



CANINE SOFT TISSUE SARCOMAS

What is a soft tissue sarcoma?

Soft tissue sarcomas are a group of malignant cancers that arise from the skin and subcutaneous connective tissues, such as fat (liposarcoma), muscle (rhabdomyosarcoma, leiomyosarcoma), cartilage (chondrosarcoma), fibrous connective tissue (fibrosarcoma), nerves (schwannoma, malignant peripheral nerve sheath tumor, neurofibrosarcoma) and the “pericytes” of small blood vessels in the subcutis (hemangiopericytoma). These tumors are often considered collectively because of their similarity in clinical behavior.

Soft tissue sarcomas may arise from any anatomic site. They tend to appear discrete and well encapsulated, but are actually very invasive into surrounding tissues. As such, local regrowth of the tumor is common after conservative surgical removal. Soft tissue sarcomas are graded as low, intermediate, or high grade. Most soft tissue sarcomas are low to intermediate grade, and have a relatively low chance of spreading to other places (metastatic rate of less than 25%). High grade sarcomas have a higher potential for metastasis (25-40%)

How are soft tissue sarcomas diagnosed?

As a general rule, these tumors do not readily shed their cells; however, a fine needle aspirate is an easy, non-invasive test that can often confirm the presence of a sarcoma. A biopsy may be necessary if fine needle aspirates are non-diagnostic. Further, biopsies can also be used to classify the specific type or grade of soft tissue sarcoma.

Once a diagnosis of a soft tissue sarcoma is made, staging is recommended to rule out spread of disease and evaluate your pet’s overall health. Staging for sarcomas typically involves routine bloodwork, chest x-rays, and evaluation of regional lymph nodes. An abdominal ultrasound may also be recommended.

What is the treatment?

Surgery

Surgery is the mainstay of treatment for soft tissue sarcomas. Surgical excision must be wide and deep in order to remove all of the tumor tissue. When tumors are excised surgically with “clean” surgical margins, no further treatment may be necessary.



If the tumor was not removed with adequate margins, a second surgery may be recommended to excise more tissue and help ensure adequate removal of all tumor cells.

Radiation therapy

In some instances, aggressive surgery is not possible without severe disfigurement or loss of function. In cases where aggressive surgery is not possible, or despite an aggressive resection tumor cells remain at the margins, radiation therapy is used to prevent or delay regrowth of the tumor. Radiation therapy is extremely well-tolerated in dogs and cats. Side effects are minimal and limited to the site where radiation therapy is performed. Please refer to the Radiation Therapy handout for more detailed information.

Radiation therapy may also be used for large tumors that cannot be surgically removed. Radiation therapy for measurable tumors is not considered to be as effective as radiation therapy for microscopic disease after surgery. These tumors do not rapidly regress after radiation and “control” may be defined as a slowly-regressing (6 months or longer) tumor, or a tumor that stays stable in size. In some instances, the tumor may regress enough to make surgical removal possible.

Chemotherapy

Chemotherapy is often recommended for high grade sarcomas to prevent or delay the onset of distant metastases. Doxorubicin has been shown to be the most active chemotherapy for soft tissue sarcomas. It may be given alone, or combined with other chemotherapy drugs. Chemotherapy is very well-tolerated in dogs and cats. Please refer to the chemotherapy handouts for more information.

What is the prognosis?

Soft tissue sarcomas that are low to intermediate grade and can be removed completely with aggressive surgery have an excellent long term prognosis. Control rates for low grade soft tissue sarcomas that are excised with less than adequate margins and followed by radiation therapy are also very good. Approximately 85% of these patients are tumor free three years after treatment. By comparison, the majority of dogs with incompletely excised soft tissue sarcomas that receive surgery without follow-up radiation therapy will have their tumors regrow by 1 year after surgery. Many of these tumors often regrow within the first few months after surgery.



For high-grade sarcomas, the long-term prognosis is more guarded. Chemotherapy is indicated to help delay the onset of metastasis; however, the median survival time for these patients is approximately one year.

The best time to treat a soft tissue sarcoma is the very first time it occurs. Tumors that regrow after an initial surgery are often more aggressive in their behavior. This makes the potential for metastases greater and our ability to control the tumor locally, even with adjuvant radiation therapy, much more difficult.