H30 Patterns of Cranial Trauma in Korean War Remains at the Central Identification Laboratory (CIL)

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After attending this presentation, attendees will understand the variety of different peri-mortem cranial trauma observed in remains from the Korean War analyzed at the Joint POW/MIA Accounting Command-Central Identification Laboratory (JPAC-CIL).

This presentation will impact the forensic science community by describing peri-mortem cranial trauma that resulted from armed conflict and examining the correlation between different types of trauma and the circumstances of death.

The Central Identification Laboratory (CIL) and its predecessor organization, the Central Identification Laboratory-Hawaii, have identified a total of 209 Korean War casualties since 1982. In the process, the CIL has generated a large corpus of Forensic Anthropology Reports on remains associated with the Korean War. In previous American Academy of Forensic Sciences (AAFS) presentations, the overall pattern of peri-mortem trauma in these remains was described and compared with wartime medical reports on trauma among United Nations casualties.[1,2] This presentation considers the cranial trauma observed in a sample of 56 individuals from both battlefield and Prisoner-Of-War (POW) recovery contexts. Peri-mortem fractures were recognized according to standard morphological and taphonomical criteria. When possible, ballistic trajectories were reconstructed from entrance and exit wounds. Blunt trauma was recognized by the lack of an entrance defect, as well as by plastic deformation. Unfortunately, the vagaries of taphonomy and recovery prevented an exact diagnosis of the form of trauma in every set of remains.

Eighteen of the 56 individuals exhibited non-specific peri-mortem fractures of the vault, face, or both; generally, the lack of a more specific interpretation is a result of incomplete preservation. One individual exhibited sharp-force trauma to the face. Six individuals, all from battlefield contexts, exhibited blunt trauma; one of these also exhibited ballistic trauma. Thirty-two individuals exhibited one or more ballistic defects or gunshot wounds. Of these 32, one was not well enough preserved to record directionality, while one was significantly fragmented by multiple projectiles and could not be reconstructed to determine their trajectories. Of the remaining 30, 14 exhibited a primary trajectory from an anterior origin, 12 from a posterior origin, and four laterally. Patterns of cranial trauma showed a clear correlation with postcranial trauma. The six individuals with cranial blunt trauma exhibited no postcranial trauma. Of the 14 individuals with anterior-origin ballistic trauma (one of whom also exhibited blunt trauma), only two exhibited postcranial fractures, and both were butterfly fractures of the distal right humerus that may have resulted from the individual's fall after being shot. Three of the four individuals with lateral ballistic entrances exhibited postcranial fractures to multiple elements which were consistent with either ballistic or blast trauma. Four of the 12 individuals with posterior ballistic entrances exhibited postcranial fractures consistent with either ballistic or blast trauma. Finally, of the 21 individuals that exhibited neither blunt nor directional ballistic trauma to the skull, 16 exhibited one or more postcranial fractures as well. It is possible that many of these individuals experienced blast trauma that fractured multiple elements with either no ballistic impacts or many small, irregular ones.

Previous studies have found the incidence of peri-mortem trauma in POWs to be significantly lower than in those killed in action. In this sample, only eight of the 56 individuals exhibiting cranial trauma were documented POWs. Two of these eight died soon after capture; one of the remaining five is known to have been killed by aerial strafing.

The views expressed herein are those of the author and not necessarily those of the Joint POW/MIA Accounting Command or the U.S. Department of Defense.

References:

1. Baker JE, Christensen AF. An epidemiological study of trauma in U.S. casualties of the Korean War. *Proceedings of the 60th Annual Meeting of the American Academy of Forensic Sciences*; Washington, DC., 2008;14:364-5.
2. Baker JE, Christensen AF. Peri-mortem skeletal trauma in U.S. Korean War soldiers: an epidemiological and historical study of prisoner-of-war and battlefield casualties. *Proceedings of the American Academy of Forensic Sciences*; Seattle, WA., 2010;16:359.

Peri-Mortem Trauma, Cranial Fractures, Military Medicine

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