

# What Is Your Diagnosis?

In cooperation with

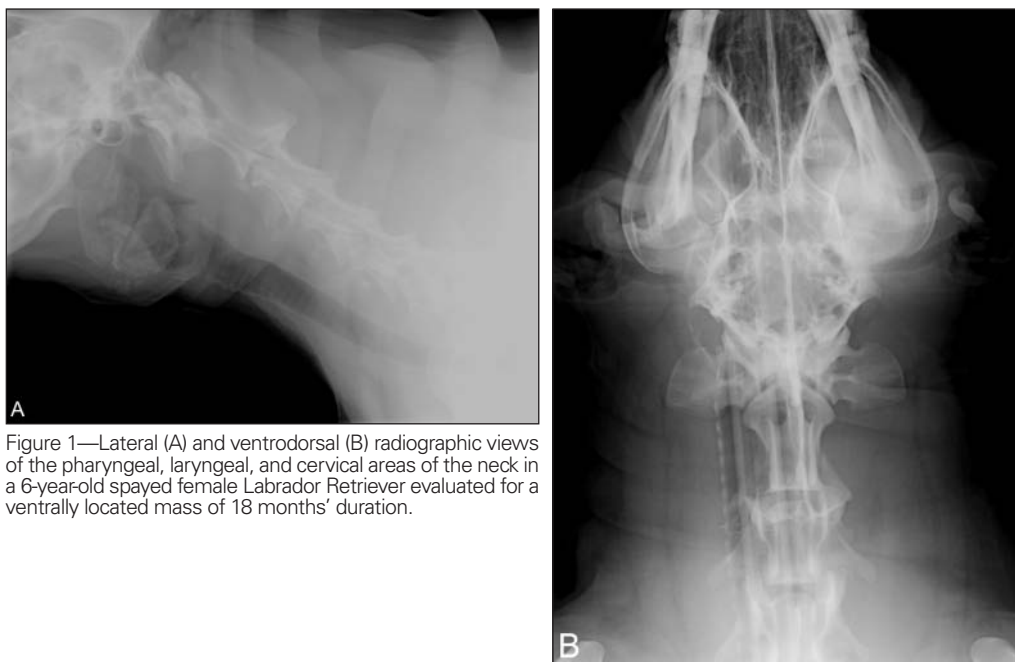


Figure 1—Lateral (A) and ventrodorsal (B) radiographic views of the pharyngeal, laryngeal, and cervical areas of the neck in a 6-year-old spayed female Labrador Retriever evaluated for a ventrally located mass of 18 months' duration.

## History

A 6-year-old spayed female Labrador Retriever was evaluated for a ventrally located mass in the cervical portion of the neck that was reported to have been slowly increasing in size during the preceding 18 months. Cytologic evaluation of a fine-needle aspirate of the mass had been performed by the referring veterinarian and revealed an inflammatory process. On physical examination, the dog appeared quiet, alert, and afebrile. There was a firm, nonpainful, somewhat mobile subcutaneous mass in the left side of the intermandibular area that measured approximately 4 × 7 × 7 cm. No palpable lymphadenopathy was noted. Increased breath sounds were auscultated over the laryngeal area, and all lung fields were clear on auscultation. A CBC revealed mild, weakly regenerative anemia (PCV, 34% [reference range, 40% to 55%]; reticulocyte count, 60,120 reticulocytes/μL [reference range, 0 to 60,000 reticulocytes/μL]). Serum biochemical analysis results were within reference limits. Radiographic views of the pharyngeal, laryngeal, and cervical areas of the neck were obtained (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

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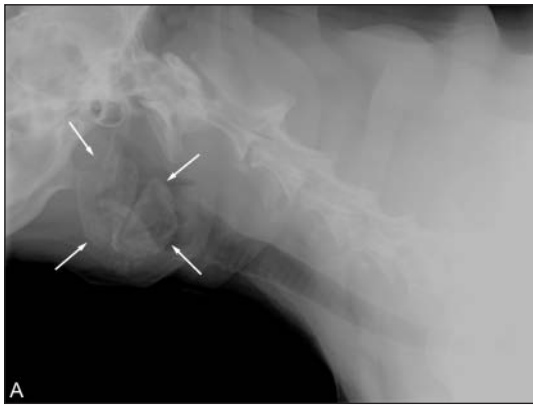


Figure 2—Same radiographic views as in Figure 1. A—Notice the 2 well-defined, smoothly marginated, mineralized radiopaque masses (arrows) in the area of the pharynx causing ventral displacement of the hyoid apparatus. B—Notice the right-sided displacement of the hyoid apparatus (arrows) and the margins of a mineralized radiopaque mass (arrowheads) in the left side of the intermandibular space.

