Forensic Veterinary Medicine

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Forensic veterinary medicine can be considered as being the interface between forensic science and veterinary medicine. Since the subject covers both aspects of forensics and veterinary medicine, an interdisciplinary approach with co-operation between veterinarians and forensic scientists is essential in order to successfully tackle casework and produce research results.

Due to the similarity of physiological processes and anatomical findings, forensic veterinary medicine is closely linked to human forensic pathology. Thus, a forensic veterinary team will consist of at least one veterinarian and one human forensic pathologist.

There are a number of specific sub-specialities in which the forensic veterinary team deploys its expertise. These include, amongst others, investigation of cause of death, DNA analysis, species identification, gross morphology, toxicology, animal welfare and even crime scene investigation.

Death investigations usually centre on the elucidation on the cause of death. This usually includes a full autopsy. Furthermore, ballistics and toxicology may be employed in some cases. Mostly, however, the cause of death can be found by macroscopical examination or histology in cases where no gross findings are in evidence at the time of autopsy. Examples are cases of poaching, traffic accidents involving animals, zoo deaths, farm deaths and suspected cruelty to animals. Morphological examination is also performed on living animals when questions concerning the above arise.

DNA analysis is performed in cases where the source of material needs to be proven. Cases of bite injuries are applicable for DNA testing. Dog bites are a major problem in European countries, with wild and domestic animals of other species playing a smaller role. Paternity testing is also requested, especially in costly species such as horses. Food safety examinations may also be done by DNA analysis, when it is suspected that food contains material other than that declared, especially in meat products.

In the age of intercontinental travel, European customs officers often seize objects that are suspected to stem from protected animal species, such as those covered by CITES. This includes material such as ivory, furs, bones, teeth and skins. In order to confirm the source of this material, species and origin are analysed and determined by forensic methods.

Identification of specific individuals is not only performed by DNA analysis, but also by other means similar to those employed by human forensic pathology.

Cases of suspected cruelty to animals are a major part of forensic veterinary work. Examples include neglect to farm and pet animals, inappropriate conditions in animal shelters, non-lethal injuries to animals (shooting, stabbing, beating) as well as hunting by means of illegal methods (snares, illegal weapons, poisoning).

When bones are found, it is often required to determine whether these are of human origin. Veterinarians can often assist in ascertaining the species in these cases, especially in cases of comingling of human and animal bones.

Bite mark analysis is another typical veterinary forensic application. This may also include scratch mark and blunt trauma analysis.

It is also of interest to note that a number of homicides were preceded by cruelty to and the killing of animals by the perpetrators concerned. Thus, cruelty to animals may be the first sign of a tendency toward harmful behavior towards humans.

The results of forensic veterinary investigations may result in subsequent civil or criminal lawsuits. Therefore, the forensic veterinary team may be requested to give evidence in court. This usually includes cross-examination by all parties involved.

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