



### **H144 Rule Out Trauma: A Five-Year Retrospective Study on Natural Disease, External Trauma, and Manner of Death at the Harris County Institute of Forensic Sciences (HCIFS)**

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**Learning Overview:** The goal of this presentation is to evaluate the incidence rate of lethal trauma in decedents when the preponderance of investigative evidence suggests death by natural disease.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by illustrating that although a decedent may have some form of external trauma, the severity of underlying internal trauma will determine whether the manner of death is ascribed as natural or accident.

Blunt force injuries are one of the most common injuries evaluated by forensic pathologists. Many decedents will have peri-mortem blunt force injuries, and it is imperative to determine if these are the cause of death or sequelae subsequent to natural disease. Harris County, TX, is the third most populous county in the nation and the most recent HCIFS annual report (2017) showed that 4,731 medicolegal cases were received for examination. Of these, 40.4% were classified as natural deaths, 35.7% were classified as accidents, 11.1% were classified as suicides, 9.6% cases were classified as homicides, 3% were classified as undetermined, and 0.1% were classified as fetal deaths. Greater than one-third of medicolegal cases at HCIFS are natural deaths; however, initially it can be challenging to ascertain if these cases are natural deaths based on the investigative information presented or accident based on the external examination findings. Many decedents who die of natural diseases may have peri-mortem trauma after collapsing or falling. At the same time, some decedents may have a plethora of natural diseases but may die secondary to trauma. The current study investigates how many HCIFS cases with external trauma truly had internal trauma.

A five-year retrospective review of all cases autopsied between the years 2014 and 2018 was performed to identify cases wherein the decedent had external trauma, such as a head laceration or contusion, and an autopsy was performed to rule out internal trauma. Daily case logs containing pertinent investigative information on the circumstances of death were reviewed, and cases were selected based on evidence of concurrent natural disease and peri-mortem trauma, such as a head laceration, contusion, or evidence of a reported fall prior to death. Cases with clear accidental causes and severe external trauma, such as motor vehicle accidents or work accidents, were excluded. Demographic information as well as cause of death and manner of death were then analyzed.

While several of the selected cases in this study did have fatal internal injuries, such as blunt force head injuries or blunt force injuries of the torso, the majority of the decedents died from natural diseases with trauma likely as a secondary result of a sudden collapse/fall. Thus, while peri-mortem injury can lead one to contemplate about accident as a manner of death, it is crucial to correlate circumstantial data along with autopsy findings.

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#### **Blunt Force Injury, Natural Disease, Peri-Mortem Injury**