



ATYPICAL DROWNING – A CASE REPORT

Forensic Medicine

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ABSTRACT

Drowning is a leading cause of accidental death worldwide, yet its complexities and nuances are often overlooked. This study delves into the phenomenon of atypical drowning, where unconventional factors contribute to submersion fatalities. Through a comprehensive analysis of case reports we identify and characterize atypical drowning scenario, including those involving pre-existing medical conditions, substance abuse, and unusual environmental factors. Our findings highlight the need for a more comprehensive understanding of drowning. By shedding light on these unconventional cases, we aim to inform prevention strategies, improve diagnostic accuracy, and enhance the development of targeted interventions to mitigate the risk of atypical drowning. This research contributes to a deeper understanding of the multifaceted nature of drowning and underscores the importance of a more inclusive approach to water safety.

KEYWORDS

Drowning, Electrolyte Disturbances, Hypoxia, Haemodilution, Autopsy Findings.

INTRODUCTION

Death caused by submersion in liquid (most commonly water) is known as Drowning. Complete submersion is not necessary, if submersion of nose and mouth alone for a sufficient period in water or any other fluid can also lead to death by drowning. About 1,50,000 persons die from drowning each year around the world. Normally, physiological consequence of drowning is Asphyxia which involve in the mechanism in step wise manner like Breath holding, involuntary inspiration and gasping for air at breaking point, loss of consciousness and death.

Case History

A 55 years elderly male was found inside the toilet in an unconscious state and the head was immersed into a water filled bucket at his residence, brought to BLK Max Super speciality hospital, New Delhi where he was declared brought dead. Body was brought to Maulana Azad Medical College, Mortuary for medicolegal postmortem examination.

Autopsy Findings

The dead body of an elderly male of average built and nourished. Eyes: both the eyelids were closed (Fig. No.1A); cornea was hazy with congested conjunctiva (Fig. No.1B). At natural orifices: clincing of tongue between teeth's, bleeding present in mouth with intact frenulum of tongue (Fig. No.1C).



Fig. No 1: 1A: Both the eyelids were closed; 1B: Hazy cornea with congested conjunctiva; 1C: Bleeding present in mouth with intact frenulum of tongue.

Postmortem Changes

Hypostasis could be appreciated over back, buttock except pressure areas and was not fixed. Rigor mortis was in developing phase involving arms and legs sparing hand and toe fingers. No changes of decomposition were present at the time of postmortem examination.

External Antemortem Injuries

- Total 4 (four) "C" shaped curvilinear patterned abrasions present on neck with convexity downward with measurements as follows:
 - a) Pattern abrasion of size 17cm x 0.3 cm present over front and sides of neck placed below 5 cm of sternal notch. The mark was going upward and backward in a C shaped manner from the midline in the front of the neck up to midclavicular line (Fig. No 2A).
 - b) Pattern abrasion of size 14.5 cm x 0.2 cm present over front and sides of neck placed below 2.5 cm of sternal notch. The mark was going upward and backward in a C shaped manner from the midline in the front of the neck up to the midclavicular line (Fig. No 2B).
 - c) Pattern abrasion of size 16.5 cm x 0.2 cm present over front and sides of neck placed above 1.5 cm of sternal notch. The mark is going upward and backward in a C shaped manner from the midline in the front of the neck up to mid clavicular line (Fig. No 2C).
 - d) Pattern abrasion of size 13.5 cm x 0.2 cm length present over front and sides of neck placed above 2 cm of sternal notch. The mark was going upward and backward in a C shaped manner from the midline in the front of the neck up to mid clavicular line (Fig. No 2C).
- Abrasion total 6 in numbers, circular in shape and brownish in colour in an area of 4.7 cm x 2 cm in front of neck 4 cm below sternal notch (Fig. No 2C)
- Abrasion of size 2 cm x 1 cm present over left arm along the longitudinal axis and 2.5 cm above left elbow whose colour was reddish.





Fig. No 2: 2A: Pattern abrasion below sternal notch of 5 cm; 2B: Pattern abrasion below sternal notch of 2.5 cm; 2C: Pattern abrasion above sternal notch of 1.5 cm and 2 cm; 2D: bucket which produce possible antemortem injuries (a – d).

Internal Organ Findings:

There was no extravasation of blood under scalp. No fracture was present in vault and base of skull. Dural layers were intact and congested. congested and oedematous on cut section of brain. Neck circumference was 48 cm at the level of thyroid cartilage. Contusion present in the neck region underlying the injury was seen on fine dissection of neck. collar bones, sternum, ribs have no fracture/ no abnormality detected. No free fluid was present in pleural cavity. Trachea contains whitish with blood-stained froth (Fig. No. 3A)

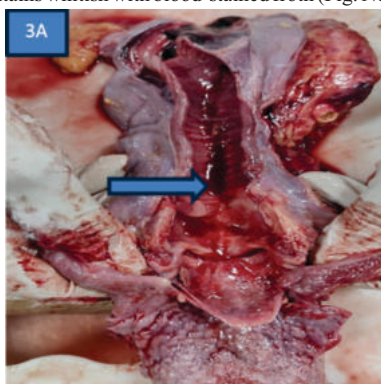


Fig. No 3: 3A – whitish with blood-stained froth in trachea.

Both lungs were voluminous, congested and oedematous. Whitish froth oozing out in squeezing on cut section. Heart surface has normal, all the coronaries were patent and all chambers were empty. No free fluid was present in peritoneal cavity. About 250 ml of yellowish semi digested food was present, mucosal wall of stomach was congested. Small and large intestine mucosal wall were congested. Liver with gall bladder has no gross anomaly and congested on cut section. Spleen was congested on cut section. Both the kidneys were intact, cortico medullary junction was distinguishable and congested on cut section. Pelvic cavity has no free fluid with intact pelvic bones. Provisional opinion about cause of death was asphyxia due to drowning.

DISCUSSION

The term typical drowning indicates water enters into air passage and lungs, which is also known as wet drowning. If there is very little or no inhalation of water in the air passage called as atypical drowning and includes dry drowning, immersion syndrome and submersion of an unconscious and secondary drowning. Death from asphyxia in atypical drowning caused due to laryngeal spasm. In shallow water drowning, drowning occurs accidentally in those persons who are disabled or incapacitated such as small children, epileptics, drunkards, comatose persons following head injury etc. where a puddle of water in which the depth of water is only a few inches but sufficient to submerge the mouth and nostrils.

In immersion syndrome, death is not due to drowning but results from cardiac arrest due to vagal inhibition. Sudden contact of cold water with the body surface stimulates nerve endings and causes vagal inhibition, especially when cold water touches the epigastrium, ears, nostrils, larynx or pharynx. Secondary Drowning also called near drowning refers to a condition where there is survival of a person following an immersion episode. This is not drowning in the truest sense but a complication or sequelae of drowning which may lead a victim to death.

Modern theory tells us about hypoxemia and metabolic acidosis

eventually leads to death. Post hypoxic encephalopathy is most common reason for death in those who has recovered from drowning. Sometimes we have hypercalcemia and hypermagnesemia in Dead sea drowning, hypercalcemia alone in polluted water. More sucking of water due to gasp reflex.

CONCLUSION

In this above mentioned case of atypical drowning only mouth and nostril submerged in water after a fall in bathroom. The possible antemortem injuries produced by bucket was mentioned and gross finding which include whitish froth in trachea and voluminous lung with fluid oozes out on cut section. Signs of asphyxia also seen in the lungs.

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