

Necropsies in Pets

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First of all let us define a few terms, biopsy, histopathology, autopsy and necropsy. Understanding these terms and their differences will greatly aid our discussion.

A **biopsy** is when a sample is taken from a living animal for diagnostic evaluation. This usually refers to tissue samples which are taken from abnormal areas or growths. These samples are placed in special solutions to preserve them, such as formalin. The sample is then sent to a pathologist who can then section the samples on a special instrument that slices them super thin and evaluated in a process called **histopathology**. The sectioned samples may be specially stained and are evaluated microscopically so that a diagnosis can be made.

Necropsy

What is the difference between a necropsy and an autopsy? Let us look at the words themselves. “Necro” refers to “dead” and “psy” to study, so **necropsy** is the “study of the dead.” “Auto” refers to “self” so autopsy is “self study.” So an **autopsy** is technically a necropsy, but because a “human is performing it on a human” it is an autopsy.

Performing necropsies is an important part of veterinary medicine. Frequently veterinarians are presented with animals that had “died suddenly” at home. Pets can be very sensitive to airborne toxins, poisons or other potential household hazards so they can sometimes die suddenly at home. However, some pets tend to hide their illnesses, so quite often they are near death or dead by the time an owner notices that there is a disease condition. Necropsies can help determine the cause of these ‘mysterious’ deaths.

It is of utmost importance to have a necropsy performed if the cause of death is uncertain or may have a possible infectious origin, especially if there are other animals (or people) who may have had contact with the deceased pet. In addition, the risk always exists for zoonotic diseases (diseases of animals that can be transmitted to people), which should be ruled out to protect your family.

If a veterinarian had an animal under their treatment for a disease condition die, it is good practice to recommend a necropsy if the cause of death is uncertain, as both the veterinarian and pet owner will benefit from the knowledge gained. A gross necropsy can be performed, where the tissues are visually examined and no samples are taken for further study. In certain cases the cause is obvious on gross necropsy so no further investigation is required.

Sometimes the cause of death may not be readily obvious on gross necropsy. In those cases, tissue samples may need to be collected and sent out for histopathologic evaluation by a veterinary pathologist.

Many times clients are hesitant to have a necropsy performed because they would like to take the pet home for burial or do not want the pet dissected. These fears can be alleviated by the option of a “cosmetic” necropsy. In a “cosmetic” necropsy an opening is made just large enough to adequately evaluate the internal organs and obtain whatever samples are necessary. The incision is then sutured or tissue glued so that minimal disturbance is evident. However, depending upon the circumstances a complete and thorough necropsy is preferred.

The necropsy should be performed as soon as possible, otherwise the pet should be refrigerated, as autolysis (tissue breakdown) can occur very quickly. The animal should never be frozen as artifactual tissue changes will ensue, making histologic interpretation difficult. If the pet cannot be brought in for a long period before a necropsy can be performed then it could be frozen. Freezing/thawing will make gross observations difficult and severely hamper histopathologic analysis as the ice crystals damage the tissues. However, viral or bacterial isolations and some toxicologic analyses can be conducted on frozen samples.

Due to the risk of potential zoonoses, gloves, and a surgical mask should be worn and the work area thoroughly disinfected following completion of the necropsy.

A detailed description of the necropsy technique is beyond the scope of our discussion, however, a few important points should be made. Before performing the actual dissection, the animal should be carefully evaluated by the veterinarian for overall condition and checked for any obvious external abnormalities such as wounds, swellings, discharges, and staining. A systematic approach should be followed when performing the necropsy.

Multiple samples should be taken and saved in 10% buffered formalin solution. If viral, bacterial or toxicologic studies may be needed, some tissue samples should be frozen. Cultures can also be obtained. The necropsy findings and diagnostic impressions should be recorded. Finally, when submitting samples, it is of critical importance to deal with a pathologist or laboratory that is skilled in histopathology. Veterinarians are fortunate because many excellent diagnostic facilities and pathologists are available.