

FATAL PHYSICAL CHILD ABUSE IN TWO CHILDREN OF A FAMILY

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Child abuse can be defined as any action or omission by an adult responsible for a child, which either temporarily or permanently interferes with his development.¹ Physical abuse represents approximately 70% of child abuse cases. It is non-accidental trauma, and ranges from minor bruises to fatal subdural hematoma.² The National Center on Child Abuse and Neglect in Washington, D.C., has estimated that one million children are maltreated each year. There are 2000 to 4000 deaths annually in the U.S. caused by child abuse and neglect.³

Child abuse is now recognized as a major cause of serious head injury in children, and is second only to motor vehicle-related injuries as a cause of traumatic mortality in the pediatric population.⁴⁻⁶ The incidence of abuse in infants and toddlers hospitalized for trauma is 10% to 30%, and accounts for 80% of the deaths.^{5,7} We report two tragic cases encountered in one family.

Case Report

Case 1

A six-day-old neonate was brought to the emergency room in Jubail General Hospital (JGH), Jubail, in the Eastern Province of Saudi Arabia, in May 1997 by his parents, with a history of sudden onset of swelling above the right eye and focal convulsions for one day, followed on the second day by loss of consciousness. The parents were cousins. The mother was a 16-year-old uneducated second wife of a 35-year-old soldier. They indicated that they also had an 18-month-old daughter suffering from frequent fractures, who had repeatedly been admitted to the hospital. The first wife of the man was also a relative and had three normal children.

On examination, the patient was unconscious, with generalized convulsions and irregular breathing. Both eyes were deviated to the right side with excessive salivation. The right pupil was 6 mm rounded and the left pupil was pinpoint, and both were non-reactive to light. The anterior

fontanelle was tense and the baby had extensive swelling extending from the right temporoparietal region to the frontal area, involving the right eye with ecchymosis. There were two ecchymotic spots over the right side of the forehead. The baby showed decerebrated posture. The bleeding profile for the patient was normal. Plain x-ray skull showed no fracture, but chest x-ray showed fracture of the right clavicle. CAT scan of the brain showed evidence of acute right frontoparietal subdural hematoma, with massive infarction of the right cerebral hemisphere, and part of the left frontal lobe with midline shift. Also, there was a compression of the right lateral ventricle (Figure 1). The patient was operated upon by right frontoparietal craniotomy, evacuation of the acute subdural hematoma and duraplasty. The bone flap was kept outside. The postoperative period was uneventful. The patient was weaned from the ventilator on the fourth postoperative day, and became conscious and active, moving all limbs, and sucking well. Two weeks later, eye consultation showed improving right oculomotor nerve palsy secondary to the right subdural hematoma with bilateral vitreous hemorrhage. The other ocular examination was within normal limits, including the intraocular pressure in both eyes. The patient was discharged several days later, with an urgent referral to King Khaled Eye Specialist Hospital for possible vitrectomy.

In July 1997, one day after the death of the patient's sister (Case 2), the patient was again brought to the emergency room by his parents, who complained of sudden inactivity. Examination showed swelling at the site of the craniotomy and hematoma on the forehead. The patient was readmitted accompanied by his mother. Upon treatment, the patient improved and was scheduled to be discharged on 4 August 1997. At the time of discharge, the nurse reported fresh bleeding from the gums, swelling of lips and contusion of left hip joint, so the discharge was cancelled. The mother claimed that the injuries occurred spontaneously. Incidental injury was suspected so the parents were referred for psychiatric consultation. The psychiatrist reported that the parents were not suffering from any psychiatric disease. The social workers and the police were notified and the patient was kept in an incubator with a special nurse for three days. On 6 August 1997, the baby was returned to his parents, as the police insisted verbally that there was no law in this country to

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Accepted for publication 21 November 1998. Received 19 August 1998.

allow anybody to take a child from his parents, under any circumstances.

After five days, the parents again brought their baby to the emergency room with the complaint of inactivity, ecchymosis of the left eyelids, and tense swelling at the site of craniotomy. Plain x-ray showed a linear fracture of the skull at the posterior part of the right parietal bone near the site of the previous craniotomy. Brain CAT scan showed small contusion in the right occipital lobe, subdural hygroma in the right parietal region, extensive infarction involving most of the right cerebral hemisphere and soft tissue bulging at the site of craniotomy. The patient was operated on for evacuation of the subdural hygroma. His condition improved and he was discharged on 3 September 1997.

Three weeks later, the patient was again brought to the emergency room by his parents, with bilateral subconjunctival hemorrhage and hyphema. He was admitted for conservative treatment and his condition improved. A follow-up brain CAT scan on 30 September 1997 showed multiple cysts, like shadows in the right frontoparietal area, with dilatation of the body of the right lateral ventricle (Figure 2).

In December 1997, the patient was brought to the emergency room by his parents complaining of bleeding from the left eye. The father gave a history of vitrectomy operation performed two weeks earlier on the left eye at King Abdulaziz University Hospital in Riyadh. On examination by the ophthalmologist on call, the patient was

Case 2

In July 1997, an 18-month-old girl (sister of Case 1) was brought to the emergency room in JGH accompanied by her parents because of a sudden loss of consciousness. The parents gave a history of head trauma two days earlier, but they gave different reasons for its cause.

