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Treating Thymus Cancer

If you've been diagnosed with thymus cancer, your cancer care team will discuss your treatment options with you. It's important to weigh the benefits of each treatment option against the possible risks and side effects.

How is thymus cancer treated?

The main treatments for thymus cancer are:

- [Surgery for Thymus Cancer](#)
- [Radiation Therapy for Thymus Cancer](#)
- [Chemotherapy for Thymus Cancer](#)

Common treatment approaches

Factors important in choosing a treatment include the [type](#)¹ and [stage](#)² of the cancer, whether or not it is resectable (able to be completely removed with surgery), and whether you have any other serious medical problems.

Because thymic cancer is rare, it's been hard to do large studies looking at treatments and comparing one against another. That's why in many cases the best way to treat this cancer is not always clear.

- [Treatment of Thymus Cancers by Extent and Type of Tumor](#)

Who treats thymus cancer?

Your health care team may include:

- **Thoracic surgeon:** a surgeon who specializes in chest surgery

- **Radiation oncologist:** a doctor who treats cancer with radiation therapy
- **Medical oncologist:** a doctor who treats cancer with medicines such as chemotherapy
- **Pulmonologist:** a doctor who treats diseases of the lungs
- **Neurologist:** a doctor who diagnoses and treats brain and nervous system diseases

Many other specialists may be involved in your care as well, such as nurse practitioners, nurses, psychologists, social workers, rehabilitation specialists, and other health professionals.

- [Health Professionals Associated With Cancer Care³](#)

Making treatment decisions

It's important to discuss all of your treatment options as well as their possible side effects with your family and your treatment team to make the choice that best fits your needs. If there's anything you don't understand, ask to have it explained.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- [Questions to Ask Your Doctor About Thymus Cancer⁴](#)
- [Seeking a Second Opinion⁵](#)

Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- [Clinical Trials⁶](#)

Considering complementary and alternative methods

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- [Complementary and Alternative Medicine](#)⁷

Help getting through cancer treatment

People with cancer need support and information, no matter what stage of illness they may be in. Knowing all of your options and finding the resources you need will help you make informed decisions about your care.

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- [Palliative Care](#)⁸
- [Find Support Programs and Services in Your Area](#)⁹

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)¹⁰

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.

Surgery for Thymus Cancer

Whenever possible, surgery is used to treat thymus cancers. If you have thymus cancer, one of the first things your doctor will do is to try to figure out if the cancer is completely resectable (removable) with surgery. [Imaging tests](#)¹ are used to do this.

The most common surgery for thymus tumors is complete removal of the thymus gland (including any tumor). This is called a *thymectomy*. In most cases the surgery is done through a *median sternotomy*. This is an incision (cut) down the middle of the chest that splits the sternum (breast bone) and allows the whole thymus and tumor to be removed.

The surgeon will also try to remove any areas of tumor spread outside of the thymus. So, if the tumor has grown into nearby structures, the surgeon may need to remove parts of those structures, as well. This could mean removing parts of the pleura (tissue coating the lung), pericardium (the sac containing the heart), nerves, the superior vena

cava (a large vein leading to the heart), and/or lung.

Some doctors might suggest surgery even if the tumor cannot be completely removed, as is the case with many [stage III thymomas](#)² and with most [stage IV thymomas](#)³. In these cases, the doctor might take out as much tumor as possible (called *debulking*), and then recommend further treatment with [radiation therapy](#) and/or [chemotherapy](#). But not all doctors agree that surgery to remove some and not all of the cancer can help people live longer. In some cases, chemotherapy may be given before surgery to try to shrink the tumor so that it can be more easily and completely removed.

Possible side effects of surgery for thymus cancer

Possible complications depend on the extent of the surgery and your health beforehand. Serious problems can include excessive bleeding, wound infections, and pneumonia.

You will need to stay in the hospital for several days after surgery. Because the surgeon usually will have to open your chest for the operation, the incision will hurt for some time after surgery. Your activity will be limited for at least a month or two.

Some people may need to have part or all of a lung removed. If your lungs are in good condition (other than the presence of the cancer) you can usually go back to normal activities after a lobe or even an entire lung has been removed. If you already have lung problems such as [emphysema or chronic bronchitis](#)⁴ (which are common among heavy smokers), you may become short of breath with activities after surgery.

