar, which collects mainly in cancer cells. A special camera is then used to create a picture of areas of radioactivity in the body. The picture is not detailed like a CT or MRI scan, but a PET scan can look for possible areas of cancer spread in all areas of the body at once.

A PET scan can help give the doctor a better idea of whether a change seen on another imaging test is a tumor or not. If you have already been diagnosed with cancer, your doctor may use this test to see if the cancer has spread to lymph nodes or other parts of the body. A PET scan can also be useful if your doctor thinks the cancer may have spread but doesn't know where.

Certain machines are able to perform both a PET and CT scan at the same time (**PET/CT scan**). This lets the doctor compare areas of higher radioactivity on the PET scan with the more detailed pictures of that area on the CT. Combined PET/CT is used more often than a PET scan alone when looking at thymomas.

Blood tests

Blood tests can't be used to diagnose thymomas, but they may be helpful in some situations. For example, blood tests may be done:

- To look for certain antibodies if myasthenia gravis (MG) or another autoimmune disorder is suspected
- To make sure a mass in the middle of the chest isn't a germ cell tumor or part of the

thyroid gland

If a thymoma is diagnosed, **blood cell counts** and **blood chemistry tests** are done to get an idea of a person's overall health, especially if surgery is planned. Also, tests for myasthenia gravis will be done before any surgery. This is because MG is very common in people with a thymoma, and, if not treated, it can cause problems with the drugs used during surgery. People getting [chemotherapy](#)⁵ need regular blood tests to make sure the drugs aren't having unwanted effects on the bone marrow, kidneys, or other organs.

Biopsies

Although signs, symptoms, and imaging tests can suggest that a thymic tumor is likely, doctors can't be certain of the diagnosis without looking at the tumor under a microscope.

For most cancers, taking out a small piece of the tumor (known as a **biopsy**) is needed to confirm whether a tumor is present and, if so, to determine its type. For thymomas, this isn't often done because doctors can usually tell that the tumor is very likely a thymoma based on how it looks on imaging tests. Because of this, doctors often remove the entire tumor during [surgery](#)⁶, rather than do a biopsy. This provides tissue for a

1. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/x-rays-and-other-radiographic-tests.html
2. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/ct-scan-for-cancer.html
3. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/mri-for-cancer.html
4. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/nuclear-medicine-scans-for-cancer.html
5. www.cancer.org/cancer/types/thymus-cancer/treating/chemotherapy.html
6. www.cancer.org/cancer/types/thymus-cancer/treating/surgery.html
7. www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests.html

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Meneshian A, Oliver KR, Molina JR. Clinical presentation and management of thymoma and thymic carcinoma. UpToDate. 2024. Accessed at <https://www.uptodate.com/contents/clinical-presentation-and-management-of-thymoma-and-thymic-carcinoma> on May 14, 2024.

National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines: Thymomas and Thymic Carcinomas. Version 1.2024. Accessed at https://www.nccn.org/professionals/physician_gls/pdf/thymic.pdf on May 14, 2024.

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Thymus Cancer Stages

After someone is diagnosed with thymus cancer, doctors will try to figure out if it has spread, and if so, how far. This process is called **staging**. sp20q-arcinoma on May 14, 2024.

- [How is the stage determined?](#)
- [Other prognostic factors](#)

Thymus cancer ranges from stages I (1) through IV (4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV, means cancer has spread more. And within a stage, an earlier letter means a lower stage. Although each person's cancer experience is unique, cancers with similar stages tend to have a similar outlook and are often treated in much the same way.

How is the stage determined?

Stage	grouping	
I	T1a N0 M0	The cancer has not spread into the outer layer of the thymus OR it has grown into the nearby fatty tissues but not into the mediastinal pleura (the thin layer covering the space between the 2 lungs) (T1a). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
	OR	
	T1b N0 M0	The cancer has grown into the nearby fatty tissue and the mediastinal pleura (the thin layer covering the space between the 2 lungs) (T1b). It has not spread to nearby lymph nodes (N0) or distant sites (M0).
II	T2 N0 M0	The cancer has grown into the nearby fatty tissue and into the pericardium (the tissue sac containing the heart) (T2). It has not spread to nearby lymph nodes (N0) or distant sites (M0).
IIIA	T3 N0 M0	The cancer is growing into nearby tissues or organs, including the

5. www.cancer.org/cancer/types/thymus-cancer/references.html

References

[See all references for Thymus Cancer](#)

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Survival Rates for Thymus Cancer

Survival rates can give you an idea of what percentage of people with the same type and stage of cancer are still alive a certain amount of time (usually 5 years) after they were diagnosed. They can't tell you how long you will live, but they may help give you a better understanding of how likely it is that your treatment will be successful.

- [What is a 5-year relative survival rate?](#)
- [Where do these numbers come from?](#)
- [5-year relative survival rates for thymus cancer](#)
- [Understanding the numbers](#)

Keep in mind that survival rates are estimates and are often based on previous outcomes of large numbers of people who had a specific cancer, but they can't predict what will happen in any particular person's case. These statistics can be confusing and may lead you to have more questions. Ask your doctor how these numbers might apply to you.

What is a 5-year relative survival rate?

A **relative survival rate** compares people with the same type and stage of thymus cancer to people in the overall population. For example, if the **5-year relative survival rate** for a specific stage of thymus cancer is 80%, it means that people who have that cancer are, on average, about 80% as likely as people who don't have that cancer to

live for at least 5 years after being diagnosed.

after treatment.

Questions to Ask Your Doctor About Thymus Cancer

7. www.cancer.org/cancer/managing-cancer/finding-care/the-doctor-patient-relationship.html
8. www.cancer.org/cancer/types/thymus-cancer/references.html

References

[See all references for Thymus Cancer](#)

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