Cancer, Contagions, or Cruelty? A Collection of Small Animal Forensic Cases

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Veterinary Forensics

Veterinary forensics is an emerging and rapidly growing discipline. Veterinarians are at the forefront of identifying potential cases of animal cruelty, and the ability to recognize signs of animal cruelty in the live patient is a critical skill for the practitioner. The link between animal cruelty and domestic violence, child abuse, and/or elder abuse is also well-established, making this field even more crucial in protecting the wellbeing of animals and people. The introduction of federal and state legislation intended to protect animals is likely another factor in the emergence of veterinary forensics, and all 50 states have established felony-level penalties for intentional cruelty toward animals. Many states also have laws that include the veterinarian's responsibility in reporting cases of suspected animal cruelty. In Oklahoma, veterinarians are required by law to report suspected animal abuse cases to local law enforcement and have immunity from civil liability for reporting such cases.

To successfully prosecute and convict perpetrators of animal abuse or intentional neglect, strong and objective evidence must be presented. Veterinarians play a vital role in this process as authorities on animal wellbeing and health. Success in this role relies heavily on knowledge and training in veterinary forensics that, until recently, was not widely available. As interest in veterinary forensics has grown, so has the number of evidence-based publications and literature to help the veterinarian serve as an expert in this discipline. Additional training programs in veterinary forensics are also available to licensed practitioners including graduate programs at the University of Florida's College of Veterinary Medicine and the American Society for the Prevention of Cruelty to Animals (ASPCA). These training programs can help the small animal practitioner learn the necessary skills to recognize, respond to, and help prevent animal cruelty in the live patient; participate in animal crime scene processing; handle, document, and interpret evidence; and much more. Currently, veterinary forensics is not a formally recognized specialty.

Veterinary Forensic Pathology

Veterinary forensic pathology involves the postmortem examination of animals suspected of being harmed or killed intentionally, animals that have been harmed or died due to neglect, and/or animals used as part of criminal activity. Any licensed veterinarian may perform a forensic necropsy, though it is highly recommended to consider submitting such cases to a boarded veterinary pathologist. However, in some instances it may not be possible for the veterinarian to utilize a veterinary pathologist. In those cases, consultation with a diagnostic laboratory is strongly encouraged to ensure appropriate samples are collected and submitted for ancillary testing. Additionally, the diagnostic laboratory can recommend ancillary testing following the forensic necropsy findings. The veterinarian that attempts to perform a

forensic necropsy without consulting a veterinary diagnostic laboratory and/or a veterinary pathologist increases their risk of inaccurate lesion identification, inappropriate or incomplete sample submissions, and/or inadequate documentation; this may result in an inability to prosecute, even if a crime was perpetrated.

Relationship Between the Veterinarian and Veterinary Pathologist in Forensic Cases

The veterinary practitioner is often the first line of defense in recognizing animal neglect or cruelty. It is not the veterinarian's responsibility to decide if their findings are worthy of prosecution, nor is it their responsibility to know definitively that cruelty or neglect are occurring. Rather, the veterinarian's role is to report objective observations discovered during professional interactions with the animal(s) and client(s). Furthermore, the veterinarian is not required to (and likely should not) report claims made by the client that abuse of an animal is occurring if the history and clinical presentation do not fit with the claim. The client may be making false claims or has drawn conclusions based on lack of scientific knowledge. For example, a partially dismembered stray cat found deceased in a neighborhood may result in fears of malicious intent by members of the public; but the animal may have died of natural causes (i.e., predation). This highlights the critical role of the veterinarian in using their scientific expertise to accurately recognize and identify maltreatment of animals.

A veterinary practitioner may witness signs of neglect in an individual animal or on a larger scale (i.e., hoarding). Common signs of neglect may include poor body condition, overgrown nails, severe matting of fur/hair, severe dental disease, severe parasitism (external or internal), and/or infection with preventable diseases (e.g., via vaccination, flea/tick preventative, etc.). In large-scale neglect some additional findings may include the client using several different veterinary offices and ownership of many animals with poor continuity of care.

