



## Pathology/Biology Section - 2015

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### H64 Homicide or Suicide? A Case Report of an Atypical Hanging

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After attending this presentation, attendees will understand the distinction between suicide and homicide in cases of hanging. This presentation describes a case of hanging in which the crime scene was previously tampered with by the victim with the intent to simulate an execution in order to collect life insurance compensation. Characteristics of injuries, circumstances (for example, the victim's psychiatric disorders), and data collected from a detailed investigation of the scene as well as a complete postmortem examination including a toxicological analysis generally represent the major diagnostic criteria to determine the correct diagnosis.

This presentation will impact the forensic science community by outlining a complete methodological approach to interpretations of the summary of evidence that can contribute to the correct differential diagnosis between hanging or execution. A complete crime scene investigation has to be followed by external examination as well as a complete autopsy with the histological study of skin specimens to determine the validity of hanging marks. Radiological investigations should be also performed.

**Case Report:** A 44-year-old man was found lifeless hanging from a rope wrapped around his neck and anchored on the balcony railing of his office. The forensic pathologist was alerted by the prosecuting officer and a detailed crime scene investigation was performed. The office was in clear state of disarray. There were four overturned chairs and many documents scattered on the floor simulating the scene of a violent crime. Despite all of this, a chair was found next to the railing on the balcony where the rope was anchored. No suicide note was found. Cadaveric temperature was 36°C, rigor mortis was absent, and non-fixed hypostasis was observed on face, upper thorax, and hands. There were no relevant marks of external injuries. Excoriations and purple discoloration were present along the entire course of the ligature mark of the neck. Sub-conjunctival hemorrhagic petechiae were also recorded. Police officers related that the man phoned his girlfriend and alerted her that he was meeting someone concerning some job-related trouble and that he was worried about his safety because of this appointment. The prosecutor expressly requested a complete autopsy to determine the cause and manner of death.

Two days later, a postmortem computed tomography scan was performed. It excluded bone and visceral injuries and no traces of violence on the corpse were detected. The autopsy was unremarkable except for a mild hemorrhagic infiltration of the left side of neck associated with mild muscle fiber rupture. Mild cerebral and pulmonary edema with white foam in the main bronchi were also described. Pulmonary edema, congestion, and focal compensatory emphysema were recorded at microscopic analysis. Toxicological analyses on blood and urine were unremarkable.

The microscopic observation of the skin specimens from hanging marks demonstrated intra-epidermal erythrocytes and musculature alteration as "Zenker's necrosis." In addition, immunohistochemical investigation of skin samples was performed utilizing antibodies anti-tryptase, IL15, and CD15 which confirmed the vitality of reactions of the ligature mark.

The crime scene findings (a chair next to the railing was found), the absence of any external injuries, and the presence of vitality reactions in the ligature mark resulted in the conclusion of a suicide mimicking a homicide as the manner of death. Hanging remains one of the most commonly used methods for suicide worldwide. It may pose difficult challenges to forensic pathologists and disguising a suicide as a homicide is uncommon. In this case, the crime scene was tampered with in order to stage the death as a homicide. The police investigations revealed that the man subscribed to a life insurance policy that was valid in case of homicide. Furthermore, after a detailed investigation, a receipt issued for the purchase of the rope was discovered at the home of the victim, confirming the hypothesis of suicide.

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#### Hanging, Altered Crime Scene, Homicide