G21 An Unsolved Cold Case in Iowa: A Probable Case of Dragging

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After attending this presentation, attendees will learn about differential diagnosis for trauma due to dragging. Dragging injuries to human remains is rarely described in the literature and is limited to accidental long-range towing behind large vehicles.

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Dragging injuries to human remains is rarely described in the literature and is limited to accidental long-range towing behind large vehicles. The goal of this presentation is to provide a differential diagnosis for trauma due to dragging. This presentation will impact the forensic community by describing the skeletal morphological changes associated with dragging from a different context than is currently found in the literature.

On October 4, 1978, decomposed human remains were found lying face down in a ditch in a rural portion of Northwestern Iowa. The female victim was partially clad in knee-high white "go-go" boots with her panties and pants bunched up under the torso. Her arms were stretched over her head and her ankles were tied together with a knotted rope. An autopsy the following day revealed no obvious traumatic injuries to the soft tissue or skeleton other than damage to the maxilla that was originally attributed to animal gnawing. The hands were retained and the skull, clavicles, pubic symphyses and possibly other bones were sent to a forensic anthropologist for analysis. Ultimately the identity of the victim and the cause of death were unknown and the case became "cold." Interest in the case was renewed nearly two decades later when, in January 2006, the victim's fingerprints were matched to those on a fingerprint card of a woman arrested in California in 1973. Mitochondrial DNA tests of metacarpal bones of the victim positively matched the mtDNA of a known daughter of the California woman. The victim was identified as a 23-year old prostitute from California who was last seen in Georgia in February of 1978. Throughout 2006 investigators created a list suspects, including the victims' ex-husband, but most of these individuals were deceased or could not be found for questioning. In 2007 the remains were exhumed, the bones that had been sent to other anthropologists were returned, and a new autopsy was ordered to further investigate the cause of death.

The soft tissue of the dorsal aspect of the entire body was remarkably well preserved while the ventral aspect (which had been in contact with the ground) was skeletonized. A comprehensive drug panel on decomposed skeletal muscle was positive only for caffeine and cotinine. Following the forensic pathological examination the bones were macerated in warm water with detergent and examined by the anthropologist. Bone loss of the maxillary alveolar bone, hard palate, anterior nasal spine, and nasal aperture was extensive. Adherent bone fragments, radiating fractures, tool marks, or animal gnawing were absent and the morphology was most consistent with abrasion. Similarly, abrasion injuries were apparent on the medial aspects of both elbows (distal humeri and proximal ulnae) and the anterior iliac spine of the right ilium. No bony modifications were observed below the pelvis.

The abrasion injuries are consistent with dragging in a prone position with the arms over the head as the lower face, medial elbows and one or both ilia would be in contact with the ground. The mandible and anterior rib cage are also expected to be affected but unfortunately these elements were not retained from the original autopsy. Only two known cases of dragging are published in the literature and these involve dragging behind or under a vehicle for significant distances (at least 2.5 miles). One case (Klintschar et al. 2003) reports a body dragged prone by one foot with the arms over the head such that the medial aspect of the elbows faced outwards. The medial humeri and ulnae as well as the lower teeth were extensively abraded. In the current case the injury pattern, the position of the pants (pulled up under the torso), the position of the ligature around the ankles and the final resting position of the body in the ditch suggest the victim was pulled by the feet while in a prone position such that the legs were off the ground and the arms over the head. The remote location and terrain implies the victim may have been dragged by a vehicle down a gravel road but most likely was pulled by hand. While coffin abrasion cannot be completely ruled out, these particular bones were not observed to be in direct contact with the metal sides when the coffin was unsealed. Thus, a mechanism of manual dragging is proposed to explain the morphology and distribution of the skeletal injuries.

Trauma, Forensic Pathology, Forensic Anthropology

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