Intentional cruelty to animals can take many forms including blunt force trauma, sharp force trauma, asphyxiation, projectile injuries, and thermal injuries. The veterinarian plays a critical role in recognizing intentional cruelty through determination of whether the reported history of the injury matches with its presentation. The client may also change their story about the event leading to the injury, and the veterinarian may find many injuries throughout the body in various stages of healing. Unexplained rib and skull fractures are also concerning.

Accurate documentation of these encounters and involving law enforcement when these suspected cases occur is vital in establishing evidence. Prior to the postmortem examination, all medical reports, investigative reports, photographs, diagnostic imaging, tissue and non-tissue samples, and the animal's body must be handled according to a rigorous chain of custody protocol. A secure chain of custody is vital for evidence being admissible in court.

Veterinary practitioners can also be involved in investigation of crime scenes, where their experience and expertise may be vital in recognizing evidence that could be overlooked. They can also contribute significantly to crime scene analysis, and examination of live victims removed from crime scenes. As previously mentioned, additional training is available for those that are interested.

If the forensic necropsy is performed by a veterinary pathologist, pertinent prior medical history provided by the veterinary practitioner can be crucial in helping establish a pattern of neglect and/or intentional cruelty. The veterinary pathologist solely focuses on the postmortem animal and the diagnostic testing that follows necropsy.

What does a Forensic Necropsy Entail?

In some ways, a forensic necropsy is like any other postmortem examination. It involves thorough, systematic examination of the animal and collection of appropriate formalin-fixed and fresh tissue samples. The goal of the forensic necropsy is to help determine what led to the death of the animal (cause of death); the physiology that resulted in death (mechanism of death); and whether the death was natural, accidental, or intentional. In some cases, a definitive cause of death cannot be determined through no fault of the individual performing the postmortem examination.

Photography is an important component of any necropsy, but in a forensic investigation photographic documentation is typically more extensive. Photographs must include the animal's identification or accession number and a measuring scale. Full body radiographs are recommended to help with localizing lesions (particularly musculoskeletal), microchips, and/or projectiles. The animal should be scanned for a microchip and the number should be recorded. Radiographs must be appropriately labeled with patient identification and left and right markers. A thorough external examination may involve removing skin from the entire animal to localize small puncture or penetrating wounds and identify subcutaneous hemorrhages. Internal examination should include investigation of all organs and tissues. Formalin-fixed and fresh tissue samples should be collected and stored appropriately. Guidelines for sample submission to diagnostic laboratories vary, so it is recommended to check prior to submission. The Oklahoma Animal Disease Diagnostic Laboratory (OADDL) provides a catalogue for all available tests with specific recommendations for shipping.

Following necropsy, an objective, scientific report of the findings should be generated. Over interpretation or speculation should be avoided. Following gross (macroscopic) evaluation, microscopic evaluation of tissues is almost always required. Additional ancillary testing may be recommended immediately following gross necropsy or suggested following microscopic evaluation. In some instances, further ancillary diagnostics are not necessary. Samples may need to be stored for an extended period of time. At OADDL, samples are stored for 30 days.

Collaboration with animal control, law enforcement, and prosecutors occurs throughout the forensic investigation. The veterinarian or veterinary pathologist performing the necropsy should be prepared to testify in court. Often, testifying occurs months or even years after the initial necropsy is performed.

Common Questions Regarding Forensic Cases

- **Is the animal too autolyzed to submit?**
    - This common question unfortunately does not have a straightforward answer. Postmortem autolysis may hamper microscopic evaluation to an extent, depending on

severity of the autolysis. Before submitting, it is recommended to contact the diagnostic laboratory, and potentially send pictures to help guide recommendations. Even in cases of severe autolysis, some ancillary testing may be possible to help establish evidence that animal abuse or neglect occurred.

