

# Drowning in a Child: Accidental or Neglect?

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### Summary

We report the case of an infant who was found dead in the toilet of a nursery. Examination of the scene revealed an element of neglect in the care of the child. Postmortem showed evidence of drowning. Her blood sample showed a toxicologic evidence of alcohol exposure.

**Key Words:** Drowning, Accidental, Neglect

### Case History

The deceased, an 11-month old female infant was brought in dead to the morgue of the Hospital Universiti Kebangsaan Malaysia. She was well before going to the nursery at about 8.00a.m where she was cared for the day. Previous medical history showed normal developmental milestones and a normal immunisation history. She was fed on food and rice porridge and could walk with assistance. She was adopted when she was a new born by a couple who was childless after 7 years of marriage.

On that day at about 11.45a.m, she was found motionless by the nursery worker with her head down, submerged in a pail of water in the toilet. She was noted to be blue and not breathing. She was rushed to the nearest clinic where she was certified dead by the doctor.

Examination of the body revealed a healthy baby girl who weighed 8.7kg and measured 71cm in crown-heel length, 42cm in crown-rump length, 43cm in head circumference, 44cm in chest circumference, 42cm in abdominal circumference and 11cm in foot length. Some petechiae in both conjunctivae were noted. The frenum was intact. Multiple healed abrasions were seen over the chin, inferior right eye, lower left back,

shin and bilateral calves. The nostrils showed some clear fluid.

Her nostrils exuded some clear fluid and more fluid came with chest compression. The brain weighed 900gm. The brain showed coup contusions on the fronto-parietal areas, more on the right side, each measured 3x2cm and contre-coup contusions on the left superior cerebellum measured 0.5x0.5cm. There were no evidence of meningitis or cerebral tumour. No other evidence of trauma or marks of violence were noted. The right and left lungs weighed 60 gm and 40gm, respectively. Grossly the lungs were expanded with presence of rib markings i.e. 'emphysema aquosum'. On cross-sectioning, the lungs were filled with oedema fluid. Other internal organs were unremarkable. Toxicological analysis of the deceased's blood sample revealed ethyl alcohol content of 50mg/100ml. No further history was available on the presence of ethyl alcohol in the child. Neither the caretaker nor the parents revealed any history of giving extra drugs to the child.

### Visit to the scene

The scene was visited on completion of the postmortem examination on the same day at about

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5.15p.m. It was a double-storey house which was converted to a nursery. The staircase was equipped with a stairway gate, leading to the first floor. The first floor had two big rooms. The toilet where she was found was in one of the rooms. On the day of the incident, the door was not locked and there was a pail, half-filled with water. A bright red apple toy was present in the pail. On reconstruction of the incident, it was thought that the deceased had crawled to the toilet and approached the pail of water where she saw the apple toy. While trying to reach for the toy, she probably lost control of herself and fell into the pail of water and drowned.

The final diagnosis was drowning and the ethyl alcohol had aggravated her death.

Physical examination of the child revealed it to be a healthy baby girl. The positive findings were indicative of drowning. The brain showed evidence of a fall on a yielding surface i.e. the base of the pail. This was shown by the presence of the coup contusions on the frontal-parietals and contre-coup contusion on the superior cerebellum.

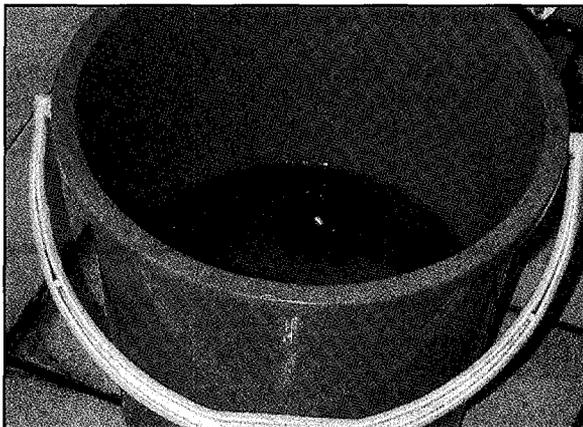
There was toxicologic evidence of alcohol exposure in the child. The deceased's blood contained 50 mg/100 ml of ethyl alcohol. This was probably due to ingestion of liquid medication containing alcohol. Although the reported lethal dose of ethanol is 3 g/kg in children<sup>3</sup>, mortality may occur with lower amounts.

