What Is Your Diagnosis?

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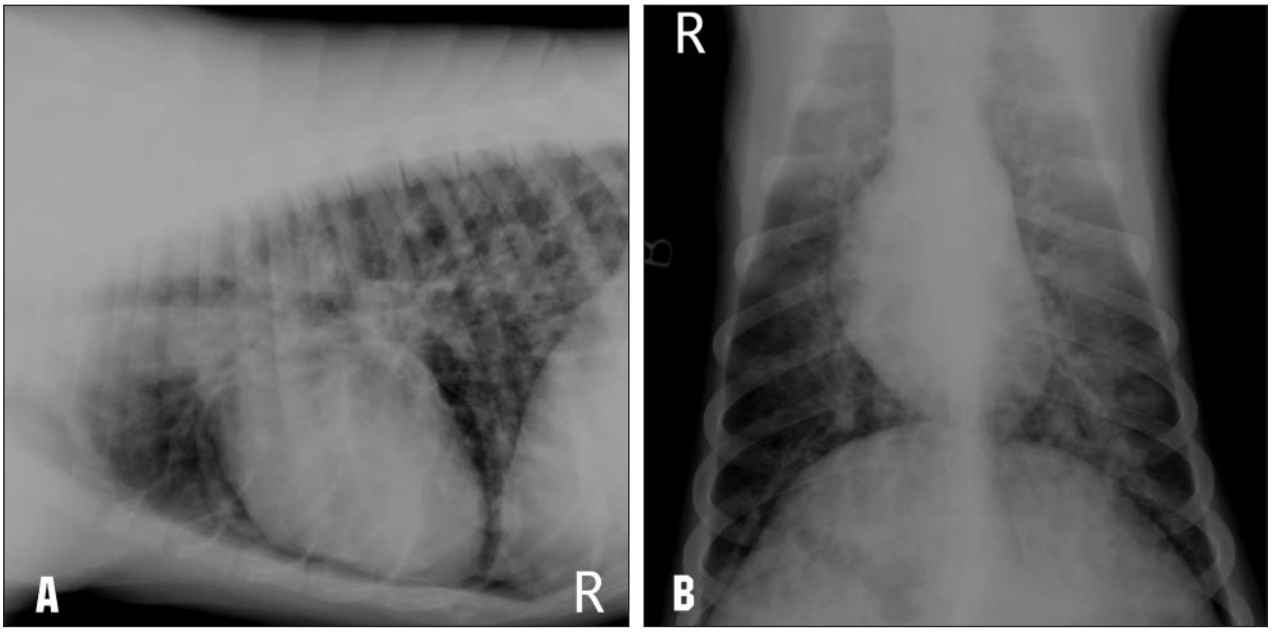

Figure 1—Right lateral (A) and ventrodorsal (B) radiographic views of the thorax of a dog evaluated for a cough of 3 weeks' duration and dyspnea.

History

A 4-year-old female mixed-breed dog was examined because of a cough of 3 weeks' duration. The cough worsened during the first week with no further progression. The dog's appetite and activity levels had decreased to 10% of normal for 2 weeks. The cough occurred without an inciting event but worsened with excitement. At the time of the physical examination, the dog was dyspneic and had an abdominal component to its respirations. The rectal temperature was 40°C (104.1°F). Auscultation revealed harsh lung sounds bilaterally, with increased bronchovesicular sounds and diffuse crackles. Thoracic radiographic views 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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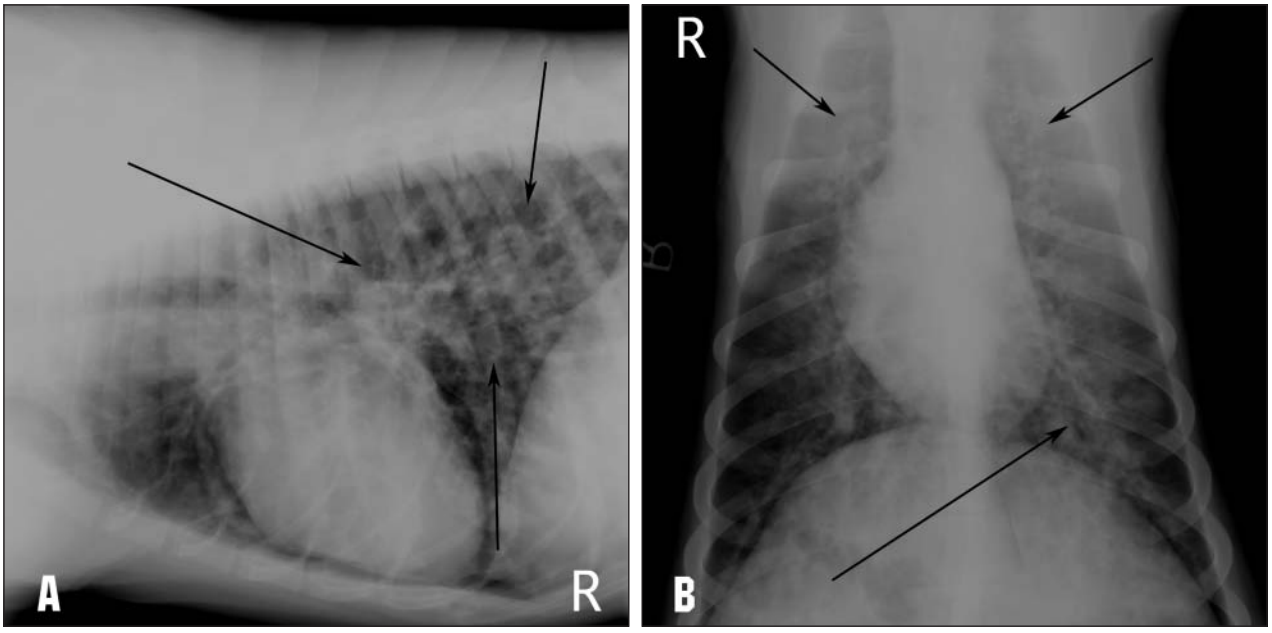

