

Psychological Autopsy: A case report unraveling the complex factors surrounding a sudden Death

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ABSTRACT

The psychological autopsy aims to provide a comprehensive analysis of the psychological, emotional, and behavioural history of the deceased before death, shedding light on potential factors contributing to the untimely demise. This case report delves into the application of a psychological autopsy in understanding the circumstances and psychological factors leading to the unnatural death of a 29-year-old male who was found dead under mysterious circumstances. This report examines the methodology involved in conducting a psychological autopsy, emphasizing the importance of gathering information from various sources, including medical records, interviews with family and friends, and exploration of the individual's past mental health issues, stressors, and life events, which helped in shedding light as to the manner of death and guiding the forensic pathologist to send for the necessary ancillary biochemical investigations.

KEYWORDS: Psychological Autopsy; Sudden Death; Manner of death; Forensic Pathology.

INTRODUCTION

The human brain is a marvel of evolution, comprising billions of neurons and trillions of connections. It is this intricate structure that gives rise not only to a wide range of cognitive abilities but also to various pathologies, including structural balance and neurohormonal abnormalities that has opened a new domain in the field of forensic medicine- Psychological Autopsy.¹ A psychological

autopsy is an investigative tool that aims to provide a thorough understanding of the psychological and emotional factors contributing to an individual's death, particularly in cases of suicide or death under suspicious circumstances.² The method involves a multidisciplinary approach, combining information from various sources to paint a comprehensive picture of the individual's psychological history.³ By piecing together these multifaceted aspects, a psychological autopsy aids in gaining insights into the person's state of mind, thus contributing to a deeper comprehension of the complex interplay of psychological factors leading up to the tragic event. This approach proves valuable for researchers, clinicians, and law enforcement agencies in identifying potential preventive measures and addressing mental health challenges.⁴

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CASE HISTORY

A 29-year-old male was found to be lying unconscious in his room which was bolted from



inside. He was recovered and brought to the emergency department of a medical college where he was declared "Brought Dead."

Autopsy Findings

General findings are that of an average-built and nourished male subject having rigor mortis over the lower portion of the body, hypostasis of bluish-purple color over the front, of the trunk, upper limbs, and, lower limbs, which was fixed and more prominent over the right half of the body. Bluish discoloration of fingertips, nail beds of both sides, the tip of the tongue, and ear lobules was noted:

Injuries

1. One lacerated wound measuring 1" x 0.5" over the inner aspect of the midportion of the lower lip.
2. One bruise measuring 1" x 0.5" over the outer aspect of the midportion of the upper lip.
3. One abrasion measuring 2.3" x 0.5", was placed obliquely over the right side of the face; the upper end of which was 4" from the midline and 2.5" vertically above the right angle of the mandible, and, the lower end was 3.5" from midline.
4. Internal examination: - Stomach contained 100 grams of bluish turbid fluid with a fair number of flakes of mucous with evidence of patchy erosion of mucosa and submucosal hemorrhage. Both lungs were oedematous with evidence of subpleural petechial hemorrhage at places. The heart weighed 286 grams with evidence of Grade-II and Grade-III atheroma at the root of the aorta. All the valve cusps were sclerosed, thickened, and calcified. The rest of the organs were unremarkable other than being congested. Routine viscera, clotted blood (10 ml), blotting paper with soaked blood, nail scrapings, and cuttings, a tuft of scalp hairs (plucked), and wearing apparel were preserved.
5. Spectrophotometric analysis of the samples that were sent for chemical examination including toxicological screening revealed a significant quantity of cyanide as given in the following table:

Exhibit No	Specimen	Quantity of Cyanide (in ppm)
A	Peripheral blood	266
B	Stomach contents	274

The place of Occurrence

1. The deceased was found to be lying in a prone position.
2. Several pieces of evidence were recovered from the crime scene, including the mobile phone of the deceased, one empty glass, and a four-page hand-written suicide note.
3. The mobile phone contained a ten-minute recording, in which the deceased was seen to be grieving about the various incidents that happened in his life, suggestive of his depressive state.
4. The letter that was recovered contained a pen picture of his past life, his family members, and the tension in his relationship all culminating in emotional distress and mental health challenges.
5. In one section of the letter, he appealed to both the judiciary and the forensic department not to investigate the cause of his death as it would lead them to a dead end only.

