**Soft Tissue Sarcoma in Dogs**

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Soft tissue sarcomas are tumors of connective tissue/mesenchymal origin. They are often called spindle cell tumors, nerve sheath tumors, mesenchymal cell tumors and hemangiopericytomas. This group of tumors is most appropriately called soft tissue sarcomas because they have a similar biological behavior. Generally speaking, these tumors are locally aggressive with a low metastatic rate. Because of this, most of the efforts in treating this disease are focused on local control. This generally means a wide resection with 3cm margins and a fascial plane deep. Soft tissue sarcomas are known to develop a pseudocapsule of compressed tumor cells and cells that are supporting tumor growth around the tumor, making it tempting to “shell out” the tumor. This should be avoided because it will result in recurrence in all cases and often the cell population that recurs represents the most aggressive tumor cells of the parent tumor.

The first step in diagnostic work up is often a fine needle aspirate and cytology. For a wide excision, a histological diagnosis via incisional biopsy may be desirable prior to resection to confirm the diagnosis. Recommend staging for distant metastasis includes thoracic radiography. The likelihood of metastasis over the course of disease is grade dependent, with a 0-10%, 10-20%, and 40-50% risk of metastasis for grade I, II, and III tumors, respectively. Abdominal ultrasound may be appropriate in some cases for baseline data and to assess the patient for additional disease prior to surgery. Local staging with a CT or MRI is often performed for surgical planning. Because of this, a CT of the thorac, abdomen and primary tumor site is often performed by the author for full staging. This anesthetic period is also a good time to perform an incisional biopsy if it has not been performed to ensure efficient and complete case work up.

An unplanned excision is a term used to describe a mass removal without knowledge of the tumor type. The risk of this treatment of a soft tissue sarcoma is that the fascial planes may be disrupted and the first incision must be removed with wide margins, increasing the amount of tissue that must be removed with definitive scar resection. As well, an unplanned excision will increase the risk that the definitive resection will not be successful. Management of an unplanned excision of a soft tissue sarcoma should include local and distant staging, followed by wide excision of the scar when possible. When reexcision is not possible, radiation therapy should be considered for local control. Other factors, such as the age of the dog and the tumor grade should be taken into account because low grade tumors in older patients may not recur in that patient’s lifetime. Metronomic chemotherapy can also be considered to treat STS with incomplete excision if other more optimal forms of local therapy are not possible.

STS are graded as grade I, II, and III. The grade is correlated with both potential to metastasize and the potential for local recurrence after marginal excision. Extremity STS are often low grade and may not recur, even with incomplete margins. Having said this, complete excision should always be the goal. Dogs with a STS overlying the antebrachial fascia can be treated with a wide excision, removing the underlying fascia as the deep plane. The defect can be reconstructed using a skin graft. For low grade

tumors, amputation should be considred a last resort in treatment of this disease. Higher grade tumors require more aggressive local control because of the risk of metastasis and recurrence.

The most compelling thing about soft tissue sarcoma in dogs is that in many cases, appropriate surgical planning and execution can result in a surgical cure without the need for any additional therapy. This potential must be respected in the initial assessment and treatment of this disease.