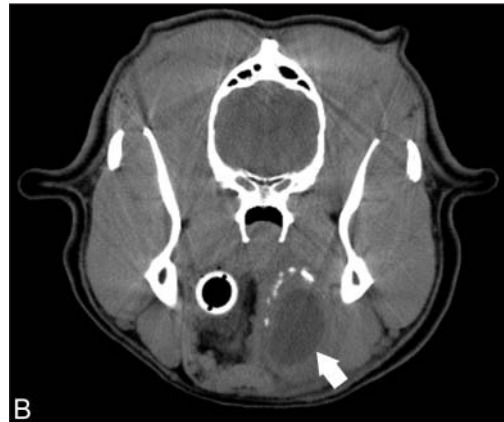


Figure 3—Transverse computed tomographic images (slice thickness, 3 mm) of the larynx and pharynx of the dog in Figure 1. A—Notice the large soft tissue mass with peripheral mineralization (arrows) causing displacement of the hyoid apparatus (arrowheads) and larynx to the right. B—In a more caudal portion of the mass, observe the internal oval hypoattenuating region representing a fluid component of the mass (arrow).

### Diagnostic Imaging Findings and Interpretation

A well-circumscribed, bilobed, mineralized radiopaque mass that displaces the hyoid apparatus ventrally is evident on the lateral radiographic view. The mass is also observed on the ventrodorsal radiographic view in the left side of the intermandibular space, with displacement of the hyoid apparatus to the right. The remainder of the mass is poorly visualized on the ventrodorsal view because of the overlying skull (Figure 2).

Because the extent of laryngeal involvement could not be determined, a computed tomographic examination of the pharyngeal and laryngeal regions was performed. Computed tomographic findings confirmed the presence of the well-circumscribed, heterogeneous soft tissue mass with mineralization and internal fluid. The mass displaced the hyoid apparatus and larynx to the right, but did not appear to invade or involve the bones of the hyoid or larynx (Figure 3). Differential diagnoses for the mass included chronic abscess, granuloma, atypical osteochondroma, extraskeletal osteosarcoma (EOSA), or other neoplasia. Additional computed tomographic images through the region identified normal medial retropharyngeal and mandibular lymph nodes and mandibular salivary glands, which were

not associated with the mass.

### Comments

Because of the location and abnormal nature of the mass, surgical exploration of the laryngeal and pharyngeal area was performed, and the mass was resected. Histologic findings confirmed the presence of an EOSA. There was no evidence of metastatic lung disease radiographically. The dog underwent chemotherapy with carboplatin and remained disease free for 5 months. At that time, metastasis to the prescapular lymph nodes was detected and the owners elected to have the dog euthanized.

Extraskeletal osteosarcoma is a mesenchymal neoplasm of soft tissue and visceral organs that produces osteoid and has no involvement of bone or periosteal tissue.<sup>1</sup> In contrast to skeletal osteosarcoma (85% of all reported primary bone tumors), EOSA is uncommon, with fewer

case reports and retrospective studies found in the veterinary literature.<sup>1-3</sup> In dogs, there is no sex predilection and there does not appear to be a typical set of clinical signs and anatomic locations for EOSA. The neoplasm has been reported in the gastrointestinal tract, urogenital tract, spleen, liver, subcutaneous tissues, skin, mammary gland, adrenal gland, eye, testicle, vagina, kidney, and lung, with a worse prognosis for tumors located intra-abdominally.<sup>1-3</sup> Extraskeletal osteosarcoma is an extremely aggressive disease, with a reported median survival time of 26 days without treatment. Prolonged clinical history of the patient described in the present report was atypical for this tumor. Current treatments for EOSA include surgical resection followed by chemotherapy.

In the dog described in the present report, the use of computed tomography provided valuable additional information, including the exact location, extent, and character of the tumor and the lack of involvement of the hyoid apparatus, which aided in surgical planning.

1. Patnaik AK. Canine extraskeletal osteosarcoma and chondrosarcoma: a clinical pathological study of 14 cases. *Vet Pathol* 1990;27:26-55.
2. Chung EB, Enzinger FM. Extraskeletal osteosarcoma. *Cancer* 1987; 60:1132-1142.
3. Kuntz CA, Dernell WS, Powers BE, et al. Extraskeletal osteosarcoma in dogs: 14 cases. *J Am Anim Hosp Assoc* 1998;34:26-30.