

A forensic or legal necropsy as defined by the purposes of the Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) is a necropsy done to attempt to determine the cause of death in cases where the death is known or suspected to be non-natural, there are suspicious circumstances, or there is evidence of foul play. They tend to be most useful to aid law enforcement in criminal investigations, particularly those involving animal cruelty. Forensic necropsies take significant time and effort with added costs. Not all necropsy cases require a forensic necropsy.

What is a forensic necropsy?

A forensic necropsy, also known as autopsy, is a detailed, step-by-step postmortem examination of an animal's body with emphasis placed on evidence collection and photographic documentation to aid in law enforcement investigations. Ideally, a forensic necropsy begins at the crime scene, with photos taken from law enforcement to show the pathologist what has transpired. A chain of custody should arrive with the animal. Radiographs are required in many cases, particularly to evaluate for broken bones or when retrieving gunshot pellets. Numerous photographs are taken from the start of the case and throughout the necropsy. At necropsy, the pathologist evaluates the animal for injuries, diseases, and other abnormalities and then writes a detailed report documenting all the findings. Evidence for potential use in an investigation is collected and can include things like collars, chains, insects, soil, projectiles, etc. Samples of tissue and/or bodily fluids are collected and saved for additional testing such as histopathology, microbiological studies, toxicology, etc. Forensic necropsies take several hours to complete.



Not every animal death requires a forensic necropsy. Many times, a regular necropsy is sufficient to diagnose the cause of death in animals. TVMDL sees many clients wanting to choose a forensic/legal necropsy option when their animal had a sudden death. Sudden death is defined as unexpected death occurring in less than 1 hour with no obvious or recognized preceding clinical signs. In dogs, the top causes of sudden death are neoplasia, cardiac disease, respiratory disease, gastrodilatation and volvulus, foreign body ingestion with perforation, and motor vehicular trauma. For cats the top causes of acute death are cardiac disease, trauma (predation in indoor-outdoor cats), and inflammatory conditions (Margaret Stalker, University of Guelph, ON, AHL Newsletter 2019;23(4):16-17).

What types of cases are best suited for a forensic necropsy?

Many cases can be submitted for a forensic necropsy. The most common examples include:

- Gunshot injuries
- Neglect/cruelty
- Animal abuse
- Stab wounds
- Sexual abuse

- Fire-related death
- Drowning

What is the cost of a forensic necropsy?

The cost of the examination will depend on a variety of factors including type of animal submitted and what tests are requested. At minimum there is the cost of the necropsy (depends on the size and species of the animal), a legal necropsy fee, and radiographs if required. When needed, advanced testing, such as histology, toxicology, and bacteriology, comes at additional costs and will be discussed on a case-by-case basis. The cost of a forensic/legal necropsy is generally several hundred dollars, sometimes totaling over \$1000. Please contact us for more information regarding price estimates.

What things inhibit a forensic or general necropsy?

Things that negatively influence a pathologic exam include but are not limited to:

- Prolonged time since death
- Exposure to heat after death
- Freezing of the animal
- Burial of the animal
- Exposure of the animal to nature, such as insects, predators, weather, etc.

As such it is important to have realistic expectations when an animal is brought in to avoid disappointment. For example, TVMDL is often asked if we can tell someone the exact time of death. Unfortunately, this is not the case. Due to the above factors often only a range can be given and often that range is days to week or weeks to months. Post-mortem artifact is also seen quite often, particularly autolysis/decomposition. Autolysis and putrefaction result in rapid degradation and distortion of the tissues, hampering interpretation of postmortem findings. Freezing causes ice crystal formation resulting in architectural distortion of tissues, hampering diagnostic quality. Having realistic expectations is key to a positive working relationship between the client and pathologist.

If you have questions about a case and want to know if it qualifies as a forensic case or if a general necropsy will suffice, please contact TVMDL at 979-845-3414.