



### E62 Complex Suicides and Where to Find Them: Disclosing the Mystery

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**Learning Overview:** The goal of this presentation is to discuss the wide spectrum of methods employed to commit suicide, including complex suicides, and how a methodological, multidisciplinary approach is mandatory to define the cause of death and serve justice.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by helping pathologists with the management of particular cases, such as complex suicides, and also to show the importance of a methodological multidisciplinary approach to support investigations and find the solution.

Suicide is a serious widespread health problem; according to the World Health Organization data, suicide completion accounts for one death every 40 seconds. Complex suicides deal with more than one method employed to commit suicide, accounting for only 1.5%–5% of all completed suicides. These cases represent a significant challenge for the forensic team, particularly in the definition of the cause of death and the reconstruction of the event. Four cases between 2010–2017 were analyzed by the Department of Forensic Sciences of the University of Foggia. To solve these cases, a multidisciplinary approach was needed and included: a careful crime scene investigation, a complete victim medical history analysis, a meticulous autopsy, with histological and immunohistochemical examinations, and both toxicological and genetic support.

The first case dealt with a 38-year-old man who was found lifeless in the woods with multiple adhesive band loops, obstructing his nostrils and mouth, and two gunshot wounds at the right temporal region and left thoracic side. A gun was located a few meters from the car.

The second case concerned a 32-year-old man found dying in his own car at a highway rest area. He had a deep neck wound, which exposed the underlying hemorrhagic muscular tissues and the laryngeal cartilages. This wound was inscribed in a complex of superficial slashed wounds. The left wrist was also slashed.

Another case dealt with a 76-year-old woman found lifeless in her house, hanging from a scarf wrapped around her neck, in the storage room with multiple superficial and parallel slashed wounds to the flexor surface of both forearms. In her bedroom, a white cotton sheet was found, severely blood stained with a kitchen knife on it.

Last, at a beach resort, a 46-year-old male body was found hanged. A hangman’s noose was made of his car safety belts tied together and was attached to the air conditioning fan. On this fan, a blood-stained knife was also found. His van had a tube connected from the muffler to the right-side window.

In all of these cases, only the mindful integration of all evidence can provide the most reliable reconstruction of the lethal chain of events leading to suicidal choices: all were complex suicides.

To complete the analysis of these cases, given the recent interest in the relationship between polymorphisms in the promoter region of the serotonin transporter gene (SLC6A4 gene) and psychiatric disturbances, this region was tested. In particular, the presence of one or two short alleles of 5-HTTLPR was associated with anxiety-related personality traits and psychiatric disturbances, such as depression. Genetic tests identified the hidden line that linked each case to the others: all subjects were homozygote for short variant.

#### Complex Suicides, Multidisciplinary Approach, 5-HTTLPR Short Allele