H36 Peri-Mortem Skeletal Trauma in U.S. Korean War Soldiers: An Epidemiological and Historical Study of Prisoner-of-War and Battlefield Casualties

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The goal of this presentation is to review patterns of peri-mortem trauma documented on the skeletal remains of U.S. soldiers lost during the Korean War. Attendees will gain a greater awareness of the importance of documented historical context in the interpretation of war- related skeletal trauma.

This presentation will impact the forensic science community by increasing the understanding of war-related trauma in a historical context and documents patterns of skeletal trauma occurring under disparate circumstances of death.

In a follow-up to our 2008 presentation (Baker and Christensen 2008), data on peri-mortem trauma was collected from more than 200 skeletons of U.S. casualties of the Korean War that were analyzed between 1996 and 2009. While the CIL does not conduct analyses of peri-mortem trauma in order to determine cause or manner of death, we have a unique chance to examine peri-mortem traumata in light of historically documented circumstances of death. In some cases, we may be able to gain insight into battlefield behavior.

War casualties can generally be divided between battlefield fatalities and deaths that occurred elsewhere. For this study, battlefield casualties and Prisoners of War (POW) form the primary groups of interest. Remains came from three different sources: remains recovered from alleged battlefields during Joint Recovery Operations (JROs) conducted in the Democratic People's Republic of Korea from 1996 to 2005, remains returned to the U.S. after the war by the Chinese government which were subsequently buried as Unknowns and later exhumed by the CIL for identification, and remains turned over to the U.S. by North Korean authorities between 1990 and 1994 from known POW cemeteries, as well as 2002 and 2004. The Killed-in-Action (KIA) sample included more than 130 individuals, while the purported POW sample comprised more than 50 individuals. Trauma patterns were compared between groups as well as to historical data, which was taken from reports of KIAs, those who were Wounded in Action (WIA), and those who subsequently Died of Wounds (DOW).

Early in this study, it was noted that POWs had less peri-mortem trauma than KIAs. With a larger sample of POWs now available, that anecdotal observation has been confirmed. Peri-mortem trauma rarely occurred in POWs and was limited to three instances of cranial trauma and a single incidence of peri-mortem trauma to the femur. In one case, a POW was shot in the back of the head, and in the case of the femoral injury, the individual in question is known to have been killed in a strafing incident. This suggests that most of these men may have died of causes unrelated to trauma sustained in direct combat and provides support for the historical notion that most POWs died of disease, malnutrition, or exposure.

Statistical analysis of trauma frequency revealed some interesting patterns. Disparities in trauma to the face, vault, and tibia between the two groups were significant at the $p < 0.10$ level, while trauma to the femur was significant at the $p < 0.05$ level. Humeral injuries in the two groups were significant at the $p < 0.001$ level. While calculation of the overall trauma rate assumes that the probability of trauma to all regions of the body is equal and is therefore not necessarily an accurate representation of reality, it does provide a sense of the magnitude of difference in susceptibility to peri-mortem skeletal injury between the two groups. The overall trauma rate, calculated as the number of elements with trauma versus the total number of elements present for examination, was significant at the $p < 0.0001$ level.

During the 2008 research, it was discovered that a number of individuals experienced peri-mortem trauma to the humerus, including sharp trauma. A number of other individuals were missing either an entire arm or one or both humeri, despite the presence of distal arm elements. In this study, nearly one-third of the KIAs were classified as having missing arm elements (either with or without associated peri- mortem trauma in that region of the body). As noted above, the peri- mortem trauma rate in the KIAs was significantly higher than that seen in the POWs. In combination, these traits suggest that some remains were tampered with postmortem.

POW, KIA, Fractures

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