

Synovial Sarcoma: Questions and Answers

Key Points

- Synovial sarcoma is a rare type of soft tissue sarcoma that occurs mostly in young adults (see Questions 1 and 2).
- The most common symptoms are swelling or a mass, occasionally accompanied by pain or tenderness (see Question 4).
- Surgery is the usual treatment for synovial sarcoma (see Question 6).
- People are encouraged to enroll in clinical trials (research studies) that explore new treatments (see Question 7).

1. What is synovial sarcoma?

Synovial sarcoma is a type of soft tissue sarcoma. Soft tissue sarcomas are cancers of the muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of the body, including synovial tissue. Synovial tissue lines the cavities of joints, such as the knee or elbow, tendons (tissues that connect muscle to bone), and bursae (fluid-filled, cushioning sacs in the spaces between tendons, ligaments, and bones). Although synovial sarcoma does not have a clearly defined cause, genetic factors are believed to influence the development of this disease.

2. How often does synovial sarcoma occur?

Synovial sarcoma is rare. It accounts for between 5 and 10 percent of the approximately 10,000 new soft tissue sarcomas reported each year (1). Synovial sarcoma occurs mostly in young adults, with a median age of 26.5 (1). Approximately 30 percent of patients with synovial sarcoma are younger than 20. This disease occurs more often in men than in women (1).

3. Where does synovial sarcoma develop?

About 50 percent of synovial sarcomas develop in the legs, especially the knees. The second most common location is the arms (2). Less frequently, the disease develops in the trunk, head and neck region, or the abdomen (1, 2). It is common for synovial cancer to recur (come back), usually within the first two years after treatment. Half of the cases of synovial sarcoma metastasize (spread to other areas of the body) to the lungs, lymph nodes, or bone marrow (1).

4. What are the symptoms of synovial sarcoma?

Synovial sarcoma is a slow-growing tumor. Because it grows slowly, a person may not have or notice symptoms for some time, resulting in a delay in diagnosis. The most common symptoms of synovial sarcoma are swelling or a mass that may be tender or painful (1). The tumor may limit range of motion or press against nerves and cause numbness. The symptoms of synovial sarcoma can be mistaken for those of inflammation of the joints, the bursae, or synovial tissue. These noncancerous conditions are called arthritis, bursitis, and synovitis, respectively.

5. How is synovial sarcoma diagnosed?

The doctor may use the following procedures and tests to diagnose synovial sarcoma:

- **Biopsy:** Tissue is removed for examination under a microscope.



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- **Immunohistochemical analysis:** Tumor tissue is tested for certain antigen and antibody interactions common to synovial sarcoma.
- **Ultrastructural findings:** The tissue is examined using an ultramicroscope and electron microscope.
- **Genetic testing:** Tissue is tested for a specific chromosome abnormality common to synovial sarcoma.

6. How is synovial sarcoma treated?

The type of treatment depends on the age of the patient, the location of the tumor, its size, its grade (how abnormal the cancer cells look under a microscope and how likely the tumor will quickly grow and spread), and the extent of the disease. The most common treatment is surgery to remove the entire tumor with negative margins (no cancer cells are found at the edge or border of the tissue removed during surgery). If the first surgery does not obtain negative tissue margins, a second surgery may be needed.

The patient may also receive radiation therapy before or after surgery to control the tumor or decrease the chance of recurrence (cancer coming back). The use of intraoperative radiation therapy (radiation aimed directly at the tumor during surgery) and brachytherapy (radioactive material sealed in needles, wires, seeds, or catheters, and placed directly into or near a tumor) are under study.

Patients may also receive chemotherapy alone or in combination with radiation therapy.

7. Are clinical trials (research studies) available? Where can people get more information about clinical trials?

Yes. Participation in clinical trials is an important treatment option for many people with synovial sarcoma. Studies are in progress to determine the effectiveness of biological therapies (treatment to stimulate or restore the ability of the immune system to fight cancer), including monoclonal antibodies, and chemotherapy with hyperthermia (kills tumor cells by heating them to several degrees above body temperature).

People interested in taking part in a clinical trial should talk with their doctor. Information about clinical trials is available from the NCI's Cancer Information Service (CIS) (see below) at 1-800-4-CANCER and in the NCI booklet *Taking Part in Cancer Treatment Research Studies*, which can be found at <http://www.cancer.gov/publications> on the Internet. This booklet describes how research studies are carried out and explains their possible benefits and risks. Further information about clinical trials is available at <http://www.cancer.gov/clinicaltrials> on the NCI's Web site. The Web site offers detailed information about specific ongoing studies by linking to PDQ[®], the NCI's cancer information database. The CIS also provides information from PDQ.

Selected References:

1. Zeitouni N, Cheney RT, Oseroff AR. Unusual cutaneous malignancies. In: Williams CJ, Krikorian JG, Green MR, Raghavan D, editors. *Textbook of Uncommon Cancers*. 2nd ed. New York: John Wiley & Sons, 1999.
2. Brennan M, Singer S, Maki R, O'Sullivan B. Sarcomas of the soft tissue and bone. In: DeVita VT Jr., Hellman S, Rosenberg SA, editors. *Cancer: Principles and Practice of Oncology*. Vol. 2. 7th ed. Philadelphia: Lippincott Williams & Wilkins, 2004.

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Related NCI materials and Web pages:

- National Cancer Institute Fact Sheet 6.12, *Soft Tissue Sarcomas: Questions and Answers* (<http://www.cancer.gov/cancertopics/factsheet/sites-types/soft-tissue-sarcoma>)
- National Cancer Institute Fact Sheet 6.20, *Metastatic Cancer: Questions and Answers* (<http://www.cancer.gov/cancertopics/factsheet/Sites-Types/metastatic>)
- *Chemotherapy and You: Support for People With Cancer* (<http://www.cancer.gov/cancertopics/chemotherapy-and-you>)

- *Radiation Therapy and You: Support for People With Cancer*
(<http://www.cancer.gov/cancertopics/radiation-therapy-and-you>)
- *Taking Part in Cancer Treatment Research Studies*
(<http://www.cancer.gov/clinicaltrials/Taking-Part-in-Cancer-Treatment-Research-Studies>)
- *What You Need To Know About™ Cancer*
(<http://www.cancer.gov/cancertopics/wyntk/overview>)

How can we help?

We offer comprehensive research-based information for patients and their families, health professionals, cancer researchers, advocates, and the public.

- **Call** NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237)
- **Visit** us at <http://www.cancer.gov> or <http://www.cancer.gov/espanol>
- **Chat** using LiveHelp, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>
- **E-mail** us at cancergovstaff@mail.nih.gov
- **Order** publications at <http://www.cancer.gov/publications> or by calling 1-800-4-CANCER
- **Get help** with quitting smoking at 1-877-44U-QUIT (1-877-448-7848)

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