



## **Intra-Cranial Haemorrhage from Unintentional Home Injury in an Infant: A Case Report**

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### **ABSTRACT**

Unintentional injuries are major causes of childhood morbidity and mortality. Most cases of unintentional childhood injuries occur at home with falls being among the commonest causes especially in infants and young children. Knowledge of risk factors for fall injuries in children can assist injury practitioners, programme developers and policy makers in planning appropriate interventions. We herein present a case of fall injury in a five week old female who was dropped from a height of about two metres by another child. She subsequently suffered an intracranial haemorrhage which was managed conservatively in the hospital. This case highlights some of the risk factors to unintentional injuries in children and proffers possible solutions to the problem.

**Key words:** Unintentional injuries, falls, children, home, risk factors.

### **INTRODUCTION**

Unintentional injuries are major causes of morbidity and mortality in children resulting in over 875,000 deaths annually in those less than eighteen years.<sup>1</sup> Most childhood unintentional injuries occur in the home as a result of relatively long period of time young children spend in the home which has many sources of hazard.<sup>2</sup> Falls are among the five most common unintentional childhood injuries.<sup>3</sup>

Unintentional injuries carry physical, psychological and economic consequences for children, families and communities. Some of these effects include immediate effects of hospitalization (pain, delay in school work and stress on parental jobs), effects of temporary or permanent disability or disfigurement on children and the economic cost to patients, their relatives, the health care system and society as a whole.<sup>4</sup>

Although children are universally vulnerable to injuries, the social political and economic environment shapes the nature and extent of injury risk.<sup>5</sup> The burden of childhood unintentional injuries is higher in low and middle income countries, compared to high income countries. The mortality rate in low income countries is nearly double while the rate of disability adjusted life years is three times higher in low and middle income countries compared to high income countries.<sup>6</sup> Inadequate preventive care and medical treatment contribute to higher injury rates in low and middle income countries.<sup>7</sup> In developed countries, a variety of preventive approaches have been shown to be effective<sup>8,9</sup> whereas in Sub-Saharan Africa, little attention is paid to injuries largely due to a greater attention being devoted to infectious diseases and nutritional deficiencies.<sup>10</sup>

Knowledge of risk factors for fall injuries in children can assist injury practitioners, programme developers and policy makers in planning appropriate interventions.<sup>11</sup> We present a case of intracranial haemorrhage in an infant secondary to unintentional injury which resulted in a fall to highlight its occurrence in our society as well as proffer preventive measures.

#### CASE

ET was a thirty five week old female admitted into the Children Emergency Ward of the Niger Delta University Teaching Hospital (NDUTH) with a history of fall from a height of 3 days, jerking of the limbs of two days, poor suck of 15 hours and loss of consciousness of fourteen hours prior to presentation.

According to an eye witness (neighbour) account, another neighbour's two year old son was seen dragging the patient by her foot on the concrete pavement outside the home. She was subsequently dropped from a height of about two metres. The eyewitness initially assumed the little boy was dragging a doll. Her mother said she had left her sleeping on the bed in the bedroom before the incident. This implied that she was dropped from the bed, dragged out of the bedroom and out of the living room unto the pavement outside.

Jerking of the limbs was noted a day later. It was clonic in nature involving all four limbs but only at a time. Jerking episodes lasted about thirty minutes and aborted spontaneously. Frequency gradually increased with time. Episodes were too frequent for mother to keep count. This was the first episode of seizures in patient's life.

Fever started two days after the fall. It was moderate grade, intermittent and temporarily relieved by paracetamol. Few hours after onset of fever, she stopped sucking from her mothers breast and subsequently lapsed into coma.

On examination at presentation, she was semi-conscious with a modified Glasgow coma score of 11/15. She was fisting, mildly pale, febrile with a temperature of 38.5<sup>0</sup>C, and had left sub-conjunctival haemorrhage. There were tender echymotic patches noted on both cheeks, peri-orbital and frontal regions. She had normal anthropometric measurements for her age. She was in respiratory distress, had tachycardia with occasional clonic seizures of the limbs.

A diagnosis of intra-cranial haemorrhage secondary to trauma was made. This was confirmed by a computerized tomographic scan of the brain which showed extensive parieto-occipital, frontal and cerebellar subarachnoid haematoma collection (figure 1). Her Haemoglobin concentration was low (7.8g/dl).

She was managed conservatively with intravenous phenobarbitone, ceftazidime, gentamicin and 10% mannitol. She was fed with expressed breast milk via a naso-gastric tube. She was transfused with fresh whole blood.

