

H126 A Multidisciplinary Approach Is Mandatory in the Forensic Sciences

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Learning Overview: After attending this presentation, attendees will better comprehend the importance of a multidisciplinary approach in forensic science, particularly in solving not only complex cases.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing scientific data on the importance of the multidisciplinary approach in the management of forensic cases. Specifically, this presentation examines the importance of applying a multidisciplinary approach to not only complex cases; the combination of all evidence can lead to the correct reconstruction of the events.

The word forensic originates from the Latin word *forensis*, which means: public, to the forum, or public discussion. A modern definition of forensic is: relating to, used in, or suitable to a court of law.¹ Forensic sciences concern the application of scientific knowledge to legal problems, and they are vital tools in any legal proceeding.²

The forensic sciences, including forensic chemistry, forensic biology, forensic anthropology, forensic medicine, forensic material science, forensic engineering, computational forensics, etc., are broadly used to resolve civil disputes, to justly enforce criminal laws and government regulations, and to protect public health. Frequently, several crimes are classified as “cold cases” because they remain unsolved; in contrast, in other cases an individual may be convicted of a crime they did not commit, resulting in innocent subjects being condemned. These two undesirable situations could be the result of lost evidence during a criminal investigation.

In this presentation, a literature review was conducted; its aim was to highlight the importance of a multidisciplinary approach in solving cases in a forensic investigation. Particularly, this presentation highlights the importance of collaborating with different professionals in order to address all questions related to the so-called “cold” case. Moreover, the importance of a multidisciplinary approach should not only be to complex cases, as the combination of all evidence can lead to the reconstruction of the events.

Five case reports were selected: in the first case, a 31-year-old weightlifter, who presented to the emergency department due to an accidental fall that resulted in left thigh trauma was presented.³ In Case 2, a suspected car accident was discussed.⁴ Case 3 concerned the case of a 55-year-old man who was killed in front of his neighbor’s house.⁵ Case 4 reports the case of a 55-year-old man found dead by his wife in his covered garage.⁶ Finally, the last case discussed a 42-year-old male who died from unknown causes in his home.⁷ In Case 1, the cause of death was due to necrotizing fasciitis as an unusual consequence of anabolic-androgenic steroid use. In Case 2, the identification of a fiber was fundamental to distinguish between an accident and a homicide. In Case 3, the disciplinary teamwork of several forensic experts clarified a complex dynamic of a homicide. In Cases 4 and 5, a multidisciplinary approach allowed the exact cause of death to be ascertained, excluding the hypothesis of sudden death. In Case 4, the cause of death was a fatal arrhythmia due to the cardiotoxic effects of cocaine consumption. In Case 5, it was determined that the cause of death was respiratory distress due to COVID-19 infection.

This cases series shows that in forensic cases, particularly in complex criminal cases, the use of a multidisciplinary approach is mandatory. This has to involve different specialists, depending on the cases, to guarantee a complete and correct scientific evaluation to support the investigation.

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