What Is Your Diagnosis?

In cooperation with

Figure 1—Right lateral (A) and ventrodorsal (B) radiographic views of the whole body of a 2-year-old *Pionus* parrot evaluated for anorexia and cachexia.

History

A 2-year-old *Pionus* parrot was evaluated for cachexia and partial anorexia of 3 weeks' duration. The bird was 1 of 2 privately owned birds and was on a predominantly sunflower seed–based diet with some pellets offered. The bird's history was unremarkable except for an incident approximately 1 year earlier when it flew into a river behind the owners' house. The bird was rescued and given oxygen at the local veterinary clinic.

Physical examination revealed signs of depression, severe emaciation, and tachypnea, with effort, worsened by restraint; however, auscultation did not reveal abnormalities. Palpation of the coelom revealed the ventriculus to be displaced caudally and to the right. Abnormalities detected in the CBC included leukocytosis (47.3 × 10^3 WBCs/µL; reference range,[1] 5 to 13 × 10^3 WBCs/µL), heterophilia (90%; reference range, 55% to 74%), lymphopenia (6%; reference range, 19% to 70%), monocytosis (2%; reference range, 0% to 1%), eosinophilia (2%; reference range, 0% to 1%), and anemia (PCV, 33%; reference range, 45% to 54%). Serum biochemical analyses revealed high values of creatine kinase (2,276 U/L; reference range, 116 to 408 U/L), aspartate aminotransferase (597 U/L; reference range, 135 to 358 U/L), and uric acid (25.4 mg/dL; reference range, 2 to 12 mg/dL). Whole-body radiographic views were obtained while the bird was anesthetized (**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. On the lateral view (A), there is an irregular lobulated appearance to the cranioventral renal silhouette (arrowhead) and a pronounced reticular pattern in the lungs. On the ventrodorsal view (B), there is a left-sided caudal coelomic mass effect (arrowhead) deviating the hepatic silhouette cranially. On both views, there is thickening and irregularity of multiple air sacs (arrows).

Radiographic Findings and Interpretation

On the lateral view, there is an irregular lobulated appearance to the cranioventral renal silhouette and a pronounced reticular pattern in the lungs. On the ventrodorsal view, there is a left-sided caudal coelomic mass effect deviating the hepatic silhouette cranially. On both views, there is thickening and irregularity of multiple air sacs, including the right caudal abdominal and both thoracic air sacs. The radiographic interpretation was moderate to severe air sacculitis, with possible pneumonia; suspected renal mass, abscess, or granuloma; and a coelomic mass, either reproductive or gastrointestinal in origin. Differential diagnoses include bacterial or fungal infection, primarily aspergillosis or, less likely, disseminated neoplasia (**Figure 2**).

Comments

The bird was treated with enrofloxacin (20 mg/kg [9.09 mg/lb], PO, q 24 h), itraconazole (10 mg/kg [4.55 mg/lb], PO, q 24 h), fluids (lactated Ringer's solution, 16 mL, SC), and gavage feeding[a] (3 mL) before being placed in a heat incubator. Despite treatment, the bird died overnight.

Gross necropsy confirmed severe emaciation, depicted by extreme bilateral atrophy of the pectoral muscles and a prominent keel. Fuzzy white granular caseous material (1 × 1 × 1 cm) extended from the right caudal lung lobe effacing the cranial abdominal air sac, and cream-colored granular caseous material (2.5 × 1.5 × 1 cm) extended from the left caudal lung lobe to the proventriculus and left liver lobe. On the radiographic views, the material contained within the air sacs appeared as a caudal coelomic mass because of its size and volume. In addition, there was a cream-colored fuzzy mass (3 × 2 × 0.3 cm) in the right caudal portion of the coelom ventral and adherent to the right kidney.

Histologic lesions included severe, focally extensive, chronic necrotizing heterophilic and pyogranulomatous pneumonia and air sacculitis with septate branching fungal hyphae. There was pyogranulomatous coelomitis and serositis of the liver, spleen, gastrointestinal tract, and kidneys, with intralesional fungi in the gastrointestinal tract and kidneys. The final diagnosis was severe respiratory and renal aspergillosis.

Avian aspergillosis is caused by inhalation or ingestion of *Aspergillus* sp spores, most often *Aspergillus fumigatus*.[2] It is a ubiquitous, noncontagious, and opportunistic infection, predisposed by immunosupression, stress, poor husbandry, or malnutrition.[2] Aspergillosis is the most commonly diagnosed respiratory tract disease in birds, with an increased susceptibility in African grey parrots (*Psittacus erithacus*) and *Pionus* parrots (*Pionus* spp).[2]

Aspergillosis typically is a chronic disease associated with respiratory distress, emaciation, and weakness. Diagnostic testing often reveals substantial heterophilic leukocytosis and monocytosis as well as radiographic evidence of air sacculitis, splenomegaly, and bronchopneumonia with mixed bronchial and interstitial patterns.[2,3] Antemortem diagnosis is challenging but can be accomplished by culturing granulomas collected from the trachea or air sacs. Itraconazole is the most widely used antifungal medication, and birds often benefit from nebulization with amphotericin B. Because aspergillosis is insidious, clinical signs develop late in the course of the disease, making successful treatment difficult. Common differential diagnoses for aspergillosis include mycobacteriosis, coligranulomas caused by *Escherichia coli*, inhaled foreign body granulomas, and aerosolized toxicosis.

a. Eimeraid I, Lafeber Co, Cornell, Ill.

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