For more general information about surgery, see [Cancer Surgery](#)⁵.

Hyperlinks

1. www.cancer.org/cancer/thymus-cancer/detection-diagnosis-staging/how-diagnosed.html
2. www.cancer.org/cancer/thymus-cancer/detection-diagnosis-staging/staging.html
3. www.cancer.org/cancer/thymus-cancer/detection-diagnosis-staging/staging.html
4. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer/health-risks-of-smoking-tobacco.html
5. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/surgery.html

References

National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology. Thymomas and Thymic Carcinomas. Version 1.2017--March 2, 2017.

Ried M, Marx A, Götz A, Hamer O, Schalke B, Hofmann HS. State of the art: diagnostic tools and innovative therapies for treatment of advanced thymoma and thymic carcinoma. *Eur J Cardiothorac Surg*. 2016;49(6):1545-1552.

See all references for Thymus Cancer (www.cancer.org/cancer/thymus-cancer/references.html)

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Radiation Therapy for Thymus Cancer

Radiation therapy is the use of high-energy radiation in the form of x-rays or radioactive particles to kill cancer cells.

Radiation therapy can be used in many ways:

- Radiation is often used after surgery if the doctor thinks that some cancer was left behind.
- Even when no visible tumor was left after [surgery](#), radiation therapy is sometimes given to try to kill any small areas of cancer that may have been left behind because they were too small to see. This is called *adjuvant therapy*. It's done for nearly all stage II, III, and IV thymomas and for most thymic carcinomas.
- Some patients who can't have surgery are treated with radiation therapy alone, but this doesn't work as well as surgery. Sometimes [chemotherapy](#) is given with radiation to help it work better.
- For people with advanced disease, radiation therapy can sometimes help ease (palliate) symptoms from the cancer such as shortness of breath, pain, bleeding, or trouble swallowing.

The type of radiation therapy used most often to treat thymic cancer is **external beam radiation therapy (EBRT)**. This type of radiation therapy uses x-rays from a machine outside the patient's body to kill cancer cells. The treatment is much like getting an x-

ray, but the radiation is more intense. The procedure doesn't hurt, but it does cause side effects (discussed later on). Before your treatments start, the medical team will take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. They will also do special CT scans to help plan your treatments. Each treatment lasts only a few minutes, although the setup time — getting you into place for treatment — usually takes longer. Most often, radiation treatments are given 5 days a week for several weeks.

A type of EBRT called *three-dimensional conformal radiation therapy (3D-CRT)* is used to treat thymic cancers. This technique allows doctors to more accurately target the tumor while reducing the radiation damage to nearby healthy tissues such as the lungs and the heart.

An advanced form of 3D-CRT, called *intensity-modulated radiation therapy (IMRT)* is often used. It uses a computer-driven machine that moves around the patient as it delivers radiation. Along with shaping the radiation beams and aiming them at the tumor from several angles, the intensity (strength) of the beams can be adjusted to minimize the dose reaching the most sensitive normal tissues. This might offer a better chance of increasing the success rate and reducing side effects.

Possible side effects of radiation therapy for thymus cancer

Common side effects of radiation therapy include:

- Fatigue
- Skin changes where the radiation passes through, such as redness and blistering
- Nausea and vomiting
- Irritation of the esophagus (the tube between the mouth and stomach), which could cause painful swallowing and eating problems
- Poor appetite and weight loss
- Diarrhea (if the abdomen/belly or pelvis is treated).

Radiation can damage bone marrow leading to low blood counts. This can lead to anemia (low red blood cell counts) which can cause people to feel weak and tired. It can also lead to low white blood cell counts, which increases the risk of serious infections.

Chest radiation therapy can also damage lungs. This can lead to trouble breathing and shortness of breath. This usually gets better after radiation treatments stop, but sometimes the damage is long-term (or even permanent).

Most side effects are short-term and get better over time after radiation treatment is done.

If radiation therapy is given along with chemotherapy, the side effects are often worse.

If you are having any side effects from radiation therapy, tell your doctor or nurse. In most cases there are ways to help control these symptoms.

More information about radiation therapy

To learn more about how radiation is used to treat cancer, see [Radiation Therapy](#)¹.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)².

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html
2. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html

References

Jackson MW, Palma DA, Camidge DR, et al. The Impact of Postoperative Radiotherapy for Thymoma and Thymic Carcinoma. *J Thorac Oncol*. 2017;12(4):734-744.

