

What Is Your Diagnosis?

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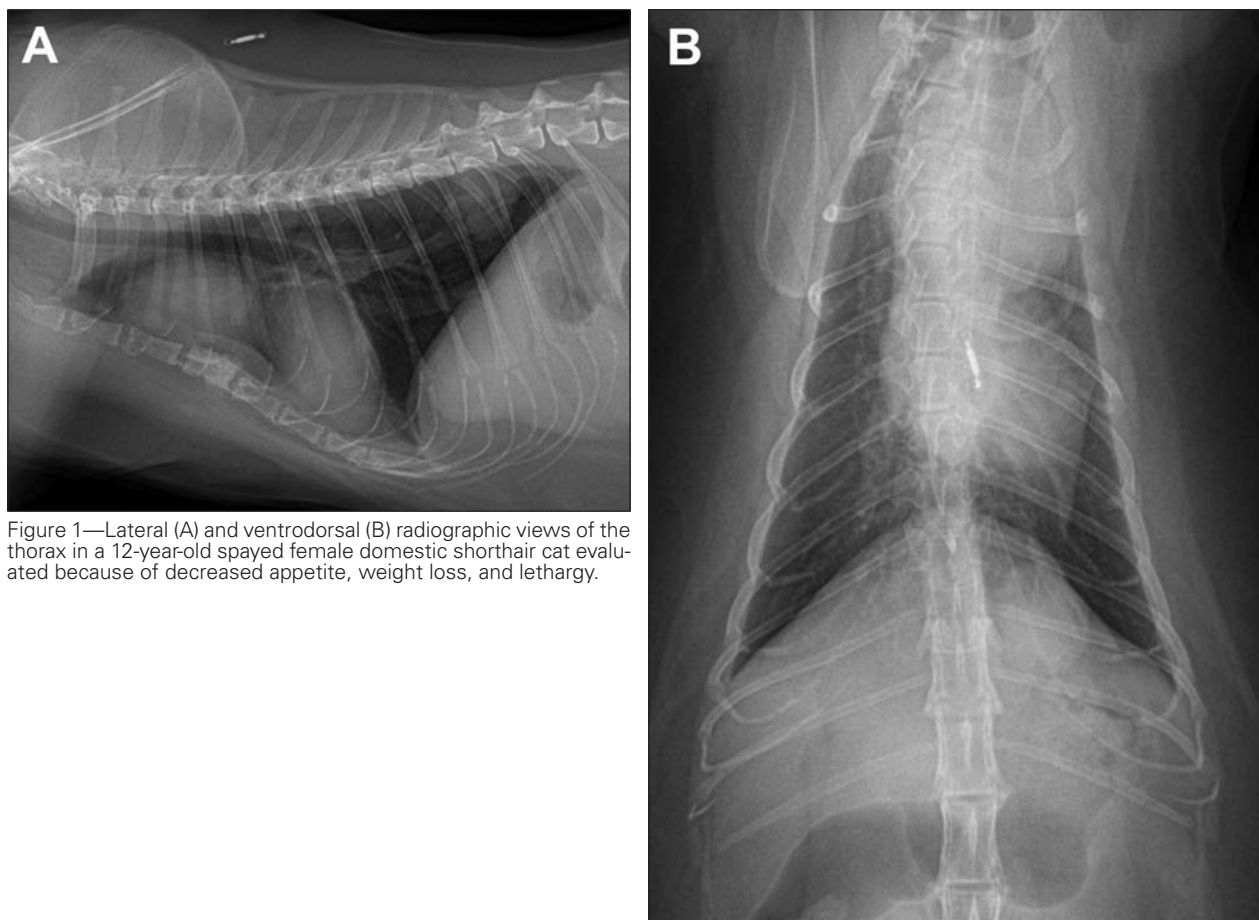


Figure 1—Lateral (A) and ventrodorsal (B) radiographic views of the thorax in a 12-year-old spayed female domestic shorthair cat evaluated because of decreased appetite, weight loss, and lethargy.

