VETERINARY MEDICINE TODAY

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What Is Your Diagnosis?

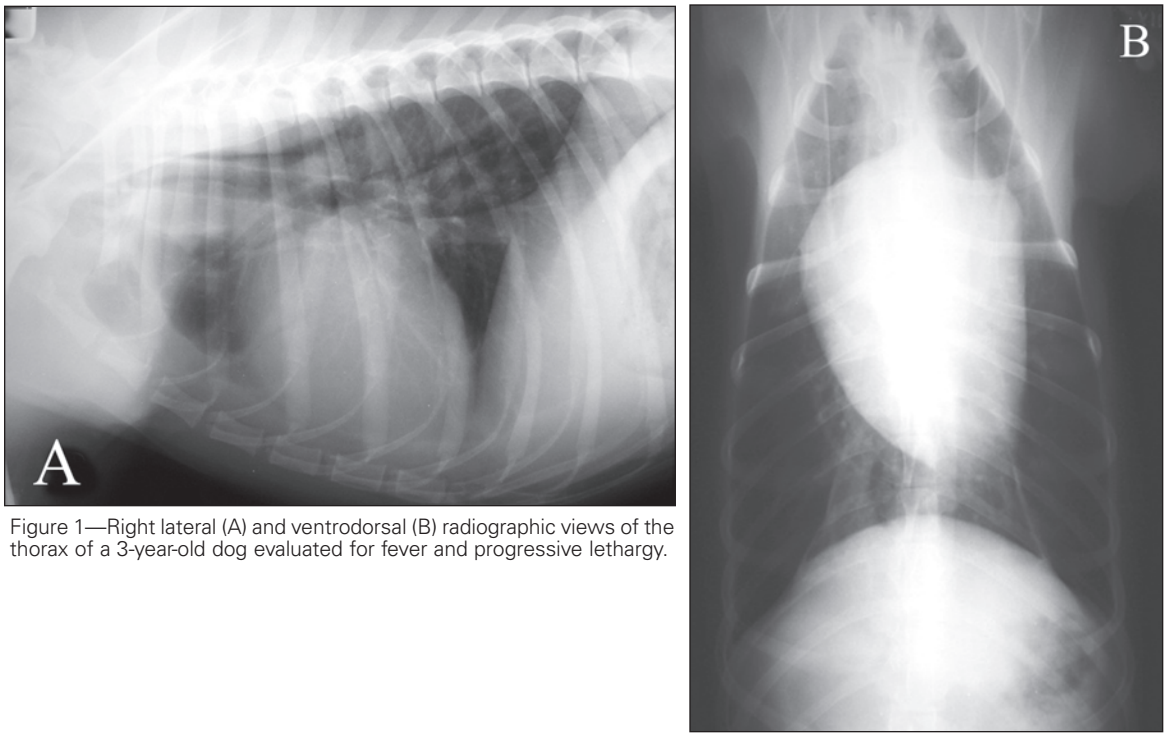

Figure 1—Right lateral (A) and ventrodorsal (B) radiographic views of the thorax of a 3-year-old dog evaluated for fever and progressive lethargy.

History

A 3-year-old spayed female English Setter was evaluated for progressive lethargy of a few days' duration. According to the owners, the dog had sustained a 1-cm-long superficial laceration near the left side of the thoracic inlet 5 days earlier. Lameness of the left forelimb and coughing were initially detected; however, these clinical signs resolved within a day, and the dog was not evaluated by a veterinarian.

On physical examination, pyrexia (rectal temperature, 40.3°C [104.5°F]; reference interval, 37.8 to 39.2°C [100.0° to 102.5°F]), increased bronchovesicular sounds in the cranioventral lung fields bilaterally, and a small healing wound near the left side of the thoracic inlet were detected. Abnormalities detected on CBC included an absolute leukocytosis (20.2 × 10^3 WBCs/µL; reference interval, 4.1 to 13.3 × 10^3 WBCs/µL) characterized by a mature neutrophilia (17.0 × 10^3 cells/µL; reference interval, 2.1 to 11.2 × 10^3 cells/µL) and monocytosis (2.4 × 10^3 cells/µL; reference interval, 0 to 1.2 × 10^3 cells/µL). No abnormalities were detected on serum biochemical analyses. Radiographs of the thorax were obtained (**Figure 1**).

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

This report was submitted by Cheri Nielsen, MS, DVM; Jeffrey M. Todd, DVM; Daniel E. Cronk; and Kari L. Anderson, DVM, DACVR; from the Department of Veterinary Clinical Sciences, College of Veterinary Medicine, University of Minnesota, Saint Paul, MN 55108.
Address correspondence to Dr. Nielsen.

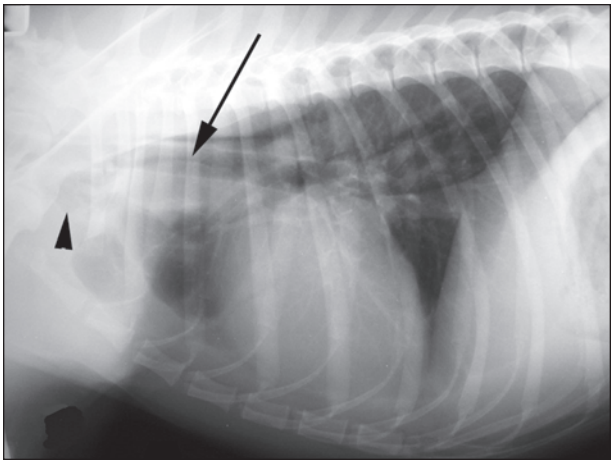

Figure 2—Same right lateral radiographic view as in Figure 1. Notice the pneumomediastinum enhancing visualization of the brachiocephalic trunk (arrow) and gas within the fascial planes at the level of the thoracic inlet (arrowhead) and a minimal amount of pleural effusion.

