

CUVS CASE FILE

Laryngeal Osteosarcoma

Case History

A 9-year-old male neutered Labradoodle was referred for further evaluation of possible laryngeal paralysis. The owner reported progressive noisy breathing over several months. Workup had included CBC, chemistry profile, and T4, as well as 3-view thoracic radiographs and a lateral cervical radiograph, all of which were unremarkable.

During sedated upper airway exam, a moderate-sized soft tissue mass was identified on the right side of the larynx, both medial and lateral to the right arytenoid cartilage. Based on this finding, a CT scan of the cervical region and an incisional biopsy of the mass were recommended and performed. The owner was advised that a temporary tracheostomy might be needed to facilitate recovery from anesthesia.

The CT scan revealed a laryngeal mass, that measured 3cm X 3cm X 4cm, caused partial obstruction of the rima glottis, and extended both dorsal and rostral to the margins of the larynx.



Laryngeal mass detected on CT scan.

The mass was biopsied, and dexamethasone SP (0.1 mg/kg) was administered IV to reduce procedure-associated swelling. A temporary tracheostomy was required to enable extubation. The dog was discharged 2 days after the procedure when breathing well without the tracheostomy tube. Histopathology confirmed a laryngeal sarcoma, and immunohistochemical stains confirmed a diagnosis of osteosarcoma.

Several treatment options were discussed with the owner. Surgical options included partial laryngectomy to remove the mass as definitively as possible, marginal excision to reduce the tumor burden causing airway obstruction, or permanent tracheostomy to alleviate the clinical signs of airway obstruction. Additional treatment options included radiation therapy and systemic therapy. Based on the expected prognosis and morbidity associated with the surgical procedures, the owner elected to pursue only medical treatment, to include piroxicam and Palladia. Chlorambucil was later added to the treatment protocol, approximately 3 months after diagnosis. The patient ultimately succumbed roughly 6 months after diagnosis, which is longer than expected for a patient with axial osteosarcoma treated with medical therapy alone.

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Discussion

Stridorous breathing, typical of laryngeal paralysis, can be caused by other pathology of the larynx, most notably neoplasia in older dogs. Although laryngeal paralysis is more common than laryngeal neoplasia in older, large-breed dogs, it is important to communicate to owners that a diagnosis of laryngeal paralysis is presumptive until confirmed during upper airway examination.

Laryngeal tumors are uncommon in both dogs and cats. The most common primary laryngeal tumors are squamous cell carcinoma, oncocytoma, rhabdomyoma, round cell tumors (mast cell tumor, plasmacytoma), melanoma, and sarcomas (including osteosarcoma). A diagnosis can be made by fine needle aspirate cytology, if feasible, or biopsy with histopathology (which is more definitive in terms of accurately determining tumor type).

Osteosarcoma most commonly arises from cells that produce bone, and while it tends to develop within bony tissue (either appendicular or axial sites), extraskeletal forms (where the tumor arises from soft tissue structures) is also reported. It is difficult to know if the mass in this case was arising from one of the cartilages that make up the larynx or at an extraskeletal site; this was not definitively determined on the CT images.

In a recent study evaluating osteosarcoma of the head region, the reported median survival time was roughly 8 months, with patients undergoing surgery living longer (MST of 11 months) and exhibiting lower local recurrence rates/tumor progression (44%) compared to patients treated with radiation therapy (MST 4.5 months, 89% tumor progression). This study evaluated patients with axial osteosarcoma (involving flat bones of the head region), and it is important to note that prognosis for patients with extraskeletal osteosarcoma is not as good, with reported survival times of less than 3-6 months.

This owner elected systemic medical therapy alone, using Palladia. Palladia is an oral drug given at home that has been shown to have antiangiogenic effects (targeting blood vessels that feed the tumor) and may also directly kill cancer cells, preventing or slowing tumor growth and/or metastasis. One small study showed that roughly 50% of patients with osteosarcoma treated with Palladia in the setting of gross disease exhibited a clinical benefit (a decrease in tumor burden or stable disease) for an average of 5.5 months.

Although this patient presented with an aggressive tumor, his cancer was well controlled with systemic oral therapy alone for 6 months. It is important to note that there are a variety of minimally invasive, well-tolerated therapeutic options available to patients with cancer (including at-home treatment protocols) to slow down tumor growth/spread and keep the pet comfortable. In many cases we can slow tumor progression for many months, while maintaining a good quality of life for the patient.

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