History

A 12-year-old spayed female domestic shorthair cat was evaluated because of decreased appetite and lethargy for several days and polydipsia for several weeks. There had been a 0.82-kg (1.8-lb) weight loss over the course of several months. Findings on physical examination, including thoracic auscultation, were within reference limits. No abnormalities were detected on CBC. Serum biochemical analysis revealed a high creatinine concentration of 2.6 mg/dL (reference range, 0.8 to 2.3 mg/dL). The urine specific gravity was 1.018; findings on urinalysis were otherwise within reference limits. Treatment consisted of syringe feeding, SC administration of fluids, and an appetite stimulant (cyproheptadine [2 mg, PO, PRN]). There was little improvement, and thoracic radiographs 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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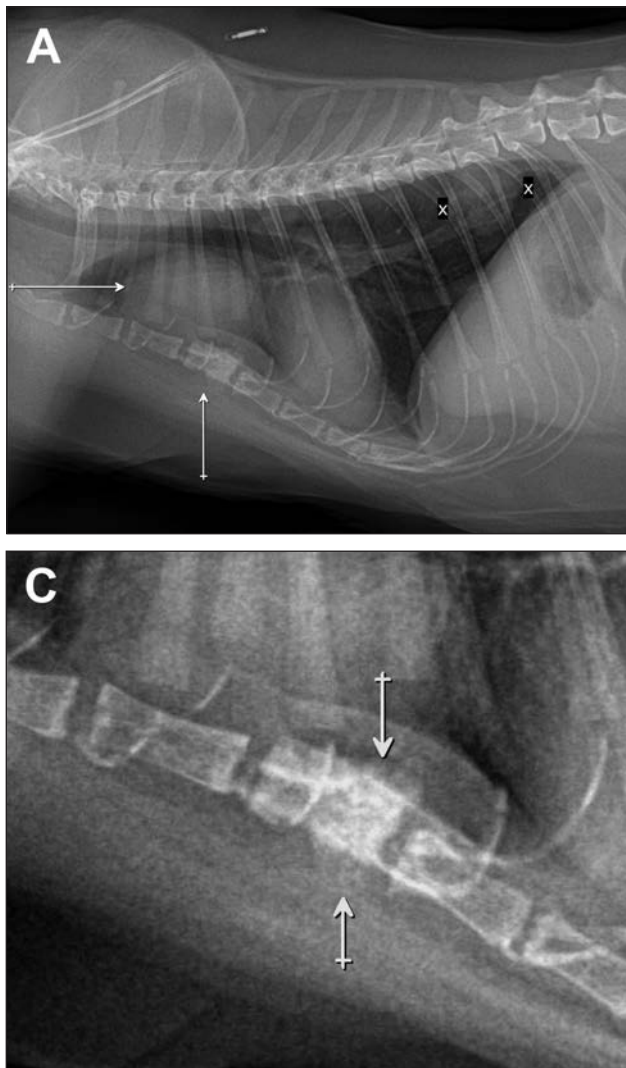


Figure 2—Same lateral (A) and ventrodorsal (B) thoracic radiographic images as in Figure 1. There is a smooth soft tissue opacity in the left cranial aspect of the thorax (horizontal arrows), a smaller and slightly more irregular soft tissue opacity in the dorsal portion of the left caudal lung lobe (crosses), and irregular sclerosis and mild periosteal proliferation at the fourth sternebra (vertical arrow). C—Close-up radiographic view of the sternal lesion, with contrast and brightness adjusted to make the periosteal proliferation (vertical arrows) more conspicuous.

Diagnostic Imaging Findings and Interpretation

A 2.8 X 3.2 X 4.0-cm soft tissue mass with very smooth margins is present in the cranioventral aspect of the thorax (Figure 2). It causes dorsal deviation of the trachea. There is also a round 2.2 X 2.0 X 2.4-cm soft tissue mass in the dorsal aspect of the left caudal lung lobe. The caudal aspect of the fourth sternebra is sclerotic, with faint periosteal proliferation seen ventrally and dorsally.

The mass in the cranioventral aspect of the thorax is likely in a mediastinal location, based on the tracheal deviation. The differential diagnosis for this lesion includes neoplasia (eg, lymphoma or thymoma), abscess, and branchial or thymic cyst. The differential diagnosis for the pulmonary mass includes primary pulmonary neoplasia (eg, carcinoma or adenoma), with metastatic neoplasia, abscess, and granuloma considered less likely. The aggressive appearance of the fourth sternebra suggests osteomyelitis, primary skeletal neoplasia (eg, chondrosarcoma), metastatic neoplasia, or soft tissue neoplasia invading the sternebra. Previous trauma is another consideration. Thoracic ultrasonography was

performed. The cranial mediastinal mass was a thin-walled structure containing anechoic fluid, consistent with a cyst. The pulmonary mass was hypoechoic and irregularly marginated and contained small foci of trapped gas. A small (8.4-mm) ovoid hypoechoic nodule in the adjacent intercostal musculature was also detected. A partially mineralized hypoechoic mass measuring 2.47 cm in length originating from the fourth sternebra was also identified.

Treatment and Outcome

Fine-needle biopsy specimens were obtained from the pulmonary mass and sternebra mass, with ultrasonographic guidance. Pulmonary adenocarcinoma at both sites was the cytologic diagnosis. The patient continued to decline despite supportive therapy and was euthanized. Necropsy was not performed.

Comments

Adenocarcinoma is the most common pulmonary cancer in dogs and cats¹ and, as in the case described in this report, has a tendency to occur in the caudal lung lobes. Metastasis to other lung lobes, liver, and regional lymph nodes is expected behavior; however, transpleural metastasis can also occur.¹ The small intercostal nodule in the cat of the present report may have been

an example of transpleural metastasis, although this was not confirmed. Other reports of pulmonary adenocarcinoma in cats have included metastasis to forelimb and hind limb muscles² and embolism in appendicular arteries.³ However, to the authors' knowledge, there have been no reports of cats with pulmonary adenocarcinoma and sternebral metastasis.

The clinical signs in this patient were nonspecific and were not indicative of intrathoracic disease; moreover, findings on thoracic auscultation were within reference limits. Therefore, this case illustrates the importance of radiographic screening as part of a complete database. Radiography can detect and localize subclinical intrathoracic lesions, as in the cat of this report. Size, shape, number, location, and opacity of lesions are characteristics that aid in establishing a differential diagnosis. Ultrasonography is a useful adjunct to radiography for assessment of intrathoracic lesions if free gas or aerated lung is not interposed between the ultrasound probe

and the lesion.⁴ Ultrasonography contributes information regarding the internal architecture of structures (eg, presence of fluid, gas, radiolucent foreign bodies, subtle mineralization, and evidence of necrosis) that may not be possible with radiography. Ultrasonography also provides a means of guiding percutaneous biopsy sample collection or aspiration with real-time observation of pulmonary and cardiac movement.

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