Her clinical condition improved, she became fully conscious, seizures and fever subsided. She was subsequently referred to the University of Port Harcourt for neurosurgical review. She was admitted for five days there and also managed conservatively. She was seen as an out-patient at 3 months of age and was found to be developing normally with no neurologic deficits.

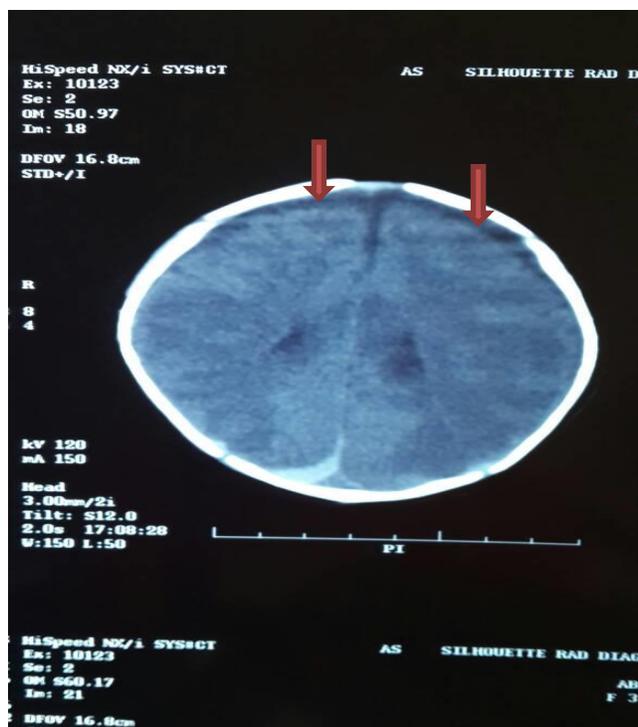


Figure 1: Brain CT scan showing sub-arachnoid haemorrhage (arrows)

## DISCUSSION

Children are universally vulnerable to injuries but the social, political and economic environment shapes the nature and extent of injury risk.<sup>5</sup> According to Picket et al,<sup>12</sup> as many as 60% of all visits to the emergency department due to unintentional injuries in children less than one year are due to falls as was the case in the index patient. In developing countries falls have been found to account for 25 to 52% of all treated childhood injuries in hospitals.<sup>10</sup> In a study done by Udoh and Adeyemo<sup>13</sup> at the University of Benin Teaching Hospital, falls ranked second among causes of traumatic brain injuries in children. The index patient is within the high risk age group (0 to 6 years) for fall injuries.<sup>14</sup> The fall injury in the index patient occurred at home which is most likely in an infant.<sup>14,16</sup> The fall was complicated by intracranial haemorrhage even though it was a short distance fall. It has been shown that infants and young children may suffer fatal head injury from falls of less than 3 metres.<sup>17</sup> Feldman et al<sup>1</sup> reported falls as the cause of intra-cranial haemorrhage in 23% of cases less than 36 months.

Except during natural disasters, injuries do not occur by chance but result from factors and situations that constitute high risk.<sup>14</sup> In the index case, the patient was left unsupervised while on a bed without side rails from which she could be dragged off. Lack of quality supervision of children; involving appropriate attention, proximity and continuity have been mentioned as risk factors for child injuries.<sup>18-20</sup> Her mother was distracted by a visitor and was apparently unaware of the risk of a neighbor's child coming into her bedroom to drag her baby off the bed. Parental distraction and ignorance have also been identified as predisposing factors to childhood injuries.<sup>21,22</sup>

Unintentional injuries impose major public health burden on children and their families but this need not be so as they are largely predictable and preventable.<sup>3</sup> In developed countries, a number of preventive approaches have been found effective including legislative measures, modification of the home environment with provision of safety equipment and focused injury prevention counselling.<sup>8,9</sup> Home safety education programmes as well as predesigned pamphlets and information sheets on prevention of household injuries have also been shown to be helpful.<sup>23</sup>

## CONCLUSION

Despite the false belief of inevitability, unintentional injuries are understandable, predictable and preventable.<sup>24</sup> There is an urgent need to analyze risk factors for unintentional childhood injuries in order to identify those risks that might lead to injury. This will enable timely institution of appropriate preventive measures or at least minimize the severity of the injury.<sup>14</sup> Also knowledge of risk factors for fall injuries can assist injury practitioners, programme developers and policy makers in determining appropriate interventions.

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