National Cancer Institute. Thymoma and Thymic Carcinoma Treatment (PDQ) - Health Professional Version. February 4, 2015.

National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology. Thymomas and Thymic Carcinomas. Version 1.2017--March 2, 2017.

Patel SH, Rimmer A, Cohen RB. Combining immunotherapy and radiation therapy for small cell lung cancer and thymic tumors. *Transl Lung Cancer Res*. 2017;6(2):186-195.

See all references for Thymus Cancer (www.cancer.org/cancer/thymus-cancer/references.html)

Last Medical Review: February 7, 2014 Last Revised: March 17, 2015

Chemotherapy for Thymus Cancer

Chemotherapy (chemo) uses anti-cancer drugs that are given intravenously (IV or into a vein), as an injection (shot), or by mouth. These drugs enter the bloodstream and reach the whole body, making this treatment useful for cancer that may have spread to organs beyond the thymus.

Chemo may be used in these situations:

- It may be given after surgery to try to kill any cancer cells that may have been left behind because they were too small to see. This is called *adjuvant* treatment.
- It may be given before surgery to try to shrink tumors so that they can be completely removed. This is called *neoadjuvant* therapy.
- Chemo may be the main treatment for people who have advanced cancer or are not healthy enough for surgery. .
- Chemo is sometimes combined with [radiation](#) to help it work better. This is known as *chemoradiation* or *chemoradiotherapy*.

Doctors give chemo in cycles, with each period of treatment followed by a rest period to allow the body time to recover. Chemo cycles generally last about 3 to 4 weeks, and treatment typically involves 4 to 6 cycles. Chemo is often not recommended for people in poor health, but advanced age by itself is not a barrier to getting chemo.

Several chemo drugs may be used in the treatment of thymomas and thymic carcinomas, including:

- Doxorubicin (Adriamycin[®])
- Cisplatin
- Carboplatin
- Cyclophosphamide (Cytoxan[®])
- Ifosfamide (Ifex[®])
- Vincristine (Oncovin[®])
- Etoposide (VP-16)
- Paclitaxel (Taxol[®])
- Pemetrexed (Alimta[®])
- 5-fluorouracil (5-FU)
- Gemcitabine (Gemzar[®])

The corticosteroid drug prednisone is often given with chemo.

These drugs are usually given in combination to try to increase their effectiveness. For example, the combination of cisplatin, doxorubicin, and cyclophosphamide (called CAP) with or without prednisone is often used to treat thymoma. The combination of carboplatin and paclitaxel may be used to treat thymic carcinoma.

Possible side effects of chemotherapy for thymus cancer

Chemo drugs work by attacking cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in the bone marrow, the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells are also likely to be affected by chemo, which can lead to certain side effects.

The side effects of chemo depend on the type and dose of drugs you are given and how long they are used. Side effects can include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Fatigue and weakness

Chemo can also affect the blood forming cells of the bone marrow, leading to:

- Increased chance of infections (due to low white blood cell counts)
- Easy bruising or bleeding (due to low blood platelet counts)
- Fatigue and weakness (due to low red blood cell counts)

Side effects usually go away over time after treatment ends and there are often ways to lessen them. For instance, drugs can be used to help prevent or reduce nausea and vomiting. If you do have side effects, be sure to ask your doctor or nurse about medicines to help reduce or manage them.

Some drugs can have other side effects. For example, cisplatin and paclitaxel can damage nerves (called *neuropathy*). This can sometimes lead to pain, burning or tingling sensations, sensitivity to cold or heat, or weakness in the hands and feet. Cisplatin can also affect the nerves of the ear, leading to hearing loss. In most cases these problems improve or even go away once treatment is stopped, but they may last a long time in some people. You should report this, as well as any other side effects or

changes you notice while getting chemotherapy, to your medical team so that you can get prompt treatment for them. In some cases, the doses of the chemotherapy drugs may need to be reduced or treatment may need to be delayed or stopped to keep the effects from getting worse.

Octreotide

A drug called *octreotide* (Sandostatin[®] and Sandostatin LAR[®]) may also help some people with advanced thymoma. This is not a typical chemo drug. It's a man-made version of a hormone called *somatostatin*. The drug works in some cases because it attaches to the thymoma cells and causes them to stop growing or die. Side effects of this drug can include pain or burning at the injection site, stomach cramps, nausea, vomiting, headaches, dizziness, and fatigue. It is also linked to increased risk of gallstones.