On examination, the patient was in a state of brain death with unrecordable blood pressure. There was a scalp hematoma in the right parietal region extending to the forehead, with bleeding from the upper gum and tongue laceration. There were multiple ecchymotic spots in the face. The parents also gave a history of repeated fractures with frequent hospital admissions.

Plain x-ray showed multiple linear skull fractures (Figure 3) and a recent fracture of the left humerus. Cardiopulmonary resuscitation (CPR) was performed for the patient but she died in the emergency room.

Discussion

Trauma is the most common cause of death in childhood, and inflicted head injury is the most common cause of traumatic death in infancy.⁵ Child abuse is any maltreatment of children or adolescents by their parents, guardians or other caretakers.² As noted by Kempe et al.,⁸ child abuse might occur in the following situations or

settings: 1) The parents have usually had troubled childhood themselves, or they may be from broken homes, or have suffered deprivation or abuse themselves when children. 2) There are problems with the marriage, for example, the marriage may have been between two young people from disturbed homes who married for the wrong reasons, perhaps because they wanted to leave home or were in need of affection. Some people mistakenly believe that a pregnancy will help to reverse a breaking relationship. 3) The child may be difficult to rear, he may have been premature, or have a blemish or handicap. More often than not the child's problems are imaginary (i.e., the baby's first cry is seen as rejection, he fails to respond as his mother feels he should to her and this is felt to be his fault—an unloved child may be difficult, a difficult child may be unloved). 4) There may be added stresses, for example, the father may be in trouble with the law or there may be financial or housing problems. 5) Lifelines may not be available, no close friends to whom the parents can turn to for advice, support or relief.

Recognition and management of child abuse by the physician demands a full measure of clinical acumen, skill and diplomacy.⁹ At the Children's Hospital National Medical Center, 10% of trauma seen in the emergency room in children younger than three years of age was inflicted by parents or caretakers, and child abuse was noted in 30% of fractures in children younger than two years of age.¹⁰

The "shaken-baby syndrome" or "shaken impact syndrome" is a serious injury resulting from major mechanical forces. If the history and the physical and radiological findings are suggestive of this diagnosis, the patient should be admitted to the hospital for treatment. A thorough, unbiased evaluation is essential. If abuse is suspected, the law in the U.S. requires that the appropriate child-welfare and law enforcement agencies be notified. The medical record has great legal importance, and careful documentation will later benefit the physician, who may be subpoenaed to testify in court.¹¹ The social work team has to take the lead in planning the strategy for management, but they depend on the full cooperation of medical and nursing personnel involved and the police.¹

Intracranial injury from abuse of children often occurs by means of one of two mechanisms: direct impact and "shaken-baby syndrome." Direct impact is more likely to result in cerebral contusion.¹² Cerebral contusion occurs either with or without external evidence of trauma. It is being increasingly accepted that infantile subdural hematoma is often a consequence of abuse and particularly of "whiplash-shaken baby syndrome."¹³ The term "whiplash-shaken baby syndrome" was coined by Caffey to explain the constellation of infantile subdural and

We consider Case 1 to be "shaken-baby syndrome," as the patient developed acute subdural hematoma, vitreous hemorrhage and fracture of the right clavicle. Shaking of the head can tear superficial veins over the brain and cause

acute subdural hematoma.¹ Acute subdural hematoma in Case 1 was a result of an inflicted injury, and it appeared identical to hematoma secondary to accidental injury, and showed a mass effect. After evacuation, the underlying brain infarction persisted in the right cerebral hemisphere. This condition was similar to that described by Duhaime et al., who mentioned that subdural hematomas resulting from inflicted injury appear identical to those secondary to accidental injury, and clearly have mass effect. Even with prompt evacuation, however, changes to the underlying brain often persist or progress, having the appearance of widespread infarction.³⁰

Kriel et al. recognized in a large series that infants with severe head injuries have a worse prognosis than do older children.³¹ In these terms, the outcome of head injury (operated acute subdural hematoma, then subdural hygroma) in our first case was very good. Mortality among abused children with head injuries ranges between 10% and 27% in various series. However, exact figures are difficult to compile because of the differences in definition of child abuse and referral populations.^{20,26,33}

We consider Case 2 to be "shaken impact syndrome," as the patient had multiple skull fractures, mostly in the occipital and occipitoparietal regions, plus an old fracture of the left humerus. The age of the patient was 18 months, and this confirms the opinion by Duhaime et al. that the shaken impact syndrome is largely restricted to children under three years of age.¹¹

An understanding of the problem of child abuse is different from one community to another. In some communities, it is difficult to establish a practical system to ensure the safety and welfare of children, while in other communities, it is feasible to put in place a straightforward system to rescue vulnerable children. It is only in recent years that Saudi Arabia has begun to recognize the existence of such a problem, and much remains to be done.³⁴ Violence toward children should be considered a major national problem, and should become a focal point of substantial public and governmental attention. A national committee on prevention and management of child abuse and neglect should be urgently established to assume an active leadership role in attacking the problem, to provide a mechanism for increasing knowledge about the causes of this problem, and to identify steps that can be taken to prevent and treat abuse.³⁴

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