History

A 4-year-old castrated male domestic medium hair cat was evaluated because of a 2-week history of progressive right hind limb lameness, difficulty jumping, decreased appetite, and constipation. No abnormalities were detected on CBC and serum biochemical analysis. Serologic results of FeLV antigen testing, FIV antibody testing, and Toxoplasma antibody testing were negative. No abnormalities were evident on thoracic radiographs. Prior treatment with SC fluid therapy, corticosteroids, stool softeners, and enemas did not improve the patient’s clinical signs.

Physical examination revealed a body condition score of 7 of 9, firm feces detected on abdominal palpation, weight-bearing right hind limb lameness, and signs of pain on manipulation of the right hip joint. Findings on neurologic examination were unremarkable. Abdominal and pelvic 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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Radiographic Findings and Interpretation

A monostotic lesion is evident at L7 with extensive remodeling and smooth bony proliferation along the ventral aspect of the vertebral body (Figure 2). There is collapse of the L6-7 intervertebral disk space (thin arrow). The left pedicle is destroyed, and the right pedicle is deformed (arrowheads).

Treatment and Outcome

The cat was hospitalized for rehydration, supportive care, and pain management. The owners declined further diagnostic testing, including CT, MRI, or fine-needle aspiration and biopsy of the lesion. The patient was discharged from the hospital. The cat received 2 weeks of treatment with prednisone (0.5 mg/kg [0.23 mg/lb], PO, q 24 h), buprenorphine (0.013 mg/kg [0.007 mg/lb], PO, q 8 h), famotidine (0.4 mg/kg [0.18 mg/lb], PO, q 12 h), and lactulose (0.5 mL/kg [0.23 mL/lb], PO, q 8 to 12 h).

The owner reported that the patient’s clinical signs completely resolved with treatment.

The patient was returned to the hospital at 11 months after the initial evaluation because of a 1-week history of recurrent and more severe right hind lameness, new right hind limb conscious proprioceptive deficits, and progressive signs of pain in the lumbar area. Radiographs of the lumbosacral area revealed the progressive and aggressive nature of the lesion (Figure 3), which was consistent with neoplasia or osteomyelitis. Fluoroscopic-guided fine-needle aspirates of the osseous lytic tissues at L7 were obtained with the patient anesthetized. Findings on cytologic evaluation were consistent with a malignant mesenchymal tumor.

The owners declined further care, including more aggressive pain management, chemotherapy, or palliative radiation therapy, and elected for euthanasia. Necropsy revealed a large solitary nodular mass within the dorsal aspect of the soft tissues adjacent to and associated with L7 with no evidence of gross metastatic disease. Nerve ganglia and fibers were variably degenerated because of tumor compression, likely causing the patient’s neurologic signs. Histologic examination also confirmed frequent tumor osteoid and highly mitotic spindle-shaped cells infiltrating the adjacent vertebral bone, warranting a diagnosis of osteosarcoma. Ultimately, the histologic findings could not be used to confirm whether the tumor originated in bony or soft tissue structures. The monostotic nature of the radiographic findings and the patient’s clinical progression were considered most consistent with osteosarcoma of bony origin.

Comments

Although osteosarcoma is the most common primary bone tumor in cats, it is rare, accounting for < 6%
of all neoplasms. Even rarer in feline patients is the occurrence of osteosarcoma in the axial skeleton, particularly the vertebral column. Extraskeletal osteosarcoma in cats has been reported for visceral organs, eyes, and mammary glands and in subcutaneous tissues in areas of previous injection. In general, osteosarcoma in cats has a lower metastatic potential, compared with its canine counterpart, and if tumor location permits removal, complete resection can be curative. Adjunctive chemotherapy or radiation therapy may contribute to longer survival time in feline patients with nonresectable tumors.

Radiographic features of osteosarcoma in cats are variable. One study in cats found that axial osteosarcoma was more likely to have a sclerotic radiographic appearance rather than lysis. Additionally, aggressive periosteal proliferation, often seen in dogs with osteosarcoma, is not a common radiographic feature of osteosarcoma in cats. In the case described in the present report, CT and MRI would have been beneficial advanced imaging modalities for further evaluation of precise tumor location, spinal cord compression, and pathological changes.