Case Report

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Delayed Fatal Outcome in Hanging: A Case Report

Mustafa Khan[1], Ammu. M. G.[2], Arun Kumar Yadav[3], Hitesh Chawla[4], Nishant Sharma[5]

[1,2,3]Post-Graduate Resident, Department of Forensic Medicine & Toxicology, SHKM Govt. Medical College, Nalhar, Nuh, Haryana, India.
[4]Professor, Department of Forensic Medicine & Toxicology, SHKM Govt. Medical College Nalhar, Nuh, Haryana, India.
[5]Junior Resident, Department of Nephrology, DCDC Center, Haryana, India.

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ABSTRACT

Hanging is a type of asphyxia caused by the suspension of the body by a ligature around the neck, with the constricting force being the weight of the body. This method is notably prevalent among young adults as a means of suicide, primarily due to its painless nature and the fact that death typically occurs almost instantaneously, usually within a fatal period of 3–5 minutes. Most patients develop respiratory and neurological complications immediately after their onset. Survival is rare, and those who survive often face delayed complications of hanging, which can occur days or even months after the incident. A case report of a young female who died due to delayed death from hanging occurred 4 months and 2 days after the incident. The patient eventually died due to aspiration pneumonia, which is one of the most fatal complications.

Introduction

Self-suspension, also known as hanging, is a method of asphyxiation in which the body's weight applies pressure to a ligature encircling the neck[1]. This technique is frequently employed in suicides, with the National Crime Records Bureau (NCRB) 2022 report indicating that 58.2% of suicide fatalities in India result from hanging[2]. Typically, death by hanging occurs within 3–5 minutes. The primary causes of death in such cases include oxygen deprivation, venous blood accumulation, a combination of these two factors, reduced blood flow to the brain, reflexive inhibition of the vagus nerve, and damage to the neck vertebrae through fractures or dislocations. Even if a person initially survives a hanging attempt, they may die hours, days, or weeks later because of various complications. These include aspiration pneumonia, swollen tissues in the pharynx or aryepiglottic fol ds, emphysema, extensive subcutaneous and mediastinal emphysema caused by tracheal and laryngeal tears, infections, swelling of the larynx and lungs, and brain disorders such as abscesses, hypoxic encephalopathy, infarction, and cerebral softening[3]. This instance involves a woman who endured for 4 months and 2 days following a hanging incident before succumbing to aspiration pneumonia, which is recognized as the second most frequent delayed complication associated with hanging.

Case Report

An unconscious 26-year-old married woman was admitted to our hospital's Department of General Medicine.

*Corresponding author.
E-mail address: ammumg45@gmail.com (Ammu. M. G.)
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She had reportedly attempted hanging at her spouse's residence seven days prior. After receiving treatment at a local medical facility in her hometown for a week, she was transferred to our hospital for additional evaluation and care. She was conscious but not oriented to time, person, or place during admission and was admitted to the ICU. The GCS was 06/15 (E4V1M1). A tracheostomy was done in anticipati on of prolonged ventilatory support. The condition of the patient was apparently the same until one week before death. The general condition of the patient start ed to deteriorate within days, and ABG analysis show ed a poor prognosis. Chest radiography revealed multilobar consolidation on the right side. The patient died after four months and two days of survival. The deceased was brought for a medicolegal autopsy, and the following findings were observed.

Autopsy Findings

External Findings: The body of the deceased was pale and emaciated [Figure 1]. Rigor mortis was present all over the body. Bony markings were prominent. Edema was present on both the hands and feet. Bed sores were found in the greater trochanter area of the right leg and back. The tracheostomy wound was intact. The mouth and eyes were partially open [Figs. 2 and 3]. Neck: A healed ligature mark of size 4.5 cm x 1 cm was present, which extend ed from the right side of the neck to the midline in the front, situated 2 cm below the right angle of the mandible and 6 cm below the chin [Fig. 4]. Internal Findings: The brain was pale, soft, and edematous. The lumen of the respiratory tract was filled with large amounts of mucus [Figs. 5 and 6]. The lungs were pale and consolidated in color. Each pleural cavity contained approximately 50 ml of yellowish-colored fluid. The peritoneum contained approximately 150 ml of straw-colored fluid. All other internal organs were soft and pale. The brain, lungs, liver, spleen, and half of each kidney were preserved and sent for histopathological examination. Microscopic analysis of the pulmonary tissue revealed evidence of aspiration pneumonia. Acute inflammatory cells and amorphous eosinophilic exudate were observed in the bronchioles and alveolar spaces. Edema and inflammation caused the alveolar septum to appear swollen. Furthermore, the detection of lipid-laden macrophages (foamy cells) and foreign-body giant cells provided additional support for the aspiration pneumonia diagnosis. These findings were consistent with the characteristic features of this condition [Fig. 7]. Histopathology of the brain showed swelling of the brain tissue and an increase in interstitial fluid. The pleural fluid was preserved and sent for microbiological examination, and the identified pathogen was Staphylococcus aureus on blood agar as golden yellow, beta-hemolytic colonies [Fig. 8].

