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Case Report

Incidental finding of Corrosive Acid Poisoning in a case of Hanging

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Key words

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Abstract

Suicidal deaths due to hanging are documented worldwide as a popular means of suicide and makes the majority of asphyxial deaths. Keeping this in mind, majority of times we proceed every case of hanging like a normal suicidal asphyxial death but very rarely we can find an incidental finding of additional suicidal mode like poisoning as seen in our case. A case of middle aged man with alleged history of suicidal hanging was found with internal visceral findings of poisoning consistent with that of Hydrochloric acid ingestion (confirmed on visceral report). An important message to all forensic experts to carry out an autopsy in meticulous way and don't hesitate to carry or inform about the need of psychological autopsy to the concerned Investigating authorities.

1. Introduction

Death due to corrosive injuries occurs worldwide and do not pose any significant problem for autopsy surgeon to rule out the cause of death. Most of the corrosive injuries are accidental in nature, but there are reports of using acids as weapon (Vitriolage) or as means of suicide.¹

But sometimes even these rare suicidal cause of deaths may be supervene by a common suicidal cause of death and in these situations it may pose a problem for young forensic experts to miss these findings which are supposed to be rare but autopsy carried out in a meticulous way and with a broad mind can help to bestow the actual cause of death which may be significant to Investigating authorities and for statistical purpose for understanding better epidemiology of a particular mode of suicides in a given population or area. Here we present a case of a 28 years old Man with alleged history of hanging and with signs of asphyxia came with a incidental finding of corrosive injuries in viscera specially stomach which

later confirmed to be Hydrochloric acid by the FSL report.

2. Case Report

A 28 years old man working in a chemical factory, was found dead hanging to a ceiling fan in his rented room. The deceased was identified by the police personnel based on his identity card. Body was taken to a tertiary health care centre for autopsy. At autopsy, deceased was of moderate built and well nourished with eyes and mouth partially open, face was congested, both the ear lobules, lips and finger nails of both the hands were showing bluish discoloration (cyanosed), blackish colour froth oozing from both the nostrils and an incomplete oblique ligature mark was present around the neck ([refer figure no.1](#)). There was no evidence of any other external injury over the body. Internally, left pleural cavity contained about 150 ml of reddish blood tinged fluid with some turbid oil like droplets associated with corrosion of medial surface of left lung.

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The left side of diaphragm was perforated corresponding to opening of stomach. Interlobar surfaces of the lungs showed multiple petechial hemorrhages, heart and aorta contained dark fluid blood.

Fig. 1: Picture depicting dissection of neck with infiltration of blood mixed with blackish turbid fluid (mixed with Hydrochloric acid).



Fig. 2: Picture depicting dark blackish discoloration of stomach wall with deeply congested mucosa.



On opening of stomach, 100 ml of blackish fluid present with an abnormal burning odor and was warm to touch, walls showed blackish discoloration and mucosa was deeply congested (as shown in the figure no.2) predominantly over the lesser curvature and the blood vessels around stomach shows prominent venous markings and blackish discoloration, corresponding greater omentum showed blackish discoloration. The viscera were preserved for chemical analysis which revealed the presence of Hydrochloric acid. Histopathology of the lungs showed areas of hemorrhage and congestion,

kidneys showed acute tubular necrosis, oesophagus showed loss of mucosal lining with ulceration and trachea showed congestion with epithelial erosion and liver showed fatty changes and congested capillaries. Cause of death was given as Asphyxia due to hanging associated with Hydrochloric acid poisoning. An empty plastic bottle with no label was found at crime scene. The bottle was preserved and sent for chemical analysis which revealed the presence of Hydrochloric acid.

3. Discussion

Chemical injuries of the oesophagus are caused by ingestion of corrosives like acids, alkalis and neutral substances². Chemical burns of upper gastrointestinal tract are common in India due to its easy availability³. Acid are highly irritative substances and can lead to choking and gagging after ingestion⁴. Deaths as a result of corrosive acid consumption are commonly reported in the forensic medicine literature⁵. Suicides by consumption of Hydrochloric acid are commonly reported in psychotics and adults with suicidal tendencies^{6,7}. The ease of availability of corrosives to factory workers contributes to selection of this mode of attempting suicide in India as in our case. Exposure to strong acids such as hydrochloric acid either to the skin or gastrointestinal tract or respiratory mucosa will result respectively in significant or occasionally fatal cutaneous chemical burns as well as devastating corrosive damage to the respiratory and gastrointestinal tract. Most of the injuries are accidental but there are reports of using acids as weapon of offence or as means of suicide¹.

In our case there was obvious findings and ligature mark over neck which is consistent with hanging came suddenly came with the internal findings consistent with incidental finding of poisoning. After this incidental finding, concerned Investigating authorities were informed and on carrying the psychological autopsy it was revealed that deceased had stolen a acid bottle from the factory without informing the manager, which was informally told by one of his factory mate. Before hanging he had severe gastric discomfort as he was trying to ingest ice cubes from fridge and ice cream after ingesting acid but when pain became unbearable he decided to hang himself with a nylon rope with a ceiling fan. By looking at the severe congestion and discoloration of the stomach wall it can be concluded that acid ingestion itself was

sufficient in ordinary course of nature to cause of death but unbearable pain provoked him to hang himself.

Deaths due to consumption of corrosives do not always cause problem in diagnosis but when these findings are supervene by some other suicidal manner, expertise of a forensic expert is called for. This case can serve as a lesson for public health authorities and appropriate factory management units to be aware of risks for consumption of hydrochloric acid as a possible means of suicide specially by workers who has a easy access in these set up, they should consider for a proper check up and documentation of amount of corrosives used or utilized during each day and should make abetments in factory laws, if any of these bottles are missing before closing time of the factories and if suspicion arises then psychiatric help can be seek to prevent such suicides at early stages.

4. Conclusions:

There should be proper provisions regarding strict supervision of the individuals working in places in proximity of these hazardous chemicals like factories and proper routine psychiatric counseling and work up for individuals showing or having suicidal tendencies. Employee`s State Insurance Corporation of India should arrange for it. The autopsy surgeon should always take care not to miss these rare incidental findings so as to conclude the actual cause of death and conduct every autopsy meticulously.

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