Anthracosis in a Baboon From a Zoological Garden. A Case Report

Flavia RUXANDA¹, Adrian Florin GAL¹, Bianca BOȘCA², Bianca MATOSZ¹, Vasile RUS¹, Cristian RAȚIU³* and Viorel MICLĂUȘ¹

¹Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania.
²Faculty of Medicine, „Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca, Romania.
³Faculty of Medicine and Pharmacy, University of Oradea, Romania.
*corresponding author: ratiu_cristian@yahoo.com

Abstract
Anthracosis is a disease encountered in both humans and animals. The present study was conducted on a baboon from a zoological garden, which died of natural causes. During morphopathological examination, we observed pulmonary anthracosis, with coal particles in both macrophages’ cytoplasm and free in septa, interstitium and pleura. The pulmonary anthracosis was moderate, thus the structural and functional changes were minimal and the disease evolved without any clinical manifestation.

Keywords: anthracosis, baboon, macrophage, zoo.

INTRODUCTION
Anthracosis belongs to pneumoconioses group and its etiology can be ascribed to: coal dust in air, living in a polluted environment, smoke from biomass etc. (Bilici et al., 2003). We usually encounter the pulmonary form, but other forms, such as mediastinal and esophageal (Bilici et al., 2003) even hepatic and splenic (Mirsadraee, 2014), were reported.

Attempting to elaborate a database with diseases in baboons, Bommineni et al. (2011) tracked down pulmonary anthracosis in 78 among the 4297 studied animals.

AIMS AND OBJECTIVES
Baboons are useful animal models for medical research, thus description of any kind of pathology can aid in better understanding diseases that emerge in both baboons and humans.

MATERIALS AND METHODS
A 23 old male baboon, with right-sided heart failure condition, accompanied by stasis, died. The animal was subsequently brought to Department of Necropsy Diagnosis at UASVM Cluj-Napoca. During necropsy, we harvested lung samples, which were embedded in paraffin for further histological investigations.

RESULTS AND DISCUSSION
Upon microscopic examination of lungs, we highlighted clusters of macrophages disposed perivascular and perialveolar (Fig. 1.). Their cytoplasm was filled with black particles, which induced hypertrophy and distorted the involved macrophages; the nucleus of these cells was masked by the coal particles.

In areas where macrophages carrying coal particles were better represented, we observed a fibroplazic reaction, represented by a mature fibrous connective tissue. Because of the degenerative necrosis of macrophages, we could identify coal particles with a granular aspect in the perialveolar septa and interstitial tissue (Fig. 2.). These particles were also present in pleura (Fig. 3.). The rest of the pulmonary parenchyma
was normal, without densification foci; instead a mild multifocal septal congestion was observed (Fig. 4).

A similar situation was reported in a monkey from a zoological garden, the authors incriminating urban air pollution as etiological factor (Seema et al., 2010).

The thickening of pleura and fibroplacic reaction suggest that the anthracosis lingered for a period of time, but the presence of free macrophages indicates the fact that the pollutant was still present at the time of death of the animal. Other authors tracked down macrophages filled with pigment particles, upon cytologic examination of the pleural fluid harvested from humans (Pantanowitz et al., 2009).

**CONCLUSION**

The animal taken into study presented mild pulmonary anthracosis, which did not induce major structural and functional alterations, therefore it evolved without clinical manifestation.

**REFERENCES**