Information from medical records, personal diaries, and interviews with family, friends, and co-workers

The medical history of the deceased was reviewed, and personal interviews were conducted with family members, friends, and co-workers. The results were as follows:

1. The subject was a BSc Physiology student in one of the reputed institutions of the city.
2. His family owned their medical diagnostic laboratory setup, which was non-functioning for the last few months.
3. He was living alone in a rented apartment, preparing for competitive examinations, even after several failed attempts.
4. He was a well-spoken and thoroughly read person having complex insight into the aspects of life and death.
5. He was eccentric, suffering from intense mental agony, a smoker, non-alcoholic, and was in debt of a big sum of money.
6. The estimated time since death was calculated to be four hours approximately preceding the recovery, which implied that he had expired around 4 p.m. of the fateful day. However, one of his friends informed the police that he had received one e-mail from the deceased at around 9:39 p.m. This piece

of information suggested that the deceased was quite tech-savvy, and had proficient knowledge of “Message scheduling” and the use of modern technology

7. Inquiry into the past medical history reveals, he had juvenile Nasopharyngeal Angiofibroma which was operated and he had been on anti-depressant medications for a long duration.
8. The laboratory workers forwarded the information that the deceased had been visiting the laboratory quite often in the past few months, the reason for that was not known to them. A list of chemical reagents and containers was sought from the laboratory-in-charge and it was found that a container of Drabkin's reagent, containing approximately one liter of the solution, was missing for a few days.

DISCUSSION

In medico-legal autopsies, the history is often scanty, absent, or misleading. Even when a story is given in good faith by relatives, the medical facts often get distorted because of incomplete knowledge and understanding.⁵ However, just like a final diagnosis of a diseased condition is reached with good history taking, appropriate elicitation of clinical signs, and advising required investigations; the same approach goes for making of opinion after conducting an autopsy if initial post-mortem findings are confusing. In this case, poisoning due to intake of cyanide-containing Drabkin's solution was theorized from the history given by the deceased's friends and relatives and also further investigations by the police. Drabkin's reagent (named after the American hematologist Samuel Drabkin) is a laboratory solution used for the quantification of hemoglobin in blood samples. When mixed with a blood sample, the reagent converts hemoglobin into cyanmethemoglobin, a stable compound, which absorbs light at a specific wavelength. However, it is important to note that the reagent contains potentially hazardous substances. These are as follows: Potassium ferricyanide 0.1% (w/v), Potassium cyanide 0.1% (w/v), Potassium

dihydrogen phosphate 0.015 M.

The reagent has been shown to manifest symptoms of acute toxicity if swallowed, fatal in contact with the skin, and harmful if inhaled.⁶ Cyanide is an asphyxiant, having an average lethal dose of 250 mg,⁶ which can lead to generalized convulsions, often leading to accidental falls and resulting injuries. Post-mortem findings of acute cyanide poisoning, through the oral route, are erosions of oral and gastric mucosa, edema of the lungs, well-developed pinkish hypostasis, and well-demarcated signs of asphyxial death.⁷ However, based on the past medical history of the deceased, a high probability of some fatal disease condition in the individual could not be ruled out, which might have caused sudden death. It was revealed that the subject had a history of depression and had experienced several recent life stressors, including job loss and relationship difficulties. The interviews highlighted increased social withdrawal and changes in behavior in the months preceding the event. Analysis of personal diaries further corroborated the emotional turmoil and internal conflicts.

CONCLUSION

Following the fundamental approaches of the psychological autopsy, a clear understanding of the individual's psychological state, which most probably culminated in a suspicious death is unveiled. The findings from the psychological autopsy underscore the complex nature of the factors that contributed to the individual's tragic event. The interplay of past mental health issues, recent stressors, and changing behavior patterns painted a nuanced picture of the psychological struggles, emphasizing the importance of a multidisciplinary approach in understanding the multifaceted factors leading to such events.

The role of psychological autopsy thus becomes two-fold in this case, to establish the cause of death and provide an insight into the identification of risk factors like mental illness, substance abuse, or interpersonal conflicts. This can help to inform suicide prevention efforts mental health interventions and awareness programs, which can have an individualized or social approach.^{8,9}

CONFLICT OF INTEREST: None

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