

# RADIATION ONCOLOGY

## Canine Soft Tissue Sarcomas



### WHAT IS A SOFT TISSUE SARCOMA?

Soft tissue sarcomas (STS) are malignant tumors arising from connective tissues such as fat, muscle, nerves, and fibrous tissues. Common subtypes include fibrosarcoma, liposarcoma, and peripheral nerve sheath tumors. Though they may appear well-defined, STSs often infiltrate surrounding tissues, making complete surgical removal challenging.

These tumors can develop anywhere but are most frequently found under the skin. While many STSs are treatable, some variants like hemangiosarcoma and histiocytic sarcoma are more aggressive with higher metastatic potential.

### DIAGNOSIS

- **Fine-Needle Aspiration (FNA):** Often the first diagnostic step, though it may yield limited information due to the tumor's structure.
- **Biopsy:** Provides definitive diagnosis and grading, essential for treatment planning.
- **Imaging:** Chest X-rays assess for lung metastasis (tumor spread); advanced imaging (CT/MRI) evaluates tumor extent and guides surgical or radiation planning.

### TREATMENT OPTIONS

#### Surgery

The primary treatment for STS is surgical removal with wide margins to ensure complete excision. When clean margins are achieved, especially in low-grade tumors, surgery alone may suffice. Regular follow-up is essential to monitor for recurrence.

#### Chemotherapy

Primarily considered for high-grade tumors due to higher metastatic risk. Doxorubicin is commonly used, sometimes in combination with other drugs. Metronomic chemotherapy (low-dose, continuous) may also be employed to delay tumor progression. Chemotherapy may also be considered for large, non-resectable tumors, though its use in these cases is generally palliative and focused on slowing progression and maintaining quality of life.

#### Radiation Therapy

Radiation is recommended when surgical margins are incomplete or when surgery isn't feasible due to tumor location. It can control residual microscopic disease and, in some cases, shrink tumors to make surgery possible.

#### Radiation Protocols

- **Definitive Radiation:** Aims for long-term control, typically administered daily over 3-4 weeks.
- **Palliative Radiation:** Focuses on symptom relief, often given once weekly over several weeks.
- **Stereotactic Radiation (SRT/SBRT):** Delivers high-dose radiation precisely but is less commonly used for STS due to their diffuse and infiltrative nature, which often lack the sharply defined borders required for this technique. It is generally not appropriate for treating microscopic residual disease following surgery.

# RADIATION ONCOLOGY

## Canine Soft Tissue Sarcomas



### What to Expect During Radiation Therapy:

- Your dog will be under general anesthesia for each session.
- Fasting is required after midnight before treatment days.
- Each session, including recovery, may take a few hours.

### Potential Side Effects

- **Short-term:** Side effects typically begin by the second or third week of treatment and peak around 10–14 days after the last session. These effects are generally mild and temporary, resolving within weeks. They may include skin irritation (redness, hair loss), inflammation of the mouth (mucositis), and/or fatigue.
- **Long-term:** Less common but potentially more serious side effects may develop months to years after treatment. These can include fibrosis (tissue scarring), osteoradionecrosis (bone damage), and, very rarely, radiation-induced tumor development.

### Prognosis

Prognosis depends on tumor grade, surgical margins, and presence of metastasis:

- **Low to Intermediate-Grade Tumors:** With complete excision, median survival times range from 2.5 to 5 years. These tumors have relatively low metastatic rates, often less than 10%.
- **High-Grade Tumors:** Higher risk of metastasis—ranging from 25% to 50%—with median survival times around one year, even with aggressive treatment.

Adjuvant radiation therapy significantly improves local control, especially when surgical margins are incomplete. The best time to treat a soft tissue sarcoma is the first time it occurs—tumors that recur after initial surgery often behave more aggressively, with increased metastatic potential and diminished responsiveness to local therapies like radiation. Regular monitoring through physical exams and imaging is essential for early detection of recurrence or metastasis.

**Radiation therapy is the use of high-energy beams of radiation to treat tumors. It is used to treat a variety of cancers including tumors of the skin, nose, brain, mouth, bones, and gastrointestinal tumors. Our radiation oncologist, Dr. DeLillo, is experienced in all aspects of radiation treatment, from conventional protocols to advanced stereotactic radiotherapy, offering hope and personalized care to pets across the Richmond area.**

**Scan here to learn more about service location & details:**

