

Canine Soft Tissue Sarcomas

A PowerPage Presented By



Soft tissue sarcomas (STS) in dogs are composed of a variety of tumors derived from mesenchymal cell origin. These tumors include peripheral nerve sheath tumors (PNST), hemangiopericytomas (HPC), fibrosarcomas (FSA), liposarcomas, malignant fibrous histiocytomas, myxosarcomas, rhabdomyosarcomas, leiomyosarcomas, etc. These tumors are all grouped together because they all share the same biologic behavior. They are all **locally invasive** while their potential for metastasis can be determined by their histologic grade. Other sarcomas such as hemangiosarcoma, osteosarcoma, chondrosarcoma, and histiocytic sarcomas are not considered STS's because they each have different biologic behaviors. This PowerPage goes over some key aspects of these tumors.

Key Points

- Constitute 15% of all skin and subcutaneous tumors in dogs
- Common histologies affecting the skin and subcutaneous tissue include FSA, PNST, and HPC
- All are **very locally invasive** regardless of grade
- Metastatic potential can be determined by histologic grade
- Treatment is aimed at surgical removal with wide margins
- Local recurrence is common following conservative excision

Diagnostics

- **Fine needle aspirate cytology**
 - Often not definitively diagnostic for neoplasia
 - May be read out as “spindle cell proliferation” in well differentiated tumors
 - Most exfoliate poorly leading to sparsely cellular samples
- **Biopsy**
 - Occasionally required for diagnosis if FNA is non diagnostic
 - Required for grading
- **Thoracic radiographs**
 - If metastasis occurs, site of preference is to the lungs and appears as pulmonary nodules
- **CT or MRI**
 - Often recommended for surgical planning for tumors on the trunk as the external palpable tumor is often considered the “tip of the iceberg”

Treatment

Surgery

- Wide excision with a minimum of 3 cm margins is ideal in locations that are amenable to such a surgery
- Amputation of affected limbs usually not recommended unless painful or an open wound is present and a more conservative surgery would not be feasible or effective

Radiation therapy

- Adjuvant treatment to surgery if surgical margins are incomplete or narrow

Chemotherapy

- Consider if metastasis present, high grade tumors, or visceral sites affected (splenic sarcomas)

- Adriamycin (doxorubicin) based chemo protocols are most commonly used

Prognosis

Grading

- Biopsy required for grading
- Gives probability of metastasis
 - Low or intermediate grade tumors have a < 20% chance of metastasis
 - High grade tumors have a 40-50% chance of metastasis
- Factors assessed for grading
 - Differentiation of tumor
 - Well differentiated, moderately differentiated, or poorly differentiated
 - Percent necrosis in tumor
 - No necrosis, <50% necrosis, >50% necrosis
 - Mitotic index
 - <10 mitoses/10 high power fields, 10-19 mitoses/10 high power fields, >19 mitoses/10 high power fields

Control rates

- Incomplete surgical excision with adjuvant radiation therapy
 - 95% 1 year control
 - 85% 3 year control
 - 75% 5 year control
- Only up to 1/3 of affected dogs die of tumor related causes

