

ACCIDENTAL POSITIONAL ASPHYXIA IN A CHILD

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ABSTRACT

Positional asphyxia is a condition arising due to adoption of particular body position that mechanically interferes with pulmonary ventilation. The phenomenon hardly found any mention in Indian forensic medicine literature. The authors describes here a case pertaining to 3 years old child, who died due to positional asphyxia in his own house after being entrapped in the space between the bed and wall of the room. The case also highlights the preventive forensic medicine aspect of such incidents.

Key Words:

Accident, positional asphyxia, child

INTRODUCTION

Positional asphyxia is a condition arising due to adoption of particular body position that mechanically interferer with pulmonary ventilation [1]. Ventilation depends on the movement of chest wall, rib cage, diaphragm, abdominal wall and other accessory muscles of respiration to generate intra-thorasic pressure that move gases through the airway to and from the lungs [2]. Ventilatory bellows failure leads to alveolar hypoventilation. The major causes of ventilatory pump failure are: **a)** decreased central respiratory drive; **b)** flail chest; and **c)** respiratory muscle fatigue and failure [3].

In case of death due to positional asphyxia the body is found in a position that interferes with normal breathing. In addition to the body position, other criteria suggesting the diagnoses of positional asphyxia have been proposed as: **a)** evidence that circumstances prevented the individual from escaping the fatal body position; **b)** historical information indicating that the individual had “difficulty” in breathing; and **c)** absence of other pathologic or toxicology finding clearly suggesting another cause of death [4].

Majority of reports pertaining to positional asphyxia are relatively recent and not more than two decade old [5-7]. Very few cases were reported earlier to 1980's [8]. It is surprising that latest edition published after year 2000 of important forensic medicine books from India

did not find even mention about positional asphyxia [9-11]. The authors describes about the case of a child, who died accidentally due to positional asphyxia. The case was unusual on two counts; **a)** age of victim; and **b)** circumstances surrounding the death. In the last some preventive measures are also suggested.

CASE DESCRIPTION

MA, a three and half year's male child was reported missing from his house. Three days latter, a fowl smell emanated out from one of the rooms of the house. Thinking that smell is due to some decaying dead rat, the family members searched the house. During this process they found the decomposed body of MA with head down position in the space between the bed and wall

(photograph 1,2). The clothing like quilt and blankets were covering the body entirely. The incident was reported to local police, who thinking it to be case of homicide and sexual assault, made an inquest and body was sent to this centre for medico legal postmortem.

AUTOPSY FINDINGS

The autopsy was conducted by one of the authors (SL) revealed the following findings:

- a) External – Face was swollen with both eye bulging out from orbit and blackish in color, tongue caught in between the teeth, finger nails cyanosed. Marbling of skin over abdomen, upper and lower limbs. Cuticle separation present, loosening of scalp hairs, greenish discoloration of abdomen. Faecal matter present around anus. Small abrasions (reddish brown in color) present over rt. side face, rt. side forehead and lt. eye brow. No subconjunctival hemorrhage observed in eyes (Photograph-2).
- b) Internal Examination – Brain was soft and congested. Both lungs congested with petechial hemorrhages on the surface. Epicardium also shows petechial hemorrhages. No hemorrhages seen in the neck tissues. Bony / cartilaginous structures of neck were intact. Partially digested food material was present in the stomach. Viscera analysis for poisons and alcohol was negative.

DISCUSSION

Asphyxia due to head down position is rarely encountered in medico-legal practice, and on autopsy may reveal no morphological finding which explain the cause of death sufficiently [6]. Head down position can occur due to various reasons, such as: sports accidents (alpinists, speleologists, parachutist etc.), surgical operations (during pelvis and lower abdomen surgeries) and during torture [8]. Positional asphyxia in head down position is a rare entity Even the long-term studies on pediatric mortality did not find any mention of positional asphyxia [12, 13].

In the present case a young child got asphyxiated due to: a) falling in the confined space between the bed and wall and unable to get out; and b) falling of heavy clothing like blankets & quilts kept in the vicinity. The death due to such an eventuality is usually reported from western and developed world [14, 15], may be due to better death reporting systems that exist in these countries. In

India, majority of such death are not reported to police and even if reported action is not taken. Therefore, these incidents and deaths hardly found mention in forensic medicine literature even in long-term studies [16, 17]. Hence, it is advised that following steps should be under taken to reduce such incidents of positional asphyxia in children:

- a) Better mandatory death reporting system;
- b) Police should take appropriate action;
- c) Safe sleeping environment especially for children (like avoiding small space between wall & bed); and
- d) Education of children, their guardian/ parent and health care professionals.

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Photographs 1. Child as recovered



Photograph 2. Showing the space between wall and bed.

