Thymus Cancer: Staging and Treatment

What is staging for cancer?

Staging is the process of learning how much cancer is in your body and where it is. Tests like chest X-ray, CT, MRI, and a biopsy may be done to help stage your cancer. Your providers need to know about your cancer and your health so that they can plan the best treatment for you.

Staging looks at the size of the tumor and where it is, and if it has spread to other organs. The newer and more common staging system for thymus cancer is called the “TNM system,” as described by the American Joint Committee on Cancer. It has three parts:

- T-describes the size/location/extent of the "primary" tumor in the thymus.
- N-describes if the cancer has spread to the lymph nodes.
- M-describes if the cancer has spread to other organs (called metastases).

Another staging system for thymus cancer, called The Masaoka staging system, is older but still sometimes used. This system stages thymus cancer based on:

- The extent of the disease as seen on CT/MRI.
- Spread of the tumor to nearby tissues.
- Histologic typing (the type of cell).

Your healthcare provider will use the results of the tests you had to determine your TNM or Masaoka result and combine these to get a stage from 0 to IV (4).

How is thymus cancer staged?

Staging for thymus cancer is used to stage thymomas, thymic carcinomas, and neuroendocrine tumors of the thymus. Staging is based on:

- The size of your tumor on imaging tests and what is found after surgery.
- Any evidence of spread to other organs (metastasis).
- Surgery to test if your lymph nodes have cancer cells.

The staging systems are very complex. Below is a summary. Talk to your provider about the stage of your cancer.

Stage 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). It has not spread to nearby lymph nodes or other areas of the body.
- T1b, N0, M0: The cancer has spread into the nearby fatty tissue and the mediastinal pleura. It has not spread to nearby lymph nodes or other areas of the body.

Stage II

- T2, N0, M0: The cancer has grown into the nearby fatty tissue and into the pericardium (the tissue sac containing the heart). It has not spread to nearby lymph nodes or other areas of the body.

Stage III

- IIIA (T3, N0, M0): The cancer is growing into nearby tissues or organs, including the lungs, the vessels carrying blood into or out of the lungs, the main blood vessels taking blood away from the heart (the superior vena cava), or the phrenic nerve (the nerve that controls the diaphragm and breathing). It has not spread to nearby lymph nodes or areas.
- IIIB (T4, N0, M0): The cancer is growing into nearby tissues or organs, such as the trachea (windpipe), esophagus (feeding tube), or the main blood vessels pumping blood away from the heart (T4). It has not spread to nearby lymph nodes (N0) or areas (M0).

Stage IV

- IVA (Any T, N1, M0): The cancer might or might not have spread into nearby tissues or organs AND has spread to nearby lymph nodes in the front chest cavity. It is not in distant sites, **OR**
- IVA (Any T, N0-1, M1a): The cancer might or might not have grown into nearby tissues or organs and might or might not have spread to nearby lymph nodes. The cancer has spread to the pleura (lining of the lung) or the pericardium (lining of the heart).
- IVB (Any T, N2, M0/M1a): The cancer might or might not have grown into nearby tissues or organs AND has spread to the lymph nodes in the chest cavity or the neck and might or might not have spread to the pleura (lining of the lung) or the pericardium (lining of the heart), **OR**
- IVB (Any T, Any N, M1b): The cancer might or might not have grown into nearby tissues or organs, might or might not have spread to nearby lymph nodes in the chest cavity or neck, but has spread to the inside of the lungs or other organs.

Treatment for Thymus Cancer

Treatment for thymus cancer depends on your stage of disease, medical history, current health, your goals for treatment, and other factors. The goal of the treatment of thymus cancer is to get rid of the cancer with few side effects. The treatments can include:

- Surgery.
- Radiation.
- Chemotherapy.
- Clinical Trials.

Surgery

Surgery is often used to treat thymus cancer. The first step is to find out whether the tumor is resectable, meaning it can be surgically removed. Removal of the whole tumor depends on whether the cancer has spread to nearby tissues or organs and on your health.

Thymectomy is the most common surgery used in the treatment of thymus cancers. During a thymectomy, the whole thymus is removed. If the whole tumor is not resectable (removed), your surgeon may choose to “debulk” the tumor. This means trying to remove as much of the tumor as possible. Sometimes, chemotherapy or radiation may be used before surgery to try to make the tumor smaller and easier to remove.

Radiation Therapy

Radiation is the use of high-energy x-rays to kill cancer cells. Radiation can be given:

- After surgery, to kill any cancer that was left behind. This is called adjuvant therapy and is often used for stage II, III, and IV thymus cancers.
- With chemotherapy to help the radiation therapy work better.
- To help with symptoms caused by the cancer. This is called palliative radiation and can be used to help with shortness of breath, pain, or having a hard time swallowing.

The most common radiation used for thymus cancers is called intensity-modulated radiation therapy (IMRT), a type of external beam radiation (EBRT).

Chemotherapy

The use of chemotherapy for advanced-stage tumors is more common today. Some of the most common chemotherapy medications are cisplatin, doxorubicin, carboplatin, cyclophosphamide, pacilitaxel, pemetrexed, 5-FU, gemcitabine, and ifosfamide.

Corticosteroids are non-chemotherapy medications that are sometimes used in thymus cancer treatment. Many medications are often used together called a regimen. Two common chemotherapy regimens are: PAC (cisplatin, doxorubicin, and cyclophosphamide) or carboplatin with paclitaxel. In some cases, a medication called octreotide can be used in patients with advanced thymoma.

Some thymus cancers may be treated with targeted therapies that focus on gene mutations or proteins that are in the tumor. Targeted therapies that may be useful in the treatment of thymus cancer are sunitinib and sorefenib.

Clinical Trials

You may be offered a clinical trial as part of your treatment plan. To learn more about current clinical trials, visit the OncoLink Clinical Trials Matching Service.

Making Treatment Decisions

Your care team will make sure you are included in choosing your treatment plan. This can be overwhelming as you may be given a few options to choose from. It feels like an emergency, but you can take a few weeks to meet with different providers and think about your options and what is best for you. This is a personal decision. Friends and family can help you talk through the options and the pros and cons of each, but they cannot make the decision for you. You need to be comfortable with your decision – this will help you move on to the next steps. If you ever have any questions or concerns, be sure to call your team.

You can learn more about thymus cancer at Oncolink.org.