Forensic Investigation of Animal Abuse: Trauma Analysis Patterns in Four Canids

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Animal Abuse Investigations: Veterinary Forensics!!!
California State Law

- §597. Cruelty to animals.
- (a) Except as provided in subdivision (c) of this section or Section 599c, every person who maliciously and intentionally maims, mutilates, tortures or wounds a living animal or maliciously and intentionally kills an animal, is guilty of an offence punishable by imprisonment in the state prison or by a fine of not more than twenty thousand dollars ($20,000), or by both the fine and imprisonment, or, alternatively, by imprisonment in the county jail for not more than one year, or by a fine of not more than twenty thousand dollars ($20,000), or by both the fine and imprisonment.
California State Law

- (b) every person who overdrives, overloads, drives when overloaded, overworks, tortures, torments, deprives of necessary sustenance, drink, or shelter, cruelly beats, mutilates, or cruelly kills any animal... is for every such offence, guilty of a crime punishable as a misdemeanor or as a felony or alternatively punishable as a misdemeanor or a felony and by a fine of not more than twenty thousand dollars ($20,000).
Challenges of Animal Abuse Investigations

• Based on child abuse literature
Challenges of Animal Abuse Investigations

• Based on child abuse literature
• Reluctance of reporting abuse to authorities
• Difficult to prove in court
  - Abuse vs. negligence
  - Veterinary forensics growing area of investigation
Forensic Anthropology

- Forensic archaeological recovery
- Biological profile
  - Sex
  - Breed?
  - Age
- Commingling (MNI)
- Trauma Analysis

* Work in conjunction with veterinary pathologists and zooarchaeologists...
Northern California
CSU-Chico Recovery Team
CSU-Chico Recovery Team
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Grave 1
Grave 2
Grave 3
Scene Overview

- Australian Kelpie
- Unknown Breed
- Pit bull & Chihuahua

House
Truck
Utility Shed

Not to scale
Laboratory Analysis

- Assessment of fur coloration patterns, craniofacial morphology
- Commingling
  - Minimum number of individuals (MNI)
- Sex assessment
  - Presence vs. absence of baculum
- Age assessment
  - Skeletal & dental development
- Trauma analysis
Grave 1 (Dog #1)
Grave 1 (Dog #1)
Grave 2 (Dog #2)
Grave 2 (Dog #2)

Rib fractures
Grave 3 (Dog #3)
Grave 3 (Dog #3)
Grave 3 (Dog #3)

Diastatic fracture

Depressed cranial vault fracture
Grave 3 (Dog #3)
Comparison of Human vs. Dog Buttress Patterns


Comparison of Human vs. Dog Buttress Patterns

• Boudrieau (2004) argues that the skull buttress patterns are generally similar between humans and canids, with the main difference found in the horizontal buttress due to the greater craniocaudal elongation in the canid skull.

• Also, the canid skull can withstand transverse forces to the rostral buttress and zygomatic arch to a greater degree than in the human skull.
Grave 3 (Dog #3)

Left hemi-mandible (medial view)

Butterfly fracture

Tension
Grave 3 (Dog #3)

Healed rib fractures

Rib fractures
Grave 3 (Dog #3)

Spinous process fracture
Grave 3 (Dog #3)

Left metacarpals (III, IV, & V) fractures
Grave 3 (Dog #4)
Grave 3 (Dog #4)
Grave 3 (Dog #4)

Diastatic fracture
Grave 3 (Dog #4)

Blunt Impact #1
Grave 3 (Dog #4)
Grave 3 (Dog #4)
Grave 3 (Dog #4)

Pelvic Fracture

Spinous Process Fracture
Trauma Summary: Canid #1

Dog#1 (adult ♂️)
Trauma Summary: Canid #2

Dog #2 (adult ♂️)
Trauma Summary: Canid #3

Dog #3 (juvenile ♀)
Trauma Summary: Canid #4

Dog #4 (adult ♂)
Trauma Summary: Combined
The Suspect’s Story

• Initially claimed that:
  - Canid #1—died of natural causes
  - Canid #2—ingested poison
  - Canid #3—sold on internet
  - Canid #4—fell off bed

• Later claimed that:
  - Canid #1—refused to speak about
  - Canid #2—slammed shower door on thorax; hit with stick on head & thorax
  - Canid #3—beat on the head with fist
  - Canid #4—punched dog in head after it bit his finger
Case Resolution

• Suspected pleads to 4 counts of animal abuse
Conclusions

• Cases involving animal abuse are difficult to prove
• But...animal abuse investigations can benefit from the use of forensic anthropologists
  - Scene processing
  - Trauma analysis
• Forensic anthropologists should work with animal specialists, such as forensically trained veterinarians and other experts