

# Soft Tissue Sarcomas

## Disease Information

### SOFT TISSUE SARCOMAS

Soft tissue sarcomas are a diverse group of malignant tumors that originate from mesenchymal tissue. Common tumors within this group include liposarcomas, hemangiopericytomas, leiomyosarcomas, and neurofibromas. Despite commonalities, the biological behavior of each member of this group is distinct. Soft tissue sarcomas are considered to be locally invasive with distant metastasis developing in regional lymph nodes, lung, and liver. If possible, the first-line treatment is surgical removal followed by adjuvant treatment. Local recurrence can be a primary concern following surgical removal.

### Canine Soft Tissue Sarcomas

Soft tissue sarcomas in dogs include a diverse group of cancers that are loosely associated. Their biological behavior, response to therapy, and molecular alterations can vary widely. Common veterinary soft tissue sarcomas include fibrosarcomas, peripheral nerve sheath tumors, liposarcomas, and malignant fibrous histiocytomas. Sarcomas have occasionally been associated with previous radiation treatment, trauma, foreign bodies (such as orthopedic implants), and parasites (*Spirocerca lupi*).

Grade I (well-differentiated) tumors are considered low grade and have an approximate metastatic rate of 10%, grade II (intermediate grade) tumors have an approximate metastatic rate of 20%, and grade III (poorly differentiated) tumors have an approximate metastatic rate of 30-50%.

Treatment of most soft tissue sarcomas is determined by tumor location, clinical stage, histologic type, tumor grade, and the completeness of surgery. An aggressive first surgery is considered to be the first line of defense for these types of tumors. Local recurrence is common with conservative surgery.

Radiation therapy is considered for tumors with incomplete margins. This has yielded a 95% one-year control rate for well-differentiated (grade I) tumors. Chemotherapy using doxorubicin-based protocols or mitoxantrone generally provides less than a 20% overall response rate.

### Comparative Oncology

A number of similarities are seen between canine and human sarcomas with regard to diagnosis, tumor progression, treatment, and outcome. In dogs and humans, these cancers are characterized by aggressive primary tumor growth, local recurrence, and distant metastasis. Work to define similarities in molecular profiles between canine and human soft tissue sarcomas is underway.

Comparative studies include:

Thrall DE, Prescott DM, Samulski TV, et al. Radiation plus local hyperthermia versus radiation plus the combination of local and whole-body hyperthermia in canine sarcomas. Int J Radiat Oncol Biol Phys. 1996 Mar 15; 34(5): 1087-96.