



H163 Homicide by Intramuscular Cyanide Injection: Investigation and Adjudication

Megan R. Hall, BA*, Eastern Virginia Medical School, Norfolk, VA 23507; Wendy M. Gunther, MD, Office of the Chief Medical Examiner, Tidewater District, Norfolk, VA 23510-1046

Learning Overview: After attending this presentation, attendees will: (1) be familiar with the presentation of cyanide poisoning, (2) be aware of historical examples of cyanide poisoning, and (3) have learned about the adjudication of a case of homicide by intramuscular cyanide poisoning.

Impact on the Forensic Science Community: This presentation will impact the forensic science community through increased competence in recognizing the signs and symptoms of cyanide poisoning and understanding the adjudication of a case of a homicide by cyanide injection.

Fatalities from cyanide are relatively rare. Most cyanide fatalities involve ingestion by mouth or inhalation of cyanide gas.¹ Ingestion of cyanide has been used in homicides, such as the unsolved case of the “Tylenol® murders” in Chicago, in which several people died from unknowingly ingesting acetaminophen laced with cyanide. Its gaseous form has been used in genocide, as was seen with the use of Zyklon B in Nazi Germany. Suicide by cyanide gas or ingestion is more common than homicide; both are infrequent in the United States, as cyanide is difficult to obtain.² Historical records show that cyanide was ingested in pill form by Nazi officers to commit suicide; it was mixed with Kool-Aid® in the Jonestown mass suicide; and the computer scientist Alan Turing laced an apple with cyanide when persecuted for his sexual orientation. Fatalities by cyanide injection, particularly homicidal, are rarely reported.^{2,3} This report presents the investigation, autopsy, and adjudication of a case of homicide by cyanide injection.

A young woman returning from work, on exiting her car, was attacked by a man who had been hiding in her bushes. He stabbed her in the left buttock with a needle, injecting something, and ran away. The victim cried out to her mother in agony and collapsed. Emergency medical services were activated and noted that the victim was unresponsive, with decorticate posturing, and with a gaze that was fixed to the left. Communication with her mother was hindered by a language barrier; seizure was initially suspected.

On emergent transport to the local hospital, she was in distress; hypotensive, with progressively falling blood pressure; in acute respiratory failure; and in metabolic acidosis, with a profound anion gap. Global hypoxic-ischemic encephalopathy on Computed Tomography (CT) scan developed within hours; death ensued 20 hours after the assault. Hospital toxicology on plasma drawn about four hours after the assault identified cyanide at a level of 4.053mg/L (reported normal range, non-smoker, less than 0.025mg/L; smoker, average 0.41mg/L; death, associated with values greater than 3mg/L).

Forensic autopsy identified a dermal puncture on the left buttock, found no competing cause of death, and no pregnancy. The postmortem toxicology report confirmed the presence of cyanide.

In the meantime, police developed information implicating the decedent’s ex-boyfriend, who was also the father of the decedent’s 2-year-old child; they were in the middle of a custody battle. He was also a suspect in an assault on the same victim two and one-half months earlier, during which the assailant, who attacked her when she exited her vehicle, tossed a cupful of chemical liquid into her face.

Approximately 15 months after her death, trial began. Evidence submitted by prosecution included security footage from outside the decedent’s home that captured the attack, a description of the assailant by the victim’s mother, forensic evidence from the defendant’s computer, including multiple web searches such as “what if cyanide gets injected?” and “how many mg of cyanide will kill you?,” and documentation that he purchased a hypodermic needle from an internet seller. The hypodermic needle was delivered to a pizza parlor he frequented, with testimony from the employees that he witnessed retrieving it. Prosecution was unable to document how or where the defendant might have purchased cyanide.

Defense focused on a claim that the defendant could not have attacked the decedent because he was 2.5 hours away, in a different city, as illustrated by phone records. However, the defendant’s phone, although remaining in that city, was not used for outgoing phone calls or texts for a period of 22 hours (from 3 hours prior to the attack until 19 hours afterward).

The defendant was found guilty of first degree murder; sentencing is pending.

Reference(s):

1. Chin R., Calderon Y. Acute Cyanide Poisoning: A Case Report. *The Journal of Emergency Medicine* 2000; 18: 441-445
2. Prieto I., Pujol I., Santiuste C., et al. Acute Cyanide Poisoning by Subcutaneous Injection. *Emergency Medicine Journal* 2005; 22:389-390.
3. Abeyasinghe N.L., Perera H.J.M., et al. Case Report—Death by Subcutaneous Injection of Cyanide in Sri Lanka. *Journal of Forensic and Legal Medicine* 2011; 18: 182-183

Intramuscular Cyanide Injection, Homicide by Cyanide Injection, Forensic Sciences