- **The animal was frozen, can we still submit?**
    - Yes, but there may be freeze-thaw artifact resulting in reddening of tissues and increased serosanguinous fluid in body cavities. Microscopic evaluation may also be hampered to an extent due to these artifacts. Frozen animals are typically thawed gradually at room temperature, to help preserve microscopic architecture as much as possible.
- **Can we start with toxin testing first?**
    - This is typically not recommended unless there is clear evidence of toxin exposure through identification of suspicious stomach contents or in the history (e.g., animal was observed ingesting the toxin, suspect admitted to poisoning the animal, etc.). Following macroscopic evaluation of the animal, microscopic evaluation is recommended to ensure there are no obvious inflammatory, infectious, neoplastic, etc. processes that contributed to or led to the animal's demise. If results are still inconclusive, toxicology testing is often recommended at that point.
- **When will a report be generated for the case?**
    - A final, complete report will be generated once all ancillary testing is complete. This prevents preliminary findings from becoming part of "discovery," where all legal parties have access. The preliminary findings include gross observations only, and often microscopic evaluation and ancillary testing are needed to help better characterize the findings. The final report will summarize all findings, data, and documentation. Photos are often available upon request.
- **Can I perform the necropsy and send you tissues for ancillary testing?**
    - Yes, but it is highly recommended to contact the diagnostic laboratory first so they can help with recommendations for sample collection, lesion identification, and ancillary testing recommendations. It is strongly recommended to submit both fresh and formalin-fixed samples. If inappropriate or inadequate samples are submitted this can greatly limit testing options and prevent reaching a conclusive answer. Whenever possible, it is best to submit the entire animal to a diagnostic laboratory.
- **I'm not sure if this case is truly "forensic." How should I proceed?**
    - If an individual is suspicious that the death of the animal occurred due to malicious intent, it is recommended to request a forensic necropsy. This will ensure proper documentation and evidence collection at the beginning of the examination. Of note, forensic necropsies usually incur additional fees due to the increased time it takes, increased documentation, increased sample collection, and possibly extended storage of samples.

Common Scenarios Requiring a Forensic Necropsy

Below are some of the more common reasons there is a request for a forensic necropsy. These scenarios will be discussed in greater detail during the lecture. Outlined are some potentially important historical questions regarding the antemortem animal that may help build evidence in the case.

- **Emaciated/Thin Animal**
  - Did the animal have a history of internal parasitism?
  - Did the animal have a history of vomiting and/or diarrhea?
  - Did the owner decline any recommended treatments for diagnosed, preventable gastrointestinal disease?
  - What was the time course for loss of body condition?
- **Suspected Heatstroke**
  - Record date and location animal was last seen alive.
  - Record date and location animal was found deceased.
  - Record ambient temperature where animal was found.
  - Record temperature of the animal at time of discovery.
- **Suspected Poisoning**
  - Record date and location animal was last seen alive.
  - Record date and location animal was found deceased.
  - Did the owner express any concerns about threats made toward the pet?
  - Does the owner have a history of unexplained deaths of other pets?
- **Blunt force trauma**
  - Record any superficial or concerning external observations.
  - Include any documentation of prior injuries.
  - Does the owner have a history of unexplained deaths of other pets?
  - Does the owner have conflicting history regarding injury to the pet?
- **Projective/puncture trauma**
  - Perform postmortem radiographs of the animal.
  - Record any superficial or concerning external observations.
  - Include any documentation of prior injuries.
  - Does the owner have a history of unexplained deaths of other pets?
  - Does the owner have conflicting history regarding injury to the pet?

Conclusion

Veterinary forensics is a growing field that is heavily dependent on knowledge of the veterinary practitioner and veterinary pathologist. The practitioner is often the first line of defense in recognizing and reporting animal cruelty cases. It is strongly recommended that all suspected forensic necropsy cases are submitted to a veterinary pathologist for postmortem examination. However, if that is not feasible, the veterinarian is strongly encouraged to collaborate with their diagnostic laboratory for consultation.

References (available upon request)