Figure 2—Same radiographic views as in Figure 1. Notice the severe, diffuse bronchointerstitial pattern (arrows).

Radiographic Findings and Interpretation

A severe, diffuse bronchointerstitial pattern consistent with inflammatory airway disease is evident (**Figure 2**). Eosinophilic bronchopneumopathy was the primary differential diagnosis. Granulomatous disease, bronchopneumonia, and metastatic neoplasia were differential diagnoses but were considered less likely.

Comments

Eosinophilic bronchopneumopathy (EBP), previously known as pulmonary infiltrates with eosinophilia, is characterized by eosinophilic infiltrates in the bronchial mucosa and interstitium.[1-2] The disease is described in people and in dogs and is considered a manifestation of immunologic hypersensitivity.[2] In most cases, the inciting antigens are not identified; however, in people and dogs, pulmonary hypersensitivities to fungi, bacteria, drugs, and parasites, including heartworms and lungworms, exist.[2-3] A breed predisposition in Siberian Huskies has been reported; however, the disease has been diagnosed in various breeds.[1-2] At the time of diagnosis, the dogs are generally young and clinical signs include coughing, gagging, retching, exercise intolerance, dyspnea, and nasal discharge.[1-2]

In cases of EBP, tissue eosinophilia is identifed in cytologic preparations of brochoalveolar lavage fluid.[1] In the dog of this report, a sputum sample was highly cellular, containing many nucleated cells and numerous pink granules in the background. A large amount of basophilic stranding material was evident and presumed to be mucus. A 200-cell differential count was composed of 67% eosinophils, 31% mildly to moderately degenerate neutrophils, and 2% large mononuclear cells. A few bacterial rods were in the neutrophils, and a few bacterial cocci and rods were seen extracellularly. There were no fungal organisms or neoplastic cells reported.

Peripheral blood eosinophilia is a common finding with EBP; however, it is not evident in all cases.[1] The dog of this report had a total WBC count of 17,300 cells/µL (reference range, 6 to 17 X 10^3 cells/µL) with an absolute eosinophil count of 7,439 cells/µL (reference range, 100 to 1,250 cells/µL). Results of heartworm antigen testing were negative for the dog. Fecal flotation and Baermann tests did not reveal eggs or cysts. Adult nematodes and larvae indistinguishable from *Strongyloides* spp were seen. Results of a *Cryptococcus* spp antigen test were negative.

Treatment for EBP generally consists of administration of immunosuppressive doses of corticosteroids as well as antimicrobials chosen on the basis of culture and susceptibility test results. Parasitic infections are treated as needed. Some individuals require continual administration of corticosteroids for the remainder of their lives, whereas others can be weaned off corticosteroids completely. Relapse of clinical disease is not uncommon. The dog of this report was hospitalized for 3 days and treated with oxygen infused through the nasal passages, fluids administered IV, ivermectin (1.5 mg/kg [0.7 mg/lb], PO, once), fenbendazole (3.5 mg/kg [1.6 mg/lb], PO, q 24 h for 10 days), prednisone (1 mg/kg [0.5 mg/lb], PO, q 12 h until directed to reduce dosage), and amoxicillin trihydrate–clavulanate potassium (20 mg/kg [9 mg/lb], PO, q 12 h) for 14 days. The dog responded quickly and was released from the hospital. The dog was reexamined 1 month after discharge. It had a ravenous appetite, and there was no evidence of eosinophilia in peripheral blood or abnormalities detected via thoracic radiography.

1. Clercx C, Peeters D, German AJ, et al. An immunologic investigation of canine eosinophilic bronchopneumopathy. *J Vet Intern Med* 2002;16:229–237.
2. Clercx C, Peeters D, Snaps F, et al. Eosinophilic bronchopneumopathy in dogs. *J Vet Intern Med* 2000;14:282–291.
3. Peeters D, Day MJ, Clerx C. Distribution of leukocyte subsets in bronchial mucosa from dogs with eosinophilic bronchopneumopathy. *J Comp Pathol* 2005;133:128–135.