A14 The Prevalence of Peri-Mortem Trauma Among Casualties of Armed Conflict

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Learning Overview: After attending this presentation, attendees will be aware of the prevalence of peri-mortem trauma among identified casualties lost during World War II (WWII), the Korean War, and the Vietnam War.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by testing expectations of and quantifying incidences of skeletal trauma for individuals associated with past United States armed conflicts. Although this analysis reflects one agency's casework, it provides insights on the expected prevalence of peri-mortem trauma observed in recovered skeletal remains in military, mass disaster, or human rights contexts.

These United States wartime casualties were lost under a variety of circumstances, including ground, air, and Prisoner of War (POW) losses. Evidence of peri-mortem trauma is expected, particularly in battle (i.e., ground) and air losses due to their engagement in armed conflict. Fewer cases of peri-mortem trauma are expected in POW losses since these deaths are more often attributed to malnutrition and illness.

A sample of 270 individuals identified since 2014 were examined for the presence of peri-mortem trauma and condition of skeletal remains. Peri-mortem trauma was observed in 128 (47%) cases. These cases were broken down by conflict, type of loss (ground, air, or POW), and proportion of the skeleton recovered.

The Vietnam War was represented by 20 cases, of which 16 were air and 4 were ground losses. These cases were recovered either in the field or through unilateral turnovers from foreign governments. All cases contained incomplete skeletons, with 90% of these cases missing most major elements and represented by less than a quarter of the skeleton. Peri-mortem trauma was observed in less than half of the cases (8/20): 44% of air and 25% of ground losses.

The Korean War was represented by 140 cases, of which 17 were air, 57 were ground, and 66 were POW losses. These cases were recovered predominantly through unilateral turnover, followed by disinterment of unidentified individuals from national cemeteries, and field recovery. Most cases were incomplete, and 44% of the cases were represented by less than a quarter of the skeleton. Peri-mortem trauma was observed in less than half of the cases (41/140): 47% of air, 51% of ground, and 6% of POW losses.

WWII was represented by 110 cases, of which 49 were air, 56 were ground, and 5 were POW losses. These cases were recovered predominantly by field recovery, followed by disinterment and unilateral turnover. About 34% of cases were represented by less than a quarter of the skeleton. Peri-mortem trauma was observed in most cases (79/110): 76% of air, 75% of ground, and none of the POW losses.

No peri-mortem trauma was observed in 142 (53%) cases; however, more than half (53%, 75/142) of these cases consisted of mostly incomplete skeletons. When broken down by loss type, 83% of air (25/30), 44% of ground (20/45), and 45% of POW (30/67) losses were mostly incomplete and lack peri-mortem trauma. In these cases, the absence of observed trauma may be due to the paucity of the remains, rather than indicating that no peri-mortem injury occurred.

As expected, air and ground losses displayed peri-mortem trauma more frequently than POW losses. Peri-mortem trauma was evenly represented between air and ground losses for both Korea and WWII cases, but it was observed more often among WWII cases than Korea or Vietnam cases. This is likely due to the completeness of the recovered remains. Remains were more often recovered and buried soon after the incident during WWII, giving some protection from taphonomic processes, unlike Korean and Vietnam War casualties. Although the Vietnam War is more recent, and one would expect that taphonomic processes may be less severe, these cases are the most incomplete. This could be due to factors such as soil pH of recovery location or loss type (WWII propeller-driven planes vs. Vietnam War jet air losses).

Identifying peri-mortem trauma is crucial for understanding the context of loss for missing servicemembers. These results indicate that despite war-time circumstances, not all skeletal remains exhibit evidence of peri-mortem bodily trauma; the absence of peri-mortem trauma cannot be used to determine loss circumstances. The absence of trauma may reflect recovery context or other taphonomic conditions, rather than the absence of skeletal injury.

Forensic Anthropology, Trauma, Taphonomy