H74 Blasting Injuries in Human Rights Cases and Armed Conflicts

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After attending this presentation, attendees will understand the prevalence of blasting injuries in cases of human rights abuses and armed conflicts. Participants will learn how to differentiate blasting injuries from other mechanisms of injury such as gunfire.

This presentation will impact the forensic community and/or humanity by demonstrating the types of injuries commonly encountered in human rights investigations and differential diagnosis for blasting injuries. This will serve as a useful tool for pathologists and anthropologists when estimating the most probable cause of death.

Anthropologists and pathologists work together to reconstruct skeletal injuries and establish the most probable cause of death in cases of human rights violations and armed conflicts. Victims of modern conflicts often suffer multiple injuries, from conventional weapons including gunfire and blasting injuries (i.e., landmines, grenades, bombs, and mortars). Civilian and military targets differ in the prevalence of various injury mechanisms. When civilians are the intended target of violence, it is not uncommon for individuals to suffer multiple injuries from various mechanisms, with wounds prevalent throughout multiple regions of the body and from a variety of trajectories. Additionally, in attempts to hide the remains and crimes committed, deceased bodies are commonly blown- up, burned, thrown off bridges or cliffs, and even buried/exhumed and later re-interred multiple times to hide the location of the grave. Each of these processes leaves a mark on skeletal remains. Distinguishing injuries, taphonomic alterations, and post-mortem fractures for each victim is a routine part of the post-mortem examination and is paramount for accurately diagnosing each mechanism of alteration.

Characteristically, blasting injuries result in multiple victims from a single incident and injuries that are widespread throughout the body, affecting multiple anatomical systems. The factors that affect the wound morphology include the type of explosive, the range of materials used to construct blast and shrapnel, the location of the explosions within a structure or outside of a structure, the total amount of materials used in the construction of the explosive, location of the victim relative to the blast, and the presence of an intermediate target between the victim and the blast. Therefore, there is a wide range of variation observed among blasting injuries.

Injuries from low-order explosives result from the “blast wind” and may include wounds from fragmented shrapnel or thermal injuries. In cases of high-order explosives, injuries result from the over-pressurization “blast wave” force. The three mechanisms of high-order explosive injuries that may affect the skeletal system are characterized as Secondary, Tertiary, or Quaternary injuries. Wounds result from penetrating shrapnel or fragmented bomb components, blunt force compression or crushing injuries from flying debris, bone fractures result from the individual being thrown from the blast or hit by a secondary flying object, or the traumatic amputation of limbs. High-order explosives tend to be military issued or “manufactured.” These types of blasts cause injuries that are different from “impoverished” explosive devices where an object is modified from its intended function and made into an explosive device. “Impoverished” devices may include scrap metal or metal objects such as household utensils that are cut into pieces and used as shrapnel in grenades or bombs.

This study reviews cases of blasting injuries among civilian targets that resulted during armed conflicts investigated by the United Nations, International Criminal Tribunal for Former Yugoslavia in Kosovo (1998) and Bosnia-Herzegovina (1991-1995) and current cases investigated by the United Nations, Office on Missing Persons and Forensics in Kosovo. This study highlights methodology for differential diagnosis of wounds produced by shrapnel from high-order explosives from gunfire projectiles. A differential diagnosis may be possible based on the number, location, pattern of wounds and wound morphology. This paper presents cases to demonstrate how the projectile tracks, the number and sequence of multiple injuries, and the direction/location of the blast may be estimated. This study investigates variation in wound morphology resulting from differences between “Manufactured” and “Impoverished” explosive devices. Finally, important trends in the demographic pattern of victims who incur these types of injuries, as relevant to criminal cases of violations to international humanitarian law, are discussed.

Blast Injury, Blunt Force Trauma, Armed Conflicts

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