

CASE REPORT

Delayed Death followed by Hanging: A Case Study Report

AKHTER S¹, RAHMAN N², HAQUE SMT³, RAHMAN MS⁴, SULTANA N⁵, MAKSUD M⁶

Abstract

Hanging is one of the most common methods of suicide in Bangladesh. Because of painless and instantaneous nature as well as availability of ligature material it is one of the chosen methods of suicide. In most cases death occurs immediately but sometimes delayed death also may occur. We report a case study on delayed death after the attempted suicidal hanging of a 25 years old young female. According to police inquest report and hospital records the woman was brought into hospital in unconscious state with alleged history of attempted suicidal hanging, with the complain of her face was congested with froth on her mouth, cyanosed, on her neck a ligature mark was found. An X-ray chest appeared with bilateral diffuse infiltrates, suggestive of pulmonary edema. Her neurological and respiratory conditions declined. After three days of the occurrence she developed a cardio-respiratory failure leading to death. After that, a postmortem examination was performed in the department of forensic medicine at Dhaka Medical College. Although the delayed death due to hanging is rare case, increasing awareness of such cases and could be reported early among the people.

Key words: Delayed death, Hanging, Suicide.

Journal of Green Life Med. Col. 2021; 6(1): 36- 38

Introduction:

Hanging is the form of an asphyxia which is caused by the suspension of the body by a ligature material which encircles the neck where the constricting force being the weight of the body.¹ Complete or partial suicide is the act of intentional taking of one's own life. The term "suicide" originated from modern Latin *suicidium*, where *sui* means "of oneself" and *cidium* means "a killing," from the word *caedere* means "to kill, chop or stab".²

Suicidal hanging is considered to be preferable and painless method of killing oneself. Hypoxia is a common condition refers to the inadequate supply of oxygen to the tissue or perhaps an impairment of oxygen utilization by cells for any reason.³ Causes of death are "asphyxia, venous congestion, combined asphyxia and venous congestion, cerebral anaemia, reflex vagal inhibition, fracture or dislocation of cervical vertebrae".⁴ Delayed death occurs due to "aspiration pneumonia, infection, edema of lungs, oedema of larynx, hypoxic encephalopathy, infection of brain, abscess of brain, and cerebral softening".⁴

Case Report:

A 25 years old female was brought into hospital with alleged history of attempted suicidal hanging. She found hanged by using scarf (Orna) which was attached to the ceiling fan. As the occurrence went unnoticed, the length of the hanging was unknown.

According to police inquest report and hospital records she was found unconscious, frothing at the mouth, with facial congestion and cyanosis in the peripherals. An X-ray chest appeared with bilateral diffuse infiltrates, suggestive of pulmonary edema. Her neurological and respiratory conditions declined. After three days of the occurrence she developed a cardio-respiratory capture

1. Dr. Sanjida Akhter, Associate Professor & Head, Department of Forensic Medicine & Toxicology, Green Life Medical College, Dhaka
2. Dr. Nazlee Rahman, Assistant Professor, Department of Forensic Medicine & Toxicology, Green Life Medical College, Dhaka.
3. Dr. Syed Md. Tanjilul Haque, Associate Professor, Department of Forensic Medicine & Toxicology, Anwer Khan Modern Medical College, Dhaka
4. Dr. Md. Samiur Rahman Assistant Professor, Department of Forensic Medicine & Toxicology, Green Life Medical College, Dhaka
5. Dr. Nahid Sultana Lecturer, Department of Forensic Medicine & Toxicology, Holy Family Red Crescent Medical College & Hospital, Dhaka
6. Dr. Md. Maksud Associate Professor & Head, Department of Forensic Medicine & Toxicology, Dhaka Medical College.

Address of Correspondence: Dr. Sanjida Akhter, Associate Professor & Head Department of Forensic Medicine & Toxicology, Green Life Medical College. E-mail: sanjidaakhtermuna@gmail.com

Received: 28.02.2020

Accepted: 20.06.2020

driving to death. After that, a postmortem examination was performed in the department of forensic medicine at Dhaka Medical College.

On external examination, an oblique ligature mark above thyroid cartilage on the neck was seen with no other external injuries. On further dissection of neck structures using bloodless dissection of neck, internally there was parchmentization in the skin underlying the ligature mark. Nasopharynx, larynx, trachea and bronchi were congested with inflammatory signs. Congested and edematous lungs and other internal organs were found as congested.

The opinion concluded the cause of death was due to complications following hanging.

