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REGIONE AUTONOMA DE SARDIGNA
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P118 - A CASE OF BRONCHIOLOALVEOLAR CARCINOMA - ASSOCIATED SYSTEMIC TOXOPLASMOSIS IN A MOUNTAIN LION (*PUMA CONCOLOR*)

Galosi Livio (1), Mangiaterra Sara (1), Gambi Raffaello (2), Piccinini Renato (2), Veronesi Fabrizia (3), Filippo Bertero (3), Mari Subeide (1), Rossi Giacomo (1).

(1) Università di Camerino, Scuola di Bioscienze e Medicina Veterinaria. (2) Parco Zoo Falconara. (3) Università di Perugia, Dipartimento di Medicina Veterinaria.

Spontaneous lung tumors are more frequently in dogs, cats and sheep, but rarely described in wildlife animals. In dogs and cats this neoplasia occurs as a sporadic geriatric disease, not related to any infectious etiology, while a betaretrovirus is responsible for pulmonary adenocarcinoma in sheep [1]. We described, for the first time, a case of lung cancer in a 6 year-old mountain lion (*Puma concolor*), serologically negative for Feline immunodeficiency virus (FIV) and Feline leukemia virus (FeLV), maintained in captivity in the Falconara Zoo Park, Ancona, Italy. In August 2017, this malnourished adult male, was present with signs of dyspnea, cyanosis and drooling, followed by sudden death. Postmortem examination was performed. Gross necropsy and histopathologic examination revealed nodules of different sized and coalescing whitish areas of lung parenchyma consolidation, associated to multifocal atelectasis alternated with discrete emphysema. The toracic cavity was replete of yellowish exudate, cytologically characterized by degenerated neutrophilic cells and lipids enriched. Additionally a necrotizing, multifocal myocarditis and necrotizing, neutrophilic, and histiocytic interstitial nephritis were observed. In this animal a concurrent systemic toxoplasmosis, with merozoites found also into neoplastic carcinomatous cells was also detected. According to the classification of the main respiratory tumors types observed in dogs and cats, classified as acinar adenocarcinoma, bronchiolo-alveolar carcinoma, adenosquamous and squamous cell tumors [2], the histopathological examination of lung masses in this mountain lion revealed neoplastic epithelial cells compatible with bronchioloalveolar carcinoma (BAC). The immunohistochemical analysis of tumor cells showed positive labeling for pan-Cytokeratin, CK 7, CK 20 and TTF-1. According to macroscopic features, as well as histological and immunohistochemical findings, this tumor was diagnostic as BAC mixed subtype. Histology revealed a large amount of tachyzoites inside different tissues, as well as spleen, lymph nodes and also many neoplastic cells. An anti-*Toxoplasma gondii* monoclonal antibody stained positively these tachyzoites, and polymerase chain reaction (PCR) analysis targeting the B1 gene, confirmed the presence of *Toxoplasma gondii* in all the examined organs. The high parasitic burden detected inside neoplastic cells may be related to an opportunistic relationship by the parasite and the cancerous cells that showing an enhanced metabolic rate and scant differentiation.

[1] Palmarini M, Fan H. Retrovirus-induced ovine pulmonary adenocarcinoma, an animal model for lung cancer. *J Natl Cancer Inst.* 2001;93(21):1603-14.

[2] Dongfeng T, Zander DS. Immunohistochemistry for assessment of pulmonary and pleural neoplasms: a review and update. *Int J Clin Exp Pathol.* 2008;1(1):19-3110.