



## Pathology & Biology Section – 2005

### G46 Drowning vs. Trauma and Other Causes of Asphyxia in Deaths in Water

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The goal of this presentation is to review three cases which reveal the necessity of looking more closely at cases that involve water. They are ideal instances where the cause of death appeared obvious, but because a body of water was involved things were not what they seemed. These cases reinforce the need to perform autopsies on any case involved with submersion in water.

This presentation will impact the forensic community and/or humanity by reinforcing the need to closely evaluate violent deaths that involve water.

Drowning appears to be an easy cause of death to diagnose whenever a person is found not breathing in water. In reverse, drowning is not the first diagnosis that comes to mind when only a little amount of water is present at a scene. These three case histories illustrate some of the difficulties in evaluating the role of drowning in complicated cases, particularly when autopsy findings are found to be inconsistent with initial impressions gained from scene investigation. External examination of bodies in such cases may be misleading.

**Case One:** A 47-year-old male was standing on a dock pier performing martial arts exercises. He had a history of violence and substance abuse. A bystander witnessed this man finish warming up, tuck a necklace into his shirt, and dive off the pier head first. The man rose to the surface of the water, and floated as if unconscious. He was rescued within five minutes of the incident, but could not be resuscitated. External examination revealed a small abrasion along the vertex of his head. His face was congested, and he had some jugular venous distension. There were no other obvious external traumatic injuries. Death was initially attributed to drowning, with consideration of a cardiac event, possibly related to intoxication with cocaine.

**Case Two:** A 39-year-old male was driving alone in his sports car, without seat belt restraint, along a two-lane road. He lost control of the vehicle, which went off the roadway, flipped into the air, and landed on its roof in a ditch that contained four inches of water. It is not known how long the man was in the car prior to the arrival of the first bystanders who attempted to render aid, but the time interval was less than 10 minutes. The first bystanders attempted to pull the man from the passenger window of the car. When police arrived at 10 minutes from the time of the initial accident, the man was found face down outside the passenger window of his car. Emergency medical personnel failed to find a pulse, and he was pronounced dead. External examination of the body revealed adherent leaves and mud, with dicing injury to the forehead, left flank, and left thigh. Lacerations and bruising were apparent on the chin and lower extremities. Conjunctival and intraoral petechiae were identified. No other major trauma was obvious on external physical exam. Drowning was not considered among the causes of death at initial examination. Positional or traumatic asphyxia was considered.

**Case Three:** A 46-year-old male with a history of alcohol abuse was riding his bicycle at night along a street. He was struck by a motor vehicle, thrown into the air, and landed in a ditch, face down, in 6-7 inches of water. He remained in the water for several minutes, because the woman whose car had hit him was unable to pull him out unassisted. Ultimately, other bystanders pulled the man out of the water, but by that time emergency personnel could not revive him. External exam was remarkable for lack of injury, other than superficial abrasions on his hip and thigh. Cervical fracture was considered the likeliest possibility at initial examination.

These three cases underscore the difficulty in identifying what role drowning may play in death. Evaluation of the scene, the body, and the history may suggest a misleading cause of death. Autopsy may be required to make an ultimate diagnosis.

**Drowning, Asphyxia, Violence**