More information about chemotherapy

To learn more about how chemotherapy is used to treat cancer, see [Chemotherapy](#)¹.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)².

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html
2. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html

References

National Cancer Institute. Thymoma and Thymic Carcinoma Treatment (PDQ) - Health Professional Version. February 4, 2015.

National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology. Thymomas and Thymic Carcinomas. Version 1.2017--March 2, 2017.

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See all references for Thymus Cancer (www.cancer.org/cancer/thymus-cancer/references.html)

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Treatment of Thymus Cancers by Extent and Type of Tumor

Whether or not a thymus cancer is considered resectable (able to be removed with [surgery](#)) is one of the most important factors in determining treatment options. The [type](#)¹ of tumor is also important. Thymic carcinomas are more likely to grow and spread quickly than thymomas and often require more aggressive treatment.

Resectable cancers

For people with resectable cancers (almost all stage I and II thymus cancers, most stage III cancers, and small number of stage IV cancers), surgery offers the best chance for long-term survival. Surgery includes removing the entire thymus and, depending on the extent of the disease, maybe parts of nearby organs or blood vessels, too.

Early stage thymomas (such as stage I and II) don't usually need more treatment after surgery as long as the tumor was removed completely. In some cases, [radiation therapy](#) may be considered if there is concern that any tumor was left behind.

Patients with more advanced stage thymomas (such as stages III and IV) may be treated with radiation after surgery, even if all of the tumor was removed. If the tumor couldn't be removed completely, radiation therapy is usually given after surgery. Depending on how much cancer was left behind, [chemotherapy](#) (chemo) may be added as well.

Thymic carcinomas are more likely than thymomas to come back after treatment. Patients with stage I tumors may not need further treatment if the tumor was removed completely. If the tumor is more advanced, or some might have been left behind, patients are typically treated with radiation after surgery. The radiation may be given along with chemo, especially if some of the cancer is left behind after surgery.

Unresectable cancers

Unresectable cancers are those that cannot be removed with [surgery](#). This group includes cancers that are too close to vital structures (like nerves and blood vessels) or that have spread too far to be removed completely (which includes many stage III and most stage IV cancers). It also includes people who are too ill for surgery.

In some cases, doctors may advise giving [chemo](#) first to try to make the tumor resectable. If it shrinks enough, surgery is done. This is then followed by further treatment with chemo or radiation therapy.

Surgery may be the first treatment for some unresectable cancers, to try to remove as much of the tumor as possible. This is called *debulking*. Radiation therapy and/or chemo are then given. The hope is that the surgery may help the other treatments work better and may help people live longer, even if it doesn't cure the cancer. Studies of this approach have had mixed results.

For patients who can't have surgery, either because the cancer has spread too far or because they're too sick from other serious medical conditions, chemo and radiation therapy are the main treatment options.

Because unresectable cancers can be hard to treat, taking part in a [clinical trial](#)² of a newer form of treatment may be a reasonable option.

Recurrent thymus cancer

When cancer comes back after treatment it's called *recurrent*. Recurrence can be local (in or near the same place it started) or distant (spread to organs such as the lungs, liver, or bone).

Thymomas most often come back locally. Thymic carcinomas can also come back locally and in nearby lymph nodes, but they may also spread to liver, lungs, and bone.

Treatment for thymus cancer that has recurred (come back) after initial treatment depends on the location of the recurrence and on what the original treatment was. If the

recurrence is not too widespread, [surgery](#) may be an option and would offer the best chance for long-term survival. But in most cases, the treatment options are limited to radiation therapy and/or chemo. These treatments can often help control the cancer for a time, but they are very unlikely to result in a cure.

Because recurrent cancers can be hard to treat, [clinical trials](#)³ of new types of treatment may be a good option.

Hyperlinks

1. www.cancer.org/cancer/thymus-cancer/about/what-is-thymus-cancer.html
2. www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html
3. www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html

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National Cancer Institute. Thymoma and Thymic Carcinoma Treatment (PDQ) - Patient Version. August 9, 2016.

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See all references for Thymus Cancer (www.cancer.org/cancer/thymus-cancer/references.html)

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