Discussion:

In spite of the fact that hanging is a common method of suicide, however, in the literature, a few cases have been recorded in which death occurred after a certain period of time or the patient survived after extended resuscitation steps.^{5,6,7} Most hospital deaths have been linked to pulmonary complications such as pulmonary oedema, bronchopneumonia, acute respiratory distress syndrome (ARDS), and cerebral oedema.⁸ Wahlen BM & Thierbach reported a certain survival period ranging from 18 hours to 4 days post hanging that resulted in delayed death.⁹ Harish et al. recorded two cases of delayed death that had survived for different periods, 7 days and 14 days respectively.¹⁰ Both of the cases concluded that cerebral anoxia was the cause of death. In another report, Polson et al. found a case where a 63 years old woman died 15 days later from cerebral damage due to cerebral anoxia.¹¹ In six cases of suicides related cases of delayed hanging death reported by Maxeiner, all of which were unconscious through out the period till death.¹² Despite early rescue and resuscitation, a case reported four instances of delayed death after suicide hanging in which the development of pulmonary edema (POPE) lead to death.¹³

Cervical injuries are uncommon in suicide hangings, and death is frequently a prolonged process that takes 8-10 minutes. Suicidal hanging deaths are caused by hypoxia and cerebral ischemia induced by compression of the airway and main blood vessels of the neck caused by a ligature wrapped around the neck, with the force of compression equal the body weight.¹⁴ Bhoi et al. described it this hypoxia as leading to encephalopathy.⁵ Moreover, Walton reported that in case the circulation is established, the patient may survive for a time in a semi comatose state after a period of five to 15 minutes of anoxia.¹⁵

Pulmonary edema appearing after a non-lethal hanging is a rare occurrence. This is most likely due to the low survival rate of suicide or accidental hanging victims.¹⁶ Exhalation against an obstructed airway is assimilated to Valsalva which creates positive alveolar and pleural pressures, leading to pulmonary blood volume being significantly reduced, venous return to the right side of the heart being reduced, and ventricular preload decreasing.¹⁷ As a result, just as the case of laryngeal mass resection or post-adenotonsillectomy, airway pressure falls abruptly, venous return increases, and the preload rises in response to the quick discharge once the obstruction is cleared. This causes an increase in hydrostatic pressure in the pulmonary circuit, which leads to pulmonary edema.^{17, 18}

Two recovery cases after near-hanging injury in childhood were documented by Digeronomo and Mayes.¹⁹ According to them, an important prognostic factor for subsequent recovery is a positive response to initial resuscitation.¹⁹

Conclusion:

In conclusion, fatal period in hanging is not fixed, delayed death occurs due to various complications. Duration of suspension, compressive force and early resuscitation, level of the constriction force applied are also important factors.

References:

1. Singh KP, Marak AR, Meera TH. Multifactorial analysis of hanging deaths. *Journal of Medical Society.* 2013 Jan 1;27(1):49.
2. Retterstøl N. Suicide in a cultural history perspective, part 1. *Norwegian journal Suicidologi.* 1998(2).
3. Modi JP, Modi NJ. *A Textbook of Medical Jurisprudence and Toxicology.* 25th ed. Noida: LexisNexis; 2016: 315-16.
4. Reddy KSN, Murty OP. *The Essentials of Forensic Medicine and Toxicology,* 34th ed. New Delhi: Jaypee Brothers Medical Publishers; 2017: 316.
5. Bhoi SB, Tumram NK and Shinde DK, Chandekar KS. Delayed death after attempted suicide by hanging. *J Punjab Acad Forensic Med Toxicol.* 2013;13(2):86–87.
6. Maled V. Delayed death in hanging. *Indian Journal of Forensic Medicine and Pathology.* 2016; 9(1), 29.
7. Aggarwal NK, Kishore U and Agarwal BBL. Hanging-Delayed Death (A Rare Phenomenon). *Medicine, Science and the Law.* 2000;40(3):270-72. doi:10.1177/002580240004000314
8. Kaki A, Crosby ET, Lui ACP. Airway and Respiratory management following non-lethal hanging. *Can J Anaesth* 1997; 44:445-50. <http://dx.doi.org/10.1007/BF03014468> PMID:9104530

9. Wahlen BM and Thierbach AR. Near hanging, *Eur J Emerg Med.* 2002;9(4):348-50.
10. Harish D, Kumar A, Sirohiwal B and Dikshit PC. Delayed death in hanging: case reports. *J. For. Med. Tox.* 1994;XI, 48-50.
11. Polson C.J., Gee D.J. and Knight B. *The Essentials of Forensic Medicine.* (4th ed) Pergamon Press. 1985: 357-88.
12. Maxeiner H. Delayed death following strangulation (hanging)]. *Arch Kriminol.* 1987;180:161-71.
13. Taware, AA, Jadhao, VT, Tatiya, HS. Delayed death in suicidal hanging: a case report. *J Forensic Med Sci Law* 2013; 22(1): 44–48.
14. Gorden I, Shapiro HA and Berson SD. Deaths usually initiated by hypoxic hypoxia or anoxic anoxia. *Forensic Medicine- A guide to principles.* 3rded. 1998;95-127
15. Walton JN. *Essentials of Neurology* (4th ed). Pitman Medical. 1974.
16. Berdai, AM, Labib, S, Harandou, M. Postobstructive pulmonary edema following accidental near-hanging. *Am J Case Rep* 2013; 14: 350–353.
17. Guffin, TN, Har-el, G, Sanders, A, et al. Acute postobstructive pulmonary edema. *Otolaryngol Head Neck Surg* 1995; 112(2): 235–237.
18. Ringold, S, Klein, EJ, Del Beccaro, MA. Postobstructive pulmonary edema. *Pediatr Emerg Care* 2004; 20(6): 391–395.
19. Digeronomo R.J. and Mayes TC. Nearhanging injury in childhood: a literature review and report of three cases. *Paediatr. Emerg. Care.* 1994;(10)150-56.