H48 Cranial Injury Pattern Analysis in the Reconstruction of a Homicide With a Hammer

Carlos Durão, Instituto Nacional de Medicina Legal e Ciências Forenses, Lisbon, PORTUGAL; Duarte Nuno Vieira, MD, PhD, University of Coimbra, Coimbra 3000-044, PORTUGAL*

Learning Overview: The goal of this presentation is to show the fundamental importance of an adequate medicolegal expertise to elucidate the medicolegal etiology of death, namely in the investigation of a homicide.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by presenting a very interesting case, initially cataloged by the police as a probable natural death, in which the medical-legal investigation came to demonstrate, unequivocally, that it was a homicide.

The death of a 76-year-old man, found in a remote rural area on a small access road to his home in an advanced state of putrefaction is reported. The body was found lying in a prone position, next to rural working tools and a wheelbarrow. The site was initially inspected by the police. Due to advanced putrefaction, with numerous larvae on the corpse, traumatic injuries were not identified. The remains were referred for a forensic autopsy with the information that it was a possible natural death, as the victim suffered from various cardiac pathologies.

Externally, the asymmetrical pattern of putrefaction (much more advanced at the head) suggested possible traumatic head injuries. At autopsy, seven blunt lesions on the scalp were identified. Examination of the skull revealed two depressed fractures that appeared related to each other, allowing the sequence of the impacts to be determined using Puppe's rule (observing a radiated fracture line that ends in another fracture line associated with another injury). Cranial fractures in the temporal and occipital regions were typical of fractures produced by a blunt instrument, like a hammer. It was clear that the death was a homicide involving skull fractures with associated cerebral hemorrhage, with no other relevant findings. Faced with this information, the police returned to the scene of the death and seized several tools as well as a hat that was next to the victim.

It was thus possible to identify the hammer used in the crime; it had blood stains and skin debris on its surface. There was a perfect match with fractures and striated bone lesions produced by the impact of the hammer handle on the skull. The seven injuries could be matched to the hammer and were likely produced by three impacts, demonstrating that one impact produced more than one injury. The correspondence of a tear in the hat, the blood stains, the scalp wounds, and the fractures observed allowed for the reconstruction of the mechanism of injury. The murderer (the victim's stepson) was later arrested and confessed to the crime (due to financial reasons).

This case study demonstrates the value of comparing injuries observed at autopsy, along with anthropological examination, to properly identify a murder weapon, the mechanism of injury, and thus conclude that a death was a homicide.

Homicide, Injury Pattern, Medicolegal Investigation

*Presenting Author