
E14 Fatal Attraction: A Case Report of a Homicidal Drowning Involving a Couple

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Learning Overview: This presentation aims to explain a complete methodological approach, from the crime scene investigation to autopsy, and subsequent analysis (such as histological, immunohistochemical, and toxicological analysis) in a rare case of homicidal drowning. This case concerns a 32-year-old woman's homicidal asphyxia, due to drowning in a bathtub, after the loss of consciousness by manual strangulation.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by examining a case of homicidal drowning in an adult, infrequent in the pathologist practice, showing the importance of using a complete forensic approach to solve the crime.

Homicidal drowning of adults is a rare event; according to the literature, this type of crime involves mainly children. This is due to the difficulty in realizing the homicide when the victim can defend herself. In these circumstances, the diagnosis of drowning is an important medicolegal issue. In cases of this type, it is possible to research the bone marrow diatoms. Their presence indicates that the decedent was breathing at the time of submersion and died due to drowning. Often the diatoms are helpful in the differentiation of drowning in a bathtub versus a naturally occurring body in water.

The following case concerns a homicide in which a double asphyxic mechanism was used: strangulation to stun the victim and drowning to kill her. A 37-year-old man went to the police station saying his girlfriend was dead in her apartment. The prosecutor's office organized an inspection of her house that was turned upside down. The corpse of the woman was discovered in a prone position in the bathtub, lying in a few centimeters of water. At the external examination, facial abrasions, petechial hemorrhaging in the conjunctivae, abundant froth exuding from the nostrils, and bruises on the forearms were found. An accurate inspection of the neck revealed little reddish abrasions in the anterior face and two little purplish bruises, of linear form, parallel to each other, on the left side of the neck. The suspicion of a struggle induced the forensic pathologist to perform fingernail swabs.

Simultaneously to medicolegal investigations, the prosecutor questioned the boyfriend of the woman. He confessed to having strangled his partner and then, to resuscitate her, placed the body under the water in the bathtub. When he realized that the woman was dead, he left the corpse there. The day after, an autopsy was performed showing scattered petechiae on the internal face of the scalp, on temporalis muscles and visceral pleura of both lungs and epicardium; hemorrhages of the left sternocleidomastoid and omohyoid muscles, of both sternothyroid muscles, right thyrohyoid muscle and hyoid bone; and red-tinged froth in the trachea.

Histological analyses showed scattered areas of contraction band necrosis in the myocardium, pulmonary emphysema, and alveolar edema. The immunohistochemical study performed on the neck muscles with anti-CD15, anti-tryptase, and anti-IL15 antibodies were positive, indicating the vitality of the lesions; the expression of HIF1- α on endothelial cells of lung vessels confirmed the asphyctic death. A DNA profile found on fingernails of the victim matched with the murderers, compatibly with the statements of the man.

In addition, a diatom test on femoral bone marrow was performed. The analysis of the sample using a phase-contrast microscope showed diatom frustules. This evidence represented the keystone to determine the manner of death: the fatal mechanism was attributed to drowning. By applying a methodological forensic approach, the actual dynamic of the event was reconstructed: the murderer knocked the victim unconscious by strangulation, then left the body in the bathtub, where the death occurred.

In complex criminal cases, in addition to the pathologist's work, the involvement of other figures is mandatory. Indeed, in this case, the contribution of the forensic pathologist was fundamental to identify the victim's marks on the murderer and vice versa; the ability of genetic investigations to place the murderer's DNA on the victim and the reverse; and the contribution of histopathological and immunohistochemical examinations to determine the exact cause of death. This case highlights the difficulty for a forensic pathologist to perform differential diagnosis between two mechanisms of death having overlapping pathological findings. The use of a rigorous forensic method in complex cases represents the essential tool for the forensic pathologist in identifying the true cause of death.

Bathtub Drowning, Methodological Approach, Homicide