What Is Your Diagnosis?

History

A 5-year-old Quarter Horse mare was referred for evaluation of progressively worsening respiratory stridor and dyspnea of 6 weeks' duration. The mare had been transported from Kentucky to Minnesota 8 weeks before evaluation.

Physical examination revealed tachypnea and dyspnea, with a substantial abdominal component to respiration, and paroxysmal episodes of coughing. Results of thoracic auscultation indicated diffusely increased lung sounds bilaterally. Markedly increased lung sounds were detected during auscultation of the trachea. Results of CBC indicated leukocytosis and neutrophilia with a left shift. A radiograph of the thorax was obtained (Fig 1).

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

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Diagnosis

Radiographic diagnosis—A large mass dorsal to the bifurcation of the trachea with tracheobronchial compression (Fig 2).

Comments

The marked narrowing of the radiolucent trachea and soft tissue opacity dorsal to the bifurcation of the trachea were considered the most important radiographic findings. Extraluminal compression at the bifurcation of the trachea was confirmed during endoscopy. Extraluminal compression at the bifurcation of the trachea were considered the most important radiographic findings. Cytologic examination of a transtracheal aspirate revealed numerous moderately degenerate neutrophils. No bacteria were observed, and aerobic and anaerobic bacteriologic culture of the aspirate yielded no growth.

The horse was treated with penicillin G potassium (22,000 U/kg [10,000 U/lb], IV, q 6 h), gentamicin (6.6 mg/kg [3 mg/lb], IV, q 24 h), and rifampin (5 mg/kg [2.27 mg/lb], PO, q 12 h) for 12 days and with flunixin meglumine (1.1 mg/kg [0.5 mg/lb], IV, q 12 h) for the initial 24 hours of hospitalization. Radiography of the thorax performed 7 days after the initial evaluation revealed no improvement in the size of the mass and degree of tracheobronchial compression. Results of serum agar gel immunodiffusion (AGID) assay for Aspergillus fumigatus, A flavus, A niger, and A terreus; Histoplasma capsulatum; Blastomyces dermatitidis; and Coccidioides immitis antigens indicated precipitin bands against Aspergillus spp antigens at a titer of 1:8 (any titer is considered a positive result). The owners chose euthanasia because of the poor prognosis for recovery and financial limitations.

Necropsy revealed a 20 X 10 X 7-cm firm mass, caudal and dorsal to the base of the heart and dorsal to the bifurcation of the trachea. A distinct groove along the dorsal surface of the mass corresponded to the route of the aorta, and the mass was adhered to the esophageal serosa. The mass, consistent with the soft tissue opacity observed on radiographs, was identified as a lymph node. On cut section, the mass consisted of a thick capsule enclosing caseous, tan-white exudate. Histologic evaluation of tissue from the mass revealed branching fungal hyphae. *Aspergillus* spp were identified on fungal culture of the exudate.

Pulmonary aspergillosis in horses is a rare, often rapidly fatal disease generally characterized by widespread pulmonary invasion. Aspergillosis is associated with exposure to a high concentration of organisms or immunocompromise.1-3 Predisposing factors for development of invasive pulmonary aspergillosis include acute enterocolitis, immunosuppression, and corticosteroid and antimicrobial treatment.1 In the horse of this report, the absence of disseminated pulmonary parenchymal involvement, the chronicity of infection, and the ostensible immunocompetency are unique. In this horse, the stress of transport may have caused transient immunosuppression with development of focal aspergillosis of the tracheobronchial lymph nodes.

Antemortem diagnosis of pulmonary aspergillosis can be difficult.1,2 Multiple precipitin bands against *A fumigatus* antigens by AGID assay of serum have been found to be consistent with invasive infection, colonization of the respiratory tract, or allergy. Healthy horses and horses with recurrent airway obstruction have precipitating antibodies against *A fumigatus* antigens, but multiple precipitin bands appear uncommon in these horses.1,3 In the horse of this report, precipitin bands at a titer of 1:8 were considered strongly suggestive of pulmonary aspergillosis. In human and veterinary patients, early treatment with antifungal agents, correction of granulocytopenia, and tapering of immunosuppressive therapy are the mainstays of treatment for pulmonary aspergillosis.2,4