



### H151 Deaths Due to Illegal Immigration: Always Drowning?

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**Learning Overview:** After attending this presentation, attendees will be able to describe the impact of differential diagnosis in suspected drownings.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by demonstrating the role of autopsy and forensic investigations in landings of illegal immigrations.

The phenomenon of illegal immigration causes many victims every year. In most cases, the lack of safety measures on the boats increases the incidence of tragic accidents. Between 2002 and 2017, more than 300,000 immigrants died during illegal disembarkations on the Mediterranean Sea. This phenomenon still occurs on Ionian coasts.<sup>1</sup> In the majority of cases, the cause of death is drowning. Death also occurs due to pre-existing diseases, trauma, hypothermia, dehydration, and postpartum complications. The dangers include shipping incidents or crimes committed by smugglers against migrants who escape when they notice the authorities of the coast guard. The differential diagnosis between drowning and other causes of death is often complicated and requires multiple investigations. This issue is analyzed through a case of suspected drowning that occurred during an illegal landing.

**Case Report:** An unidentified Black youth, 14-16 years old, was found dead on a beach. The cause of death was unknown; the investigators suspected a drowning during an illegal landing. A judicial inspection and a radiological investigation (Computed Tomography/Mass Spectrometry (CT/MS)) were conducted. An autopsy, with histopathological investigation and search for diatoms, was performed. The data were compared and analyzed. Finally, a protocol provided by the International Criminal Police Organization (INTERPOL) for the identification of the corpse was activated.

**Results:** The external examination showed the presence of algae, sand, and piloerection with skin maceration. The autopsy revealed a wide fracture of the left femur. A massive pulmonary thrombus-embolus was found; other clots were found in the heart and were also within the structure of the papillary muscles and tendons, until the superior and inferior vena cava. A histopathological investigation showed the presence of diatoms within the lungs and other organs.

**Discussion:** Drowning is an asphyxia that is caused by the entry of water within the airway. Globally, deaths by drowning are estimated to be 370,000 per year.<sup>2</sup> Drowning may often occur in cases of illegal landings of migrants. In these cases, the forensic pathologist must exclude other causes of death before the diagnosis of drowning. Also, he must investigate signs of trauma, violence, or skin injuries on the body. In the case reported, the external examination didn't show typical signs of asphyxia. The autopsy did not show the presence of water in the stomach or bowel; the radiological investigations supported the autopsy findings. In addition, the histopathological investigation revealed the presence of diatoms within the lungs and other organs. This data could confirm the diagnosis of drowning. However, the autopsy revealed that the real cause of death was a pulmonary thromboembolism due to the femoral fracture. The diagnosis of drowning, therefore, was excluded. Finally, the dynamics were reconstructed: the boy was thrown into the sea and the trauma caused the left femur fracture; later he reached the shore, where he remained for about two days until he died of pulmonary thromboembolism. The case reported shows the importance of a careful interpretation of the data. The finding of diatoms is not always pathognomonic for drowning, and the diagnosis requires the exclusion of other possible causes. Therefore, a comparison of multiple forensic surveys is essential before diagnosis.

**Conclusions:** Illegal immigration is a major public issue. In case of illegal landings, forensic sciences are necessary to investigate cases of violence or deaths linked to the phenomenon. In these cases, the forensic pathologist performs a differential diagnosis with drowning. Many forensic surveys must be carried out before this diagnosis. Autopsy remains the gold standard for excluding other causes of death and to establish time and manner of the event.

#### Reference(s):

1. LINKIESTA. <https://www.linkiesta.it/article/2017/03/17/negli-ultimi-15-anni-sono-morti-nel-mediterraneo-oltre-30mila-migranti/33575/> (accessed on 07.30.2018).
2. Tyler M.D., Richards D.B., Reeks-Nielsen C., Saghafi O., Morse E.A., Carey R., Jacquet G.A. The Epidemiology of Drowning in Low- and Middle-Income Countries: A Systematic Review. *BMC Public Health*. 2017 May 8;17(1):413.

#### Forensic Science, Illegal Immigration, Drowning