Thoracic Vertebral Osteoma in a Domestic Ferret (*Mustela putorius furo*)

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Abstract

A 1-year-old female ferret was presented for an acute onset of hind limb paralysis. The animal had a history of difficulty urinating and defecating for several weeks. A firm, smooth, nonsensitive mass was palpated in the thoracic spine on physical examination. Fine-needle aspirate was compatible with a neoplasia, and the animal was eunthanized because of a poor prognosis. Osteoma was confirmed on histopathologic examination. This is the first reported case of an osteoma involving the thoracic vertebrae in a ferret. Copyright 2008 Elsevier Inc. All rights reserved.

Key words: ***Mustela putorius furo*****; ferret; spine; osteoma; neoplasia; paralysis**

A 1-year-old female domestic ferret (*Mustela putorius furo*) was presented for consultation for acute loss of mobility in the hind limbs. The owners reported a history of sudden hind limb paralysis beginning 24 hours previously. The animal had difficulty urinating and defecating for 2 weeks, but no episode of trauma was observed. The ferret's appetite was normal, and the ferret was kept indoors and fed a commercial ferret food.

On physical examination, color of the mucous membranes, hydration status, body condition, temperature, and heart and respiratory rates were within normal limits. The animal presented with bilateral flaccid paralysis, loss of proprioception, reduced withdrawal reflexes, and absence of deep pain perception in the hind limbs. The remainder of the neurologic examination was within normal limits. A firm, smooth, nonsensitive mass (1.5 cm in diameter) was palpable on the thoracic spine.

Survey radiographs revealed an osseous proliferation in T8, with marginal involvement of T7 and T9 (Fig 1). The mass was focal and irregularly mineralized, and had extensions ventrally, dorsally, and left laterally. Intervertebral disc spaces at T7-T8 and T8-T9 could be identified. The body and spinal process, together with the proximal section of the eighth left rib, were difficult to distinguish from the mass.

A fine-needle aspirate performed with the ferret under isoflurane anesthesia showed osteoblasts with some characteristics of neoplasia such as basophilic cytoplasm and eccentric nuclei with 2 nucleoli (Fig 2). Because of the ferret's severe neurologic deficits and poor prognosis, the owners requested euthanasia.

At necropsy, gross inspection of the spinal section showed a round, smooth-bordered mass arising from the body of T8 (Fig 3). Although there was dorsal involvement of the spinal process, the bulk of the

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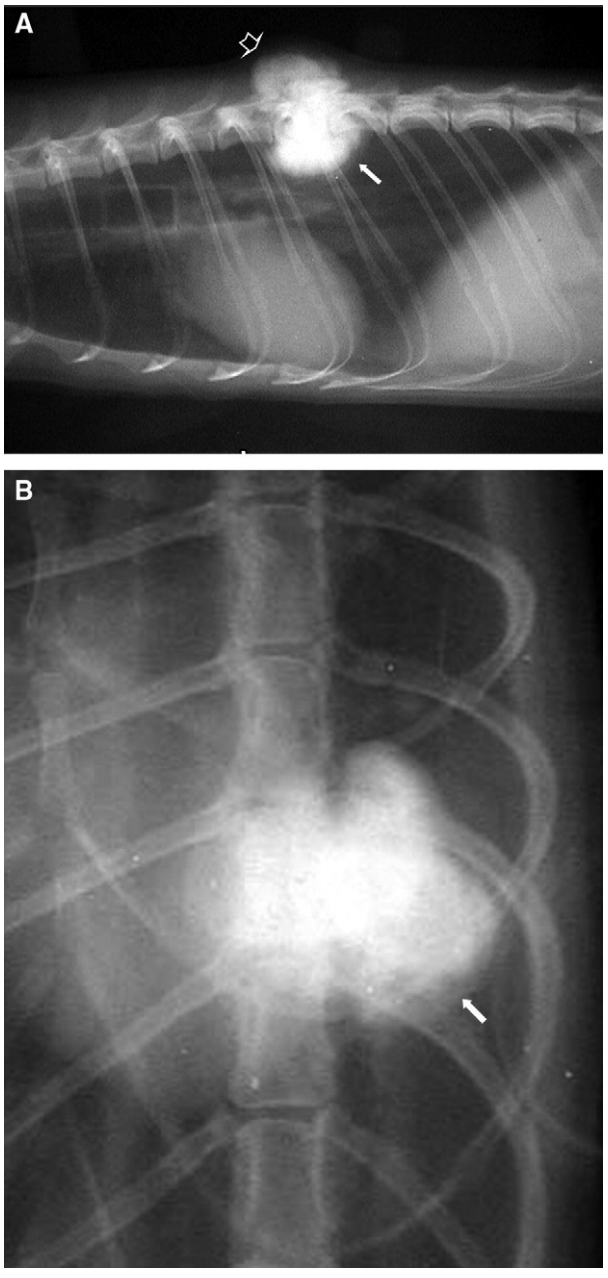

