

What Is Your Diagnosis?



Figure 1—Lateral radiographic view of the neck of an 8-year-old cat evaluated because of intermittent episodes of open-mouth breathing.

History

An 8-year-old castrated male domestic shorthair cat was evaluated because of intermittent episodes of open-mouth breathing. The referring veterinarian detected a bronchointerstitial pattern on thoracic radiographs. Asthma or pneumonitis was suspected, and the cat was treated with dexamethasone (1 mg/kg [0.45 mg/lb] of body weight, SC) and aminophylline (3 mg/kg [1.36 mg/lb], IM). The cat initially responded well to treatment, but its condition progressively deteriorated with episodes of open-mouth breathing increasing in frequency and duration.

On admission to our hospital, the cat appeared bright and alert. Air was moving through both nostrils, but upper airway stridor was evident, and increased bronchovesicular sounds were auscultated over the entire thorax. Results of CBC and a heartworm antigen test did not reveal abnormalities. Radiographs of the cervical area were obtained (Fig 1).

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

Diagnosis

Radiographic diagnosis—A sharply margined soft-tissue mass occluding the lumen of the cervical region of the trachea with possible involvement of the esophagus (Fig 2).

Comments

Differential diagnoses for an intraluminal tracheal mass include eosinophilic granuloma, polyp, foreign body, or tumor. The cat was sedated, and a laryngeal examination and transtracheal wash were performed. The arytenoid cartilages appeared normal, but a small mass was detected caudal to the larynx. The tracheal wash specimen was submitted for cytologic evaluation and bacterial culture. Results revealed a severe chronic inflammatory response, but organisms were not cultured.

Surgery was performed in an attempt to excise the mass. A temporary tracheostomy tube was surgically placed caudal to the mass to allow anesthetic delivery. A large (width, 2 cm; length, 1.5 cm) intratracheal mass was detected that appeared to originate from the dorsal tracheal membrane at the level of the fourth tracheal ring. It occluded most of the tracheal lumen and, on further examination, was found to penetrate through the dorsal membrane and adhere to the muscular layer of the esophagus. Three tracheal rings were resected, and the mass was removed. The trachea was anastomosed, using a ring-to-ring technique with intermittently placed tension sutures. The cat recovered well from surgery. Histologic evaluation of the mass revealed leiomyosarcoma.

Leiomyosarcomas are malignant tumors of smooth muscle origin that appear as firm, lobulated white masses.^{1,2} They may arise from the gastrointestinal tract, urogenital system, spleen, and retroperitoneal space.³ In dogs, they are the second most common intestinal tumor.¹ Tumor margins are typically poorly defined. However, although leiomyosarcomas may infiltrate through fascial planes, they are slow to metastasize.¹ Prognosis of dogs with leiomyosarcoma of the gastrointestinal tract is good with complete resection.¹

Primary tracheal tumors in dogs and cats are uncommon. The most common tracheal tumors in dogs are chondrosarcoma, osteosarcoma, squamous cell carcinoma, and leiomyoma, whereas in cats, the most common tumors include squamous cell carcinoma, adenocarcinoma, and lymphosarcoma.³ Primary tracheal tumors are typically diagnosed in middle aged to older dogs and cats, with the exception of chondrosarcoma, which is usually seen in dogs < 1 year of age.²

We could not definitively identify the smooth muscle origin of the tumor affecting the cat described in this report. In carnivores, the trachealis muscle is composed

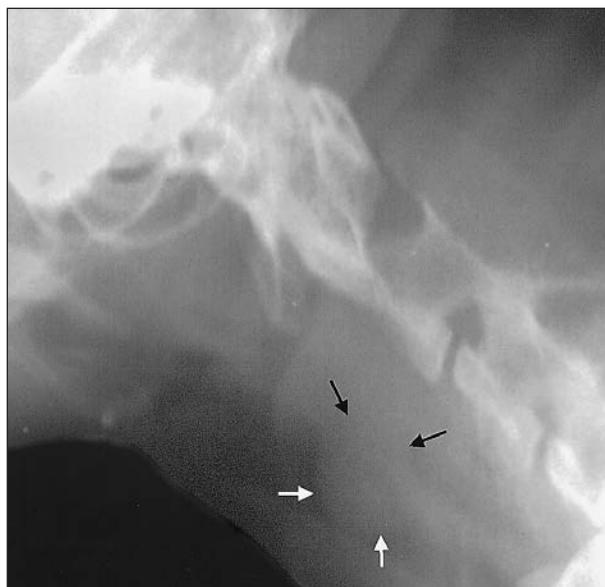


Figure 2—Same radiographic view as in Figure 1. A sharply margined soft-tissue mass is evident occluding the cervical region of the trachea (arrows).

of smooth muscle between the rings of the trachea.⁴ Vascular walls, contractile tissues around mucus-secreting glands, and the tunica muscularis of the esophagus are also comprised of smooth muscle and represent possible sites of origin of this leiomyosarcoma. Further diagnostic tests such as contrast esophagography or tracheoscopy may have helped to further identify the origin of this tracheal tumor.

The prognosis for this cat was guarded, with tumor recurrence likely because of incomplete resection. Three months after diagnosis, the cat again had episodes of wheezing and open-mouth breathing. On follow-up radiography, a tumor obliterating most of the tracheal lumen was observed. The owner declined further treatments and opted to euthanize the cat.

1. Kapatkin AS, Mullen HS, Matthiesen DT, et al. Leiomyosarcoma in dogs: 44 cases (1983–1988). *J Am Vet Med Assoc* 1992;201:1077–1079.

2. MacEwen EG, Withrow ST. Soft tissue sarcomas. In: Withrow ST, MacEwen EG, eds. *Small animal clinical oncology*. 2nd ed. Philadelphia: WB Saunders Co, 1996;211–225.

3. Withrow SJ. Tumors of the respiratory tract. In: Withrow SJ, MacEwen EG, eds. *Small animal clinical oncology*. 2nd ed. Philadelphia: WB Saunders Co, 1996;268–274.

4. Bryan RD, Frame RW, Kier AB. Tracheal leiomyoma in a dog. *J Am Vet Med Assoc* 1981;178:1069–1070.

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