The cause of death was aspiration pneumonia due to hanging.

Fig. 1: General condition of body

Fig. 2: Bed sores

Fig. 3: Bed sores

Fig. 4: Tracheostomy wound

Fig. 5: Lumen of trachea

Fig. 6: Froth in larynx

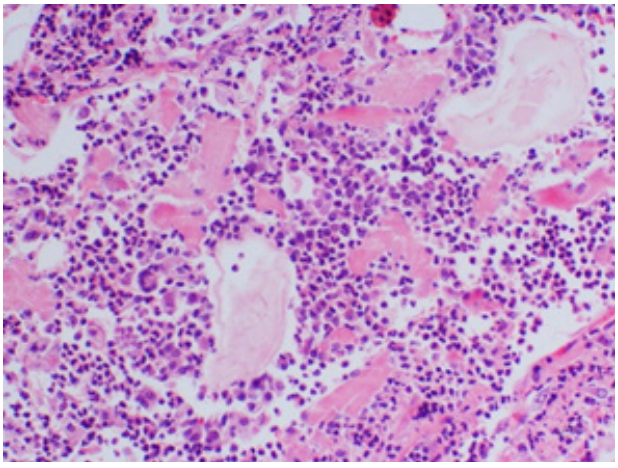

Fig. 7: H&E of lung tissue

Fig. 8: Growth of Staphylococcus on blood agar

Discussion

Aspiration occurs when contents from the stomach or oropharyngeal region are inhaled into the larynx and lower respiratory trac[4]. This process can result in various pulmonary conditions, ranging from airway blockage and pneumonia to chemical lung inflammation or acute respiratory distress syndrome, all of which can cause significant illness and death rates[5]. Aspiration pneumonia is a pulmonary condition caused by the ingestion of bacteria-rich oropharyngeal fluid into the respiratory tract. Aspirated fluid may contain oropharyngeal secretions, particulate matter, or gastric contents. Aspiration pneumonia is a condition that predominantly affects older adults and is present in a variety of clinical settings. It predisposes individuals with cognitive disabilities and gastrointestinal (GI) or neurological disorders to abnormal swallowing, thereby posing significant risks of morbidity and mortality. Aspiration pneumonia is a common complication of motor neuron diseases/conditions, multiple sclerosis, Huntington's disease, Down syndrome, and cerebral palsy.

Sane et al. [6] conducted a seven-year investigation of cases of near hanging that resulted in fatalities. Their findings indicated that respiratory complications were the sole cause of death in two cases, while cervical cord injury accounted for two additional cases. In one case, pneumonia associated with hypoxic encephalopathy was the cause of death. Although most near-hanging patients ultimately succumbed to hypoxic encephalopathy, pneumonia was identified as the next most prevalent cause of death[7].

Kumar and Punitha documented three instances of delayed fatalities resulting from hanging in their case series. The first incident involved a 22-year-old man who survived for three days before succumbing to hypoxic encephalopathy and pulmonary edema. In the second case, a 30-year-old woman lived for six days before dying from pulmonary edema and hemorrhage. The third case

involved a 53-year-old man who remained alive for 36 hours before passing away due to hypoxic encephalopathy and aspiration pneumonia[8].

Khetre et al. reported a case of delayed death in hanging. The deceased remained unconscious throughout the admission period and died after seven days. On autopsy, the brain and both lungs were found to be edematous. Histopathology of the brain showed hypoxic brain damage and pulmonary edema with consolidation in the lungs[9].

A research study by Debbarma and Deka examined eight cases of delayed fatalities resulting from hanging. The study population consisted of an equal number of males and females, with ages ranging from 15 to 50 years. Five instances involved partial suspension, whereas three involved complete suspension. Survival duration ranged from 1 to 15 days. The primary causes of death were identified as follows: four individuals succumbed to hypoxic encephalopathy accompanied by pulmonary edema, two died from pulmonary edema alone, one from a combination of hypoxic encephalopathy and pneumonia, and one exclusively from pneumonia[10].

Conclusion

The specific timeframe for death resulting from attempted hanging was not fixed. The absence of extensive data regarding the duration of suspension and the time elapsed between the act of hanging and the initiation of resuscitation poses a considerable obstacle for research. Prompt resuscitation and careful evaluation of additional prognostic indicators may provide individuals with renewed opportunities for survival. Death occurs near hanging due to various complications. Therefore, proper nursing care can contribute to the quality of life of survivors.

Author contributions

All authors contributed to the study design and conception, manuscript drafting, and approved the final draft of the manuscript.

Conflict of interest

The authors have no conflicts of interest to declare.

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None.

Ethical Clearance

Not applicable.

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