Figure 1. Survey radiographs of a ferret presented for bilateral hind limb paralysis. Note the mass involving the eighth vertebra (*arrows*). *A*, Lateral view, in which a dorsal portion of the mass (*black arrow*) can be differentiated from a ventral one (*white arrow*). *B*, Ventrodorsal view, in which the mass can be seen expanding laterally to the left (*arrow*) and affecting the proximal space between the eighth and ninth ribs.

proliferation was ventral and left lateral to the body of the vertebra. The mass also occupied the proximal space between the eighth and ninth left ribs. The vertebral column between T6 and T9 was sent for microscopic analysis. Decalcification was required before histologic examination could be made. Different sections of bone corresponding to the mass and the vertebrae involved were assessed. Histologically, the tumor was composed of dense coalescing spicules and trabeculae of bone lined by the usual complement of osteoblasts and osteoclasts (Fig 4). The intertrabecular connective tissue was composed of spindle cells and became increasingly sparse as the tumor became more compact. In some places, there was a complete obstruction of the lumen of the vertebral canal because of these bone proliferations. The histopathologic diagnosis was osteoma.

Discussion

Osteomas are slow, progressively growing, bone-producing lesions that may cause clinical problems by placing pressure on adjacent structures or by obstructing surrounding cavities, passages, or vascular channels.[1-3] In humans, osteomas affect young people (usually less than 30 years old),[3,4] and a preponderance for males has been observed.[5] Osteomas are rare in the dog; young animals under 3 years of age are most commonly affected, and osteomas generally arise in the skull and mandible.[6,7] In some strains of mice, osteomas are particularly common and have a predilection for the skull and the larger bones of the limbs, although vertebral osteomas have rarely been cited.[6,8] Osteomas are rare in ferrets.[9-11] Skull osteomas have been described in animals ranging from 4 to 7 years of age,[1,2,12] and osteomas affecting the ribs have also been mentioned in the literature.[13] Osteomas affecting the spine of ferrets have not been found in the literature.

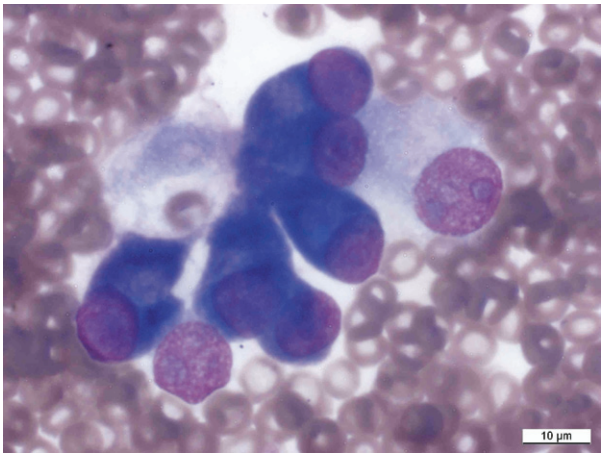

Figure 2. Fine-needle aspirate cytology of the vertebral mass from a ferret presented for bilateral hind limb paralysis. Relatively well-differentiated osteoblasts with eccentric nuclei and basophilic cytoplasm are shown. Some of the nuclei have 2 nucleoli. Diff-Quik (Diagnostic Grifols SA, Barcelona, Spain).