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Case Report

Autopsy Diagnosis of a Rare Case of Near-Drowning

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ABSTRACT

The term near-drowning is commonly used for the victim who almost survives after an incidence of aspiration of fluid, but dies later due to complications of drowning. Drowning is one of the common causes of unnatural deaths in India, but the reporting of cases of near-drowning is rare. In the present case, dead body of a 1-year-old male child was brought to us for autopsy examination with a history of rescue from accidental drowning in a water tank at home. The victim was admitted in hospital before death for a few hours, where he was resuscitated but could not survive due to difficulty in respiration followed by irretrievable cardiac arrest. Detection of the cause of death in such cases is a difficult task for the autopsy surgeon, especially, in the absence of typical findings of ante-mortem drowning, which is frequently present in such cases. Absence of theses ante-mortem features of drowning might be due to the measures used in the treatment of the victim and that is why it is always better to correlate the autopsy findings with the history and clinical record, which can help us to understand the reasons of negative findings in a case of near-drowning. This case is presented here to discuss its different medico-legal aspects as it is rare of its kind.

Keywords: Drowning, Near-drowning, Accident, Autopsy

INTRODUCTION

Drowning is one of the most common causes of asphyxial deaths in India and thousands of innocent people drown every year because of lack of awareness of the hazards of water. The term near-drowning means 'when a person is in danger of drowning' but in medico-legal field near-drowning generally is defined as survival, at least temporarily, after suffocation by submersion in a liquid medium[1]. Most authors include the loss of consciousness while submerged as a criterion for the syndrome. However, some authors have argued that as pulmonary complications may follow the aspiration of water without the loss of consciousness, near-drowning should be defined as survival, at least temporarily, after aspiration of fluid into the lungs ('wet near-drowning') or after a period of asphyxia secondary to laryngospasm ('dry near-drowning')[2]. When the victim shows an apparent initial recovery from drowning but then dies hours or days after the incident owing to complications is termed as secondary drowning[3]. The cases of near-drowning are more common in the western world as compared to India, and most of the victims are children especially males of less than 10 years of age[4,5]. Ante-mortem features of drowning, clinical records and laboratory investigations may help us in determining the cause of death in such cases of near-drowning.

Case History

A 1-year-old boy, while playing at home, fell into the water tank and after some time he was rescued by relatives. He was immediately brought to the emergency department of a tertiary care hospital. On arrival, the patient was unconscious, gasping for breath, cyanosed and was responding to painful stimuli. His pulse and blood pressure was not recordable. He was resuscitated and admitted to the intensive care unit where his wet clothes were changed, suction was done and after intubation patient was put on a ventilator. His systolic blood pressure in right upper arm was recorded 90 mm Hg and electrocardiogram was showing ST elevation over pre-cordial leads with

evidences of ventricular tachycardia. Chest X-ray was showing evidence of pulmonary edema and the ultrasonogram abdomen was showing fluid and gases in the stomach and small intestines. After some time, his condition started deteriorating and finally collapsed to death following irretrievable cardiac arrest. The patient's condition was critical throughout his hospital stay and had survived for about 4 h following the drowning incident.

Medico-legal autopsy was performed on the next day morning and we found that the dead body was of a well-built and well-nourished male child with fully developed rigor mortis. He was having cyanotic lips and nails, cold and pale skin and slight blood stained frothy discharge over the nostrils. Abdomen was bloated and there were no evidences of any injuries over the body. Clothes were dried and features of goose skin or washer man's hands and feet were absent. During internal examination both lungs were found heavy, congested and edematous and slight bloody froth was noticed in respiratory tracts. All other organs were intact and congested on cut section. Death was attributed to myocardial infarction resulted from hypoxia of near-drowning.

DISCUSSION

The cases of near-drowning are more common in children due to accidental fall in water bodies. In these cases, the victim is not able to cry for help because of sudden submersion and aspiration of water into the respiratory tract and the victim is rescued either immediately or slightly after the incidence of submersion. Prognosis in children is often good, provided that cardiopulmonary resuscitation (CPR) is commenced immediately after or even during the process of rescue, and the child gasps within 40 min of rescue and regains consciousness soon afterwards[6]. In the present, case CPR was not made by the relatives of the victim as they were not aware about it. It is commonly observed in India due to lack of knowledge and practical experience of CPR among common people and when such victim of near-drowning reaches to hospital it is too late to revive him from hypoxia, which leads to cardiac arrhythmias and irreversible ischemic brain injury. Myocardial infarction resulting from irreversible hypoxemia is one of the common causes of death in cases of near-drowning. We can increase the chances of survival of the victims of near-drowning up to a certain extent by educating the masses regarding the CPR through common media.

The autopsy diagnosis of the cases of near-drowning is a tedious job for autopsy surgeon, because the findings are often minimal, obscure or sometimes completely absent. It becomes more difficult to establish it when the victim is resuscitated in a hospital and CPR has been done, which leads to the absence of reliable signs of ante-mortem drowning as we have also noticed in the present case. In described case, the body was not showing any signs of submersion, as the clothes were dry and features of goose skin or washer man's hand and feet were also absent, which might be due to changing of clothes during hospitalisation and procedures used to warm the body. Typical froth seen after drowning over the nostrils and mouth was also absent in this case, which was probably due to the suction and clearance of respiratory tract, done during the treatment. In all such cases, autopsy should be conducted as soon as possible because even a short delay in the autopsy is likely to obliterate the ante-mortem signs to a great extent, which are already obscure in the cases of death due to near-drowning. Bluish lips, bloated abdomen, cold and pale skin, frothy fluid in the respiratory tracts with heavy, congested and edematous lungs are the only reliable autopsy findings, which can be used with other supportive evidences (like the history of rescue from water and findings in clinical records) to prove the death due to near-drowning. To prevent the incidences of near-drowning, especially in children, they should not be left alone near water sources and whenever it happens immediate CPR should be done after the rescue of the victim.

CONCLUSION

Information regarding the cause of death and its correlation with circumstances of death is of paramount importance both for the investigating agencies and autopsy surgeons. Information regarding the autopsy findings in death due to near-drowning is not sufficient in the literature of forensic medicine, and most of the authors have not discussed regarding the obscure autopsy findings, their reasons and correlation with CPR, and their medico-legal significances. This case was presented here with

the aim to discuss that how timely done CPR can save the life of a victim of near-drowning and why autopsy findings are often minimal, obscure or sometimes completely absent in such cases.

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