Radiographic Findings and Interpretation

Pneumomediastinum enhancing visualization of the brachiocephalic trunk with gas dissection of the fascial planes at the level of the thoracic inlet and a minimal amount of pleural effusion are evident (**Figure 2**).

Comments

Presumably, the pneumomediastinum and gas dissection of the fascial planes at the level of the thoracic inlet were caused by a penetrating wound. Although a radiopaque foreign body was not seen, a nonradiopaque foreign body may have been present.

Thoracocentesis yielded < 1.0 mL of serosanguinous fluid with a total protein concentration of 5.8 g/dL, nucleated cell count of 4.15 × 10^3 cells/µL, and RBC count of 1.28 × 10^6 cells/µL. Cytologic examination of pleural fluid revealed that 65% of the nucleated cells were mildly degenerate neutrophils, 34% were large mononuclear cells, and 1% were small lymphocytes, which was consistent with suppurative inflammation.

Meglumine iothalamate (640 mg of iodine/kg [290 mg of iodine/lb], IV) was administered to the dog, and contrast-enhanced helical **computed tomography (CT)** was performed (**Figure 3**). A hypoattenuating structure (7 cm long) surrounded circumferentially by soft tissue–attenuating material was detected within the cranial portion of the mediastinum. The object was ventral to the cranial vena cava, extending approximately from the level of the convergence of the jugular veins with the vena cava cranially to the base of the aortic arch caudally. Additionally, mild pneumomediastinum, thickening of the cranial mediastinal tissue, and mild bilateral pleural effusion were detected. The CT findings were interpreted as stick foreign body within the mediastinum with secondary mediastinal and pleural changes attributable to infection or inflammation.

Exploratory median sternotomy was performed. A wood fragment was detected within the mediastinum, penetrating the cranial aspect of the pericardial sac and in contact with the right auricle. A window pericardectomy was performed.

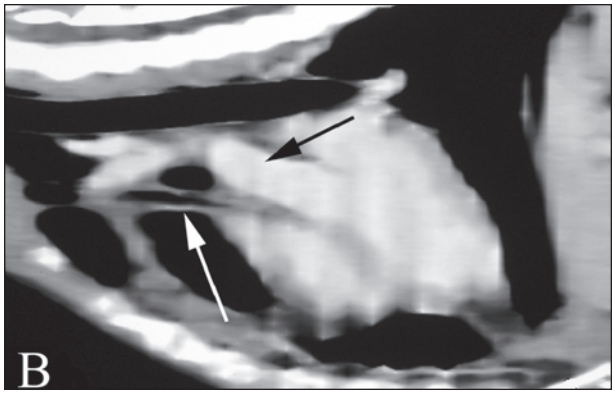

Figure 3—Transverse contrast-enhanced computed tomographic image of the cranial portion of the mediastinum (A) and sagittal plane reconstruction computed tomographic image displayed in a mediastinal window (B). Notice the hypoattenuating wooden foreign structure surrounded by soft tissue–attenuating fibrous tissue (white arrow) ventral to the cranial vena cava (arrowhead), extending caudally to the aortic arch (black arrow).

The dog was initially treated with ampicillin (22 mg/kg [10 mg/lb], IV, q 8 h) and enrofloxacin (5 mg/kg [2.3 mg/lb], IV, q 12 h). No growth was identified on aerobic or anaerobic bacteriologic culture of pleural and pericardial fluid. The dog was discharged from the hospital 2 days after surgery. It was treated with amoxicillin-clavulanate (13.75 mg/kg [6.25 mg/lb], PO, q 12 h for 10 days) and was clinically normal 1 month after surgery.

Exploratory thoracotomy is typically recommended following diagnosis of a penetrating thoracic wound when there is worsening subcutaneous emphysema of the cervical area or thorax, progressive pneumothorax or pleural effusion, open communication with the pleural space, or the foreign body remaining within the thoracic cavity.[1] In the dog of this report, physical examination findings and results of initial diagnostic tests did not meet any of these criteria; therefore, CT of the thorax was recommended for further evaluation. The radiopacity of wood is similar to that of soft tissue; therefore, wood that is not surrounded by a structure of different opacity will typically not be seen on survey radiographs. Computed tomography is effective for detection of various wooden foreign bodies in humans[2] and has been used to detect a periorbital stick foreign body in a dog with chronic exophthalmus.[3]

1. Orton EC. *Small animal thoracic surgery*. Malvern, Pa: The Williams & Wilkins Co, 1995;55–83.

2. Phytinen J, Ilkko E, Lahde S. Wooden foreign bodies in CT. Case reports and experimental studies. *Acta Radiol* 1995;36:148–151.

3. O'Reilly A, Beck C, Mouatt JG, et al. Exophthalmos due to a wooden foreign body in a dog. *Aust Vet J* 2002;80:268–271.