## H27 Blasting Caps: An Alternate Source of High Velocity Trauma in Human Skeletal Remains

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The goal of this presentation is to present to the forensic community an unusual case of high velocity trauma that mimics bullet wounds to the skull.

This presentation will impact the forensic community and/or humanity by illustrating the advantage of interdisciplinary cooperation in unusual injury cases, and to document the hard tissue impact of high velocity trauma that does not involve guns.

On August 31, 2003, investigators with the La Plata County Sheriff's Office in Colorado were notified of an unattended, suspicious death of a white male in a travel trailer located at an elevation of 7000 feet. Investigators contacted Allaire, requesting assistance in estimating time since death based on the stage of decomposition and the arthropods present at the death scene.

The travel trailer was 23-feet long by 8-feet wide. No lights, air conditioning or heating source were on inside. All of the trailer's glass windows were closed and screened, except for one, which was shattered, though the screen remained intact. The decedent was lying on his back on the bed in the rear portion of the trailer. The shattered window was directly above his head. Bed linens were present beneath his lower body, while his head rested on top of two feathered pillows. He was wearing a shortsleeved pattern shirt and canvas-type shorts with a belt.

The decedent's head appeared to have extensive, "high-velocity type" damage. It was misshapen and multiple fractures were evident. Desiccated tissue held the bones together. Post cranially, the body showed skin slippage in some regions and desiccation in others.

Evidence of blood and soft tissue were found on the wall at the head of the bed, on the window screen, and on the ceiling, extending the entire length of the bed. An electrical power strip with an on-off switch was positioned between the decedent's left forearm and waist. The ends of two sets of electrical wires, which had presumably been connected to the power strip at one time, were located next to the decedent's right shoulder. The other end of each set of wires ran to what remained of a blasting cap on either side of the decedent's head. Vertical tears and burn-scorched areas were present on the pillow where both of the blasting cap ends were found.

Insect evidence collected at the scene included the Diptera species *Phormia regina*, in stages ranging from larvae to adults. Also present were yellow jackets, and various types of beetles, including Hister beetles, *C. maxillosus* and *N. rufipes*. All insect evidence present was collected for preservation, rearing and analysis. Insect evidence suggested an estimated time since death of six to eight days prior to discovery.

At autopsy, the chest cavity and abdominal regions were found to be devoid of all internal organs. Because the trauma to the skull was extensive, the coroner shipped it to Louisiana State University Forensic Anthropology and Computer Enhancement Services (FACES) Laboratory for further analysis. Once the skull was cleaned and partially reconstructed, the overall fracture pattern was evident. As expected, the damage was most significant in the temporal and parietal regions, resulting in many small fragments of bone. The blasting caps produced localized injuries on both sides of the skull similar to gun shot entry wounds and exhibiting internal beveling. In contrast, the face and mandible remained relatively undamaged and the teeth in both the maxilla and mandible were intact. By cleaning and reconstructing the skull, the damage to hard tissue caused by the blasting caps can be clearly documented.

This case provides an example of interdisciplinary cooperation involving the fields of entomology, anthropology, pathology, and law enforcement. Though the death scene appeared relatively straightforward, further analysis of the remains by forensic anthropologists helped to document the extensive nature of the trauma. This documentation provided evidence that blasting caps produce damage that may mimic bullet wounds and, thus, should be considered an alternate source of injury in cases where high velocity trauma is apparent.

**Forensic Anthropology, Blasting Cap Trauma, Fracture Patterns**

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