What Is Your Diagnosis?

History

An 11-year-old 10-kg (22-lb) sexually intact male Pekingese-type dog was evaluated for dyspnea, coughing, and fever of 3 days' duration. According to the owner, there was no recent history of trauma. The dog was treated by the referring veterinarian with amoxicillin and clavulanic acid without any improvement in respiratory tract signs.

On physical examination, the dog was afebrile but its respiratory rate was high (30 breaths/min; reference range, 20 to 40 breaths/min). During auscultation of the thorax, bronchial sounds were detected in both lung fields during inspiration; these sounds were louder on the right than on the left side of the thorax. The dog had severe dental calculus and gingivitis, and several teeth were missing. Mild leukocytosis (25,400 cells/µL; reference range, 6 to 17,000 cells/µL) with neutrophilia (22,600 cells/µL; reference range, 3,900 to 11,300 cells/µL) were detected on CBC. 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 →

Figure 1—Lateral (A) and ventrodorsal oblique (B) radiographic views of the thorax of an 11-year-old Pekingese cross with acute dyspnea, coughing, and fever of 3 days' duration.
esophagus was performed with nonionic iodine solution. No lesions of the esophageal wall or leakage of contrast medium can be seen. Notice the tooth in the right caudal bronchial inlet (arrowheads).

**Radiographic Findings and Interpretation**

A spiked radiopacity (approx 2.8 × 2.4 cm), which appears to be a tooth, is superimposed over the inlet of the right caudal bronchus (Figure 2). A mixed bronchial and interstitial pattern can be seen in the right cranial lung lobe and the ventral aspect of the right caudal lung lobe, and an alveolar pattern can be seen in the caudal aspect of the left cranial lung lobe. A bronchial foreign body was suspected, with generalized aspiration bronchopneumonia. A ventrodorsal oblique radiographic view was obtained to better visualize the foreign body by shifting its position from the cardiac silhouette.

**Comments**

In humans, bronchial foreign bodies are commonly described in children but are not common in adults. In young children, food particles are the most common type of foreign body but aspiration of primary and permanent teeth has also been reported. In companion animals, bronchial foreign bodies include radiopaque and radiolucent materials such as stones, bullets, nails, bone fragments, and dental calculus. In 1 dog, an aspirated tooth has also been reported. Survey radiography of the thorax can be used to detect certain radiopaque bronchial foreign bodies, but when a foreign body is situated near the tracheal bifurcation or at the inlet of the mainstem bronchi, as in the dog of this report, differential diagnoses should include an esophageal or mediastinal location. Bronchoscopy is useful for diagnosing radiolucent bronchial foreign bodies and for identifying and removing aspirated foreign material.

In the dog of this report, a mediastinal location of the foreign body was ruled out radiographically because of the absence of pneumomediastinum, mediastinal widening, or reversed pleural fissure lines that indicate fluid and mediastinitis. To rule out an esophageal location, positive-contrast radiography of the esophagus was performed with nonionic iodine solution (20 mL, PO; Figure 3). No lesions of the esophageal wall or leakage of contrast medium was detected. A radiographic diagnosis of foreign body in the right caudal bronchus and aspiration bronchopneumonia in the left cranial lung lobe was made.

Bronchoscopy was performed during anesthesia. A flexible endoscope, 8 mm in diameter, was used to assess the position of the foreign body that was seen at the inlet of the right caudal bronchus. The foreign body was successfully removed by use of a 4-wired basket retriever, and it was identified as the fourth left upper premolar tooth.

The dog recovered well and was treated with a third-generation cephalosporin for 10 days, with rapid resolution of the clinical signs and abnormal radiographic findings. No postoperative complications were detected for 3 months after surgery. Aspiration of the fourth left upper premolar tooth was likely due to loosening of the tooth caused by severe periodontitis. Aspiration of a tooth should be considered in animals with severe respiratory tract disease and pathologic conditions in which tooth loss is possible.