MONOFLUOROACETATE POISONING IN A DOG

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INTRODUCTION: Monofluoroacetate is a pesticide used for pest control, whose commercialization has been banned in Brazil due to its high toxic potential. However, this substance is still naturally found in some plants. The present study aims to describe a fatal case of acute monofluoroacetate poisoning in a dog.CASE REPORT: The case involved an eight-year-old male Border Collie found dead in a 24-hour monitored dog hotel. There was no history of comorbidities or medication use. The facility managers denied any exposure to toxic agents. The animal was sent for necropsy. External examination revealed soiled fur and pale mucous membranes. Upon opening the abdominal cavity, congestion of the serous membranes and liver was observed. The stomach and intestines contained pasty material, grasses, and grayish, dark, and granular structures, along with petechiae on the mucosa. Pulmonary hyperemia, edema, and hemorrhage were noted, as well as sero-hemorrhagic fluid in the pericardial sac; left ventricular hypertrophy, mitral and aortic valvular endocardiosis, and endocardial suffusions. Hyperemia of the meninges was also observed. Samples from all organs were collected and fixed in 10% formalin, processed using conventional methods, and stained with hematoxylin and eosin for histopathological analysis. Based on the macroscopic findings, acute intoxication was suspected. For diagnostic confirmation, a pooled sample of organs was submitted for toxicological analysis and thin-layer chromatography was performed with a complete toxicological panel (including coumarin derivatives, carbamates, organophosphates, monofluoroacetate, and strychnine), yielding a positive result for monofluoroacetate. Microscopically, the lungs showed edema, hemorrhage, congestion, atelectasis, emphysema, and amorphous material in the alveoli. The liver and kidneys had multifocal congestion and hemorrhage. The brain was congested with perivascular edema.DISCUSSION: The anatomic and pathological findings were consistent with poisoning. It is noteworthy that canids are highly sensitive to monofluoroacetate, which acts by inhibiting the Krebs cycle and triggers clinical signs such as hyperexcitability and seizures. Therefore, in addition to pathological analysis, toxicological testing is essential for a definitive diagnosis, especially when the clinical history does not suggest exposure to toxic substances.

KEYWORDS: monofluoroacetate; poisoning; canine; pathology; diagnosis