



H31 A Case of Suicide by Hemlock Intoxication

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Learning Overview: The goal of this presentation is to highlight the death of a 52-year-old Caucasian male due to hemlock intoxication, a rare method of suicide.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by illustrating the deadly effects of hemlock intoxication on adults and educating attendees on how to identify possible hemlock poisoning through scene investigation and autopsy and also how to confirm the presence of hemlock in various samples through forensic laboratory testing.

Introduction: Poison hemlock (*Conium maculatum*), the infamous plant responsible for the death of Socrates, is toxic to humans and animals. Ingestion has been recorded in the literature, mostly in cases of accidental ingestion due to its similar appearance to other plants. In cases where hemlock led to death, the cause of death is usually associated with respiratory arrest, muscle paralysis, or complications of acute renal failure.¹ While the entire plant is toxic, the most dangerous part is the seeds, which contain the highest alkaloid concentration.² It contains eight piperidine alkaloids, with the most potent one being coniine. Coniine is a neurotoxin that disrupts the function of the peripheral nervous system, causing respiratory paralysis. Initial symptoms include nausea, vomiting, abdominal pain, hypertension, tachycardia, tremor, and temperature increase.^{1,3} Symptoms progress toward central nervous system depression, coma, muscular weakness and/or paralysis, with respiratory distress.² In some cases of hemlock ingestion, renal failure and renal tubule damage have been reported.³ The concentration of alkaloids found in each plant varies depending on age of plant, season, and precipitation.⁴ No antidote exists for hemlock specifically.²

Materials and Methods: This case involved a well-developed (5 feet, 10 inches; 176 pounds) 52-year-old Caucasian male who committed suicide by ingesting hemlock. The decedent had a history of suicidal ideations, as evidenced most recently by suicidal text messages found on his phone. His text messages revealed symptoms of muscle weakness, difficulty walking, and decreasing consciousness. His text messages revealed that he had recently attempted suicide by hemlock ingestion but had been unsuccessful. He also had a history of tobacco use, anxiety, depression, and attention deficit disorder. Various samples were tested using liquid extraction and solid phase extraction and Gas Chromatography/Mass Spectrometry (GC/MS).

Results: Aside from slight atherosclerosis and left and right ventricular hypertrophy, postmortem examination revealed no evidence of any significant natural disease process, physical violence, or trauma. The stomach contained 275cc of green leafy material with a small amount of dark red to brown admixed liquid. The proximal duodenum contained a small amount of similar green leafy material. No pills or capsules were identified in the stomach. Confirmatory testing is pending at this time, but circumstantial evidence indicates that the decedent died from intentional hemlock ingestion, and the death certificate has been finalized.

Discussion: Ingestion of hemlock is a rare method of suicide. Botany examination of the leafy material recovered from the decedent's stomach contents confirmed that the material was consistent with *Conium maculatum*, also known as poison hemlock. This case emphasizes the need for further investigation regarding hemlock intoxication, as diagnosis of hemlock poisoning is challenging and there is a lack of scholarship on its biological half-life, levels at which hemlock is fatal, and human metabolism of hemlock alkaloids.

Reference(s):

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Hemlock, Intoxication, Suicide