Canine x Feline Osteosarcoma: pathological insights concerning prognosis differences in two animal models.

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Introdução

Introduction: Osteosarcoma (OSA) comprises 85% of malignant primary bone tumors in dogs and 70% in cats[1]. Despite being less frequent in feline species, cats seem to develop OSA at an older age than dogs. Also, feline OSA clinical course is slower than canine OSA, and concerning appendicular OSA, amputation is reported as curative, without later metastasis development[1]. Canine OSA is the actual animal model to human OSA, however, even in dogs, OSA subtype is still controversial, specially regarding prognosis[2-6].

Objective: To evaluate imaging and histopathological data from six canine and feline OSA clinical cases, identifying histological subtype in each species. Then, to evaluate differences concerning OSA subtypes between canine and feline species and to compare these features with human OSA subtype information.

Casuística e Métodos

Methods: Study approved by UFF Ethics Committee in Animal Use (protocol 8541040818). Inclusion criteria was thoracic limb affected location. Hence, six appendicular OSA from three dogs and three cats were revised from LAPV-UFF archives. Canine OSA were from humerus (2) and radius (1) and feline OSA were from radius (2) and humerus (1). Radiographic and pathological data was retrieved. Histological canine and feline OSA section, stained with hematoxylin-eosin, were revised by the same pathologist, blindly from clinical and radiographic information, and classified according to World Health Organization proceedings[7]. OSA subtype was then compared to human OSA pathological characteristics. Results were evaluated by descriptive statistical tools.

Resultados

Results: Canine and feline OSA affected bones were those cited as most common concerning thoracic limb[1-4]. All humerus were affected on proximal metaphysis, a site considered of poor prognosis in dogs[4]. Canine OSA radiographic imaging presented mixed to sclerotic (productive) pattern (Fig. 1A). Feline OSA imaging presented predominant lytic pattern (Fig. 1B). Concerning OSA subtype, all three canine OSA were classified as productive osteoblastic OSA, with disorganized, neoplastic osteoid lacunae surrounded by malignant osteoblasts (Fig. 2A), with anisocytosis and evident nucleoli. All three feline OSA were classified as fibroblastic OSA, with scarce osteoid material and spindle cells disposed in bundles. A higher number of giant cells were observed in feline OSA (Fig. 2B) when compared to canine OSA.

Resultados

No metastatic disease was found in two feline records. One cat was lost in follow-up. All three dogs were amputated but developed multiple site metastasis afterwards; pulmonary parenchyma being a convergent metastatic site.

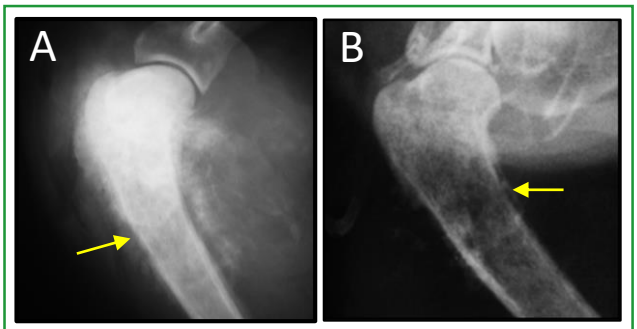

Figure 1: Thoracic limb radiography, medio-lateral view: (A) Canine, OSA, proliferative neoplastic bone on proximal metaphysis. (B) Feline, OSA, lytic neoplastic lesion on proximal metaphysis. Despite radiopacity differences, both images present evidence of cortical rupture (arrow).

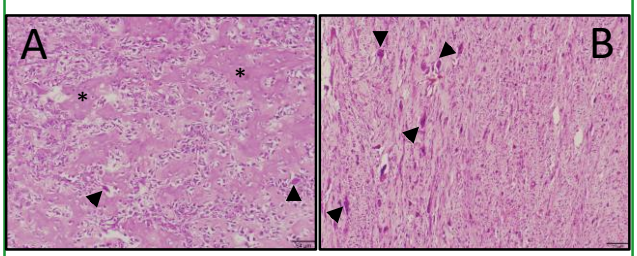

Figure 2: Photomicrography, OSA: (A) Canine, productive osteoblastic OSA, with neoplastic osteoid lacunae (asterisk) surrounded by malignant osteoblasts and few giant cells (arrow heads). (B) Feline, fibroblastic OSA, with scarce osteoid material, malignant osteoblasts disposed in bundles and many giant cells (left, arrow heads).

Conclusões

Conclusions: Canine and feline OSA subtype were different as well as their main radiographic feature. High giant cell number observed in feline fibroblastic OSA can be related to better prognosis and treatment response, similar to recent reports in human OSA[7] but differing from canine OSA, with early metastasis development. Further studies concerning canine and feline OSA subtype differences can elucidate prognosis and treatment response of human OSA by translational studies in animal models

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Contato

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