



PATIENT & CAREGIVER EDUCATION

Soft Tissue Sarcoma

About Soft Tissue Sarcoma

Soft tissue sarcoma is a rare, malignant (cancerous) tumor that develops in your connective tissues. Connective tissues include muscle, fat, tendons, and cartilage.

Soft tissue sarcomas are rare and make up less than 1% of all cancers. You can get soft tissue sarcoma at any age. It's equally common in both men and women.

Risk Factors

We don't know exactly what causes soft tissue sarcoma, but some risk factors include:

- Having had previous radiation therapy.
- Having certain genetic conditions, such as:
 - Neurofibromatosis
 - Gardner's syndrome
 - Li-Fraumeni syndrome
 - Retinoblastoma
- Being exposed to cancer-causing agents such as:
 - Insecticides or herbicides (substances used to kill insects or plants)
 - Vinyl chlorides (a chemical)
- Having chronic lymphedema. Lymphedema develops when your arms, hands, legs, or feet swell with lymphatic fluid.

Types of Soft Tissue Sarcomas

Soft tissue sarcomas are grouped by what they look like under the microscope and what genes are abnormal in them. The most common types of sarcomas are:

- Liposarcomas, which look like fat tissues.
- Leiomyosarcomas, which look like smooth muscles found in the:
 - Uterus
 - Wall of the digestive tract
 - Walls of blood vessels
- Rhabdomyosarcomas, which look like the muscles on bones. They usually develop more in children than adults.
- Malignant fibrous histiocytomas and undifferentiated pleomorphic sarcoma, which don't look like any normal tissues.
- Synovial sarcomas, which don't look like normal tissues. You can get them anywhere in the body and they're most common in adolescents and young adults.

Common Sites for Soft Tissue Sarcomas

You can get soft tissue sarcomas almost anywhere in your body, but most sarcomas develop in limbs, usually in the thigh. Others can develop in the pelvis, trunk, or retroperitoneum, which is the space in your abdomen (belly) behind your abdominal lining.

Signs and Symptoms

The signs and symptoms of soft tissue sarcomas depend on where the tumor is found.

Soft tissue sarcomas that are found in a limb usually appear as a painless lump. Some symptoms of soft tissue sarcomas include:

- Numbness or tingling in the arm or leg with the tumor
- Swelling of the arm or leg with the tumor
- Pain at the tumor site
- Nausea or vomiting
- Feeling bloated from the tumor pressing on other tissues or nerves, if it's large

Some people may first notice the lump after an injury to the area and think that the injury is the cause of the tumor. Doctors think that it just draws attention to a tumor that was already there.

Diagnosis

Your doctor will determine if a biopsy (sample of tissue) of the tumor is needed. Depending on the location of the tumor, they will order a computed tomography (CT) scan or magnetic resonance imaging (MRI) to see how big it is and how close it is to blood vessels, muscles, or other organs.

If you need a biopsy, it can be done in your doctor's office or in Interventional Radiology. The tissue sample will be sent to a pathologist who will examine it under a microscope.

Unlike other cancers, sarcomas don't have different stages. Low-grade sarcomas have a low risk (less than 5%) of metastasizing (spreading to other areas of the body). High-grade sarcomas have a higher risk of metastasizing, most commonly to the lungs. Sarcomas usually don't spread to the lymph nodes.

Treatment

Your surgeon, medical oncologist (cancer doctor), and radiation oncologist will work together to plan the best treatment for you. They will meet with you and discuss your treatment options. They will look at the cell type, grade, and location of the tumor before recommending the best treatment for you.

Surgery

Surgery is the main treatment for soft tissue sarcoma. The goal of surgery is to take out the tumor to make sure that all the cancer was removed. Your doctor or nurse will explain the details of your specific surgery. Your nurse will help you get ready and will give you a resource called *Getting Ready for Surgery* (www.mskcc.org/pe/getting_ready_surgery).

Radiation therapy

Radiation therapy uses high-energy x-rays to kill cancer cells. It can be used alone or be added to your treatment before or after your surgery.

During radiation therapy, a beam of radiation is pointed to the tumor site from a treatment machine. The beam passes through the body and kills cancer cells in its path.

If radiation therapy is part of your treatment, you will get radiation every weekday for several weeks. Your doctor or nurse will discuss the side effects of radiation with you and teach you how to care for yourself during treatment.

Chemotherapy

Chemotherapy is treatment with medications that kill cancer cells anywhere in the body. You can get chemotherapy either through a vein (intravenously) or by mouth with a pill (orally). You can get chemotherapy before your surgery to reduce the size of a large tumor and make it easier to remove. You can also get chemotherapy after your surgery.

Chemotherapy can be 1 medication or several medications. You can get chemotherapy in an outpatient or inpatient setting. Your doctor and nurse will discuss your treatment plan with you. They will also explain the possible side effects. You will get more information about your chemotherapy treatment, as well as the National Cancer Institute booklet, *Chemotherapy and You*.

Long-Term Care

Your care at Memorial Sloan Kettering (MSK) will be a long-term process. You will see your doctor every 4 to 6 months for the first 3 years after you finish your treatment. In these follow-up visits, you will have a physical exam and a chest x-ray

or a CT scan.

After the early follow-up period, you will see your doctor every 6 or 12 months for the next 5 years. After that, you will see your doctor only once a year or once every 2 years.

Your long-term care is important to your doctors and nurses. Contact them at any point during your care if you have any questions or concerns.

Resources

The Kristen Ann Carr Fund

www.sarcoma.com

The Kristen Ann Carr Fund is a resource for people with soft tissue sarcoma. They write a newsletter called *Sarcoma Update* once a year. For more information about soft tissue sarcoma, visit their website.

Cancer.Net

www.cancer.net/cancer-types/sarcoma-soft-tissue/introduction

Cancer.Net provides information about soft tissue sarcoma, including videos and blog posts. Their website is also available in Spanish. Visit their website for more information.

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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