Was the death brought about by accident or neglect? To answer this question, one needed to consider several factors. Firstly, she was perfectly well when she was brought in. Therefore, the question of whether she was having any natural diseases may be ruled out. These diseases would include bronchial asthma, upper respiratory tract infection, pneumonia, gastro-intestinal infection and etc. The incident occurred when she had awakened while the rest of the children were asleep. The workers were all busy downstairs. The child was found in the toilet because the toilet door was faulty and was left unlocked. There was no gate to prevent the entry of the child. All of these factors had contributed to the death of the child. Although the drowning occurred accidentally but there is negligence based on the fact that she was left unattended.

The nursery has to bear the consequences of this incident should there be litigation and the problem has

to be addressed accordingly. The authorities should sort out this matter at the multi-level. Stricter regulations could be imposed on nursery operators before opening up nurseries which include general education on children's care for the workers, health education for the workers, safety measures for the premises such as placement of power points, furniture type and layout, flooring material, provide fences for the toilets, doors and staircases and not forgetting having some safe recreational activities in the compound of the premises. During operational hours of the nurseries, the workers should only be assigned to a limited number of children. The workers should have time-tables for their activities and every children should be with their supervisors at all times. There should be extra workers, specially assigned in the food preparation and cleaning.

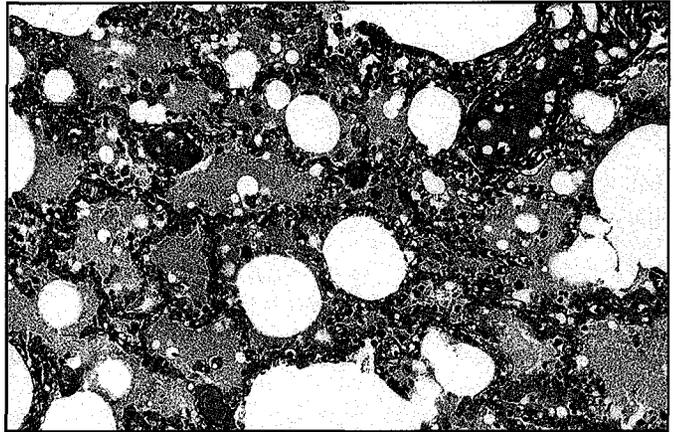
Finally, the Malaysian Government should revise the law and severe punishment should be imposed on the suspects. With all the above measures, it will help to reduce fatalities in children and therefore, avoid unnecessary accidents in future. Under the English law, negligence amounts to a 'breach of the duty of care'. Every year, there are cases of parents or childminders acting 'in loco parentis', who are charged with negligence or neglect of care. Sometimes the breach is so serious that it could be characterised as gross negligence and therefore a crime.



**Fig 1: The pail was half-filled with water and an apple toy on the water surface had probably attracted the child's attention.**



**Fig 2: The brain showed coup contusions on the frontoparietals, more on the right side.**



**Fig 3: Photomicrograph which showed overdistension of alveoli with fluids assuming a round configuration, septal walls were stretched, capillaries narrowed, with some rupture of the alveolar walls.**

### Discussion

Some of the hazards and deaths encountered in nurseries are caused by scalding burns from hot water either from the kettle or from the hot water bath, fall from heights, drowning, suffocation, and firearm injuries. However, these accidents may be overcome by constant supervision of the children.

From 1980-1985, drowning was the second leading cause of injury death of infants and children in the United States<sup>1</sup>. In 18 of the 50 states, drowning was

the number one cause of unintentional injury death of children 1 to 4 years of age<sup>1</sup>. Drowning, by definition, is fatal; near-drowning is sometimes fatal. Drowning has been defined as a death resulting from suffocation within 24 hours of submersion in water<sup>2</sup>. As a cause of death, drowning must be considered whenever a body is found with its head submerged in water or some fluid medium as depicted in this case. Bathroom drowning usually involve infants or young children who have been left unattended and these deaths are usually accidental.

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