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Case Report

An autopsy case of carbon monoxide poisoning: A case report

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ABSTRACT

Asphyxial death from Carbon monoxide (CO) poisoning is occasionally reported in India. Here in this case report we present such a case of accidental CO poisoning. It was a case of a man aged about 38 years old contractor who succumbed to CO poisoning during sleep on a fateful night. He was a chain smoker with occasional alcohol consumption. The incident occurred inside a bed room which was latched from inside. He was found dead lying on the floor by the side of a semi burnt mattress. There are very few case reports on such poisoning cases that's the main reason of presenting this article.

1. Introduction

Carbon monoxide (CO) is an odourless, colourless, tasteless, and non-irritating highly toxic gas.[1] This makes it difficult for those who are exposed to detect it. Because of it, this gas is also known as the "Silent Killer".[2] This gas is commonly formed during the incomplete combustion of organic materials. However, the most common sources of CO gas are faulty, poorly maintained, or inadequately ventilated gas appliances such as heaters or stoves, generators, grills or residential fires.[3–5]

CO gas has very high affinity for oxygen present in the haemoglobin. It has approximately 240 times the affinity of oxygen for binding to haemoglobin.[6] It forms the compound COHb which impairs tissue oxygen delivery, inhibits mitochondrial oxidative phosphorylation, and inactivates cytochrome oxidase.[7]

The carbon monoxide gas poisoning mainly affects the brain and the heart. Though it may cause some clinical features like headache, dizziness, nausea, vomiting, shortness of breath, etc. mostly it causes silent death. It is more dangerous especially with people who are asleep, unconscious, drunk or drugged.[6]

2. Case History

Dead body of 38 years old male was brought to the autopsy room of FMT Department., M. P. Shah Govt. Medical College, Jamnagar, Gujarat for Post Mortem examination with a history being found dead on the floor in a closed room with burnt mattress nearby. On enquiring, it was found out that he was a chronic chain smoker living alone, working as a contractor. Occasionally he used to take alcohol too. On that night he had dinner with some of his colleagues & slept alone.

2.1. Post mortem findings

The dead body was brought covered with a white cloth. On opening the cloth there was dead body of an identified Hindu male of about 38 years old. The worn clothes were one cream colour full sleeve shirt, white baniyan, black

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colour pant and brown colour underwear. A cotton thread (Janoi) was worn in the chest region. The body was average in built and nutrition (Figure 1). Both eyes were closed, mouth was closed and all other natural orifices were normal in appearance without any discharge. Black coloured smoke was seen around the nostrils and mouth. Cherry red post mortem staining was seen on dependent body parts and it was fixed. Rigor developed all over the body (Figure 2). Externally there was no any evidence of burns or injury.

A cherry-red discolouration of the mucous membranes, tissues and internal organs were seen. The lungs were congested with pink fluid blood and the trachea showed the black coloured soot particles adherent to the tracheal walls (Figures 3 and 4). There were no internal injuries found on the body. Blood was taken from the heart and preserved under a layer of liquid paraffin and sent for the estimation of the COHb concentration. After consideration of the autopsy findings, crime scene visits and investigation and COHb concentrations, the final cause of death was given as – "Died due to asphyxia on account of Carbon monoxide poisoning". The manner of death was accidental in nature.

Fig. 1: Average built & nutrition (Janoi on the chest)

Fig. 2: Cherry red Post mortem seen on back

Fig. 3: Cherry discolouration of tissues

Fig. 4: Cherry red discoloration of blood & viscera

3. Discussion

Accidental deaths by exposure to carbon monoxide gas in mines, during fire or incomplete combustion of wood, charcoal or coal in ill-ventilated rooms are major causes.[4] Occasionally accidental poisoning occurs now and then in domestic setups. More cases are seen during winter seasons. In a study conducted by Sikary AK[8] it was found that about 90% of such cases occurred during the winter season in India. Incidence is comparatively higher in young adults.[9,10] Previous studies also show that the main cause of fatal CO poisoning is due to the collection of this gas in an ill ventilated room.[10–12] Homicidal deaths are very uncommon. In the present case too, the person was found in the ill-ventilated room, lying on the floor with semi burnt mattress which might have burnt due to cigarette flame.

4. Conclusion

Public should be educated about the danger of CO gas poisoning in non-ventilated rooms. Special care must be taken when there is use of heating mechanisms during the

winter seasons. More prone people such as living single, single room accommodation, use of room heaters, blowers, fire pots, etc. should be educated about the possibility of CO poisoning. In flats, big buildings and public places use of smoke alarms and smoke detectors must be encouraged.

5. Conflict of Interest

The authors declare that there is no conflict of interest.

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