



E84 Veterinary Forensics: Animal Death Investigations and Veterinary Diagnostic Laboratory Personnel

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Learning Overview: After attending this presentation, attendees will understand the need for early communication and cooperation between law enforcement officials and veterinary diagnostic laboratory personnel in criminal animal death investigations.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by emphasizing the important role of the veterinary diagnostic laboratory in a criminal animal death investigation. A 2018 case involving the death of a police dog will be presented.

In the spring of 2018, a 2-year-old intact male German Shepherd police dog was inside a 20'x20'x8' run in the center of a fenced yard while the dog's handler was away for several hours. The handler returned home and found the dog deceased. Several piles of vomit containing hot dog pieces were on the kennel floor. The handler had not given the dog any hot dogs in the past 48 hours. The handler rushed the dog to a veterinarian, who pronounced the dog dead. Malicious poisoning was strongly suspected due to the sudden death of a young, healthy dog, and the vomited hot dog pieces. The scene was photographed, and evidence was collected and taken to the state crime laboratory.

The veterinarian performed a gross postmortem examination. Tissue samples were collected, and formalin fixed. Fresh liver, heart blood, and urine were also collected. Samples and the dog's remains were submitted to a veterinary diagnostic laboratory for histological examination and toxicological analysis. The investigating detective requested analysis for drugs of abuse. The laboratory did not have the instrumentation to perform all requested analyses. The University of Kentucky Veterinary Diagnostic Laboratory (UKVDL) Toxicology section was consulted and received samples from the initial veterinary diagnostic laboratory as well as the state crime laboratory. Urine and hot dog pieces were analyzed via Gas Chromatography/Mass Spectrometry (GC/MS), Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), and high-resolution LC/MS. Very high concentrations of caffeine were detected in both the urine and the hot dog pieces. Lower concentrations of theobromine and theophylline were also detected in the hot dog. No illicit or prescription drugs, pesticides, herbicides, or other compounds detectable by these methods were present. Caffeine can cause agitation, tachycardia, vomiting, diarrhea, muscle tremors, and seizures in dogs. Caffeine can be lethal to dogs at high concentrations (minimum lethal dose in dogs is estimated at 110mg/kg body weight), and in this case was considered the likely cause of death. However, remains were not grossly examined by a board-certified veterinary pathologist, and histological examination was limited to samples collected by the veterinarian. Potentially valuable samples were stored inappropriately, misidentified, or not collected. Only one sample—the hot dog pieces from the state crime laboratory—arrived with a chain of custody. In animal cruelty cases, animals and excretions are important evidence. Following proper evidence handling protocol ensures the best chance of a successful prosecution.

Early consultation with veterinary diagnostic laboratory personnel in criminal animal death investigations is critical to ensure appropriate sample collection, storage, and analysis. A thorough postmortem examination by a qualified veterinary professional (ideally a board-certified veterinary pathologist) is vital to determining cause and manner of death. A complete, accurate history is essential to interpret postmortem examination findings and to direct additional testing. Communication and collaboration between police and veterinary diagnostic laboratory personnel from the outset ensures the best results in criminal animal death investigations.

Veterinary Forensics, Animal Cruelty, Veterinary Diagnostic