



# Child Abuse Syndrome – a Forensic Case of Fatal Impulsive Act of Violence

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## Abstract

Child abuse syndrome is a medico-social problem widely spread around the world, which includes a complex of clinically manifested forms of violence against children. This syndrome includes different forms of physical violence, sexual violence, neglect, and emotional violence against children. The main problem with this type of violence continues to be the large number of unregistered “hidden” cases. The consequences of violence against children are serious and have a lasting negative effect on the physical and mental health of the victims. Child abuse is often a result of impulsive violent behavior with minimal provocation and may have a fatal outcome.

We present a case of a 3-year-old boy, admitted to the Emergency Department of the Municipal Hospital in Asenovgrad, Bulgaria, in a state of biological death. Case circumstances during the police investigation were unclear and the body was transported for forensic examination. During the forensic autopsy, many traumatic injuries were observed over the whole body – bruises of different ages, fractures of bones, abdominal trauma with bucket-handle tear of the mesentery, thoracic trauma with contusions and ruptures of the lungs, rupture of the diaphragm, and many other injuries that are specific predictors for this type of child physical abuse.

The main aim of the present report is to enrich the knowledge of medical workers in their routine practical work in the identification and determination of child abuse syndrome. It could prevent the fatal outcome and reduce the mortality from this specific type of violence.

## Keywords

child abuse syndrome, fatal physical injury, impulsive act, physical violence

## INTRODUCTION

The term ‘battered child syndrome’ was first described in the literature in the 1960s and was used by a number of pediatricians and radiologists in Great Britain after World War II.<sup>[1]</sup> For many years, this term was used to describe cases of applied physical violence against children. Over time, this term transforms into ‘child abuse syndrome’, already including the other known forms of violence against children – sexual violence, neglect, and emotion-

al violence against children.<sup>[2]</sup> Although this syndrome is relatively well defined, the problem with unregistered and unidentified cases remains, because of the numerous different morphological and clinical manifestations of this type of violence.<sup>[3,4]</sup> The consequences can be serious and could have a lasting negative effect or a fatal outcome for the victims, as well as negative consequences on society as a whole. Child abuse is often a result of impulsive violent behavior with minimal provocation that may have a fatal outcome.<sup>[5]</sup>

## CASE REPORT

The corpse of a 3-year-old boy was received for post-mortem examination in the Department of Forensic Medicine of St George University Hospital, Plovdiv. The boy had been transported initially by his mother to the Emergency Department of the Municipal Hospital in Asenovgrad in the state of biological death. The mother provided vague and incomplete information to the police officers while they were taking a detailed history of the accident. She first claimed that the child had fallen down the stairs, then changed her story to include the child being beaten by other kids, and finally claimed that the child had accidentally choked while eating lunch. This contradictory information raised doubts in the doctors and the police officers. During the case investigation in the course of interrogation of the parents, it was established that the child was beaten by the mother's intimate partner with multiple impacts such as kicking and aggressively throwing the child against a rigid bed frame in the house. The motive for this criminal act was also determined – the strong relationship between the child and the mother which systematically provoked aggression in the stepfather.

During the external examination of the corpse, numerous bruises were found over different body parts – in the region of the nose and the left half of the face, in the abdominal area, more specifically in the left groin area and left hip, as well as in the right lumbar region (Figs 1, 2). Bruises were also found on the left arm and left forearm, all with an almost oval shape and located in groups with characteristics of bruises on different stages of healing based on their color (bluish, bluish-brown, and some of them with completely brownish color) (Fig. 3). During the external examination, bruises were also found on the left knee, on the dorsal surface of the right foot, and on the posterior surface of the left foot, as well as on the posterior surface of the same ankle. When additional deep incisions were performed over the limbs and the back of the body, an area of deep contusion was also found into the tissues in the middle of the lumbar region. During the internal examination of the corpse, deep contusion was found in the soft tissues of the forehead. The examination of

the thoracic cavity revealed that it was filled with 700 ml of liquid blood. Both lungs were collapsed, with multiple contusions of the parenchyma, clearly seen near the edges of the lobes and near the main bronchi with dimensions of up to 4×2 cm (Fig. 4). Lacerations were observed on the inferior lobe of the left lung and over the middle lobe of the right lung (the rupture of the left lung was 3 cm in length, and for the right lung – 4 cm) (Fig. 5A). Fractures of the 3rd to 6th ribs on the left along the midclavicular line were also found, pro-



Figure 2. Numerous bruises in the right lumbar region.



Figure 1. Numerous bruises in the left groin area and left hip.



Figure 3. Oval shaped bruises in groups seen on the left arm and left forearm with different stages of healing.

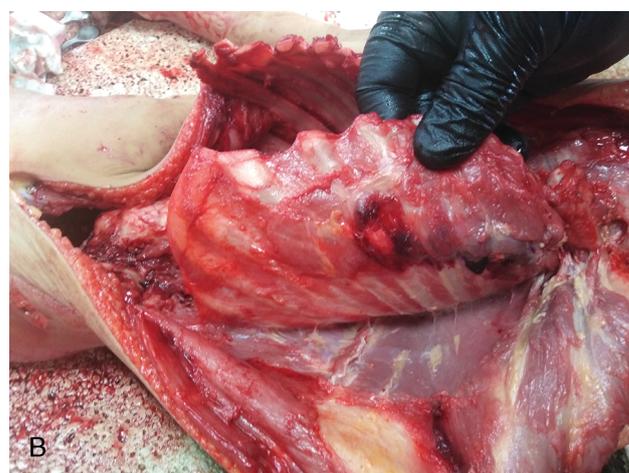


**Figure 4.** Patient's lungs with multiple contusions of the parenchyma, clearly seen near the edges of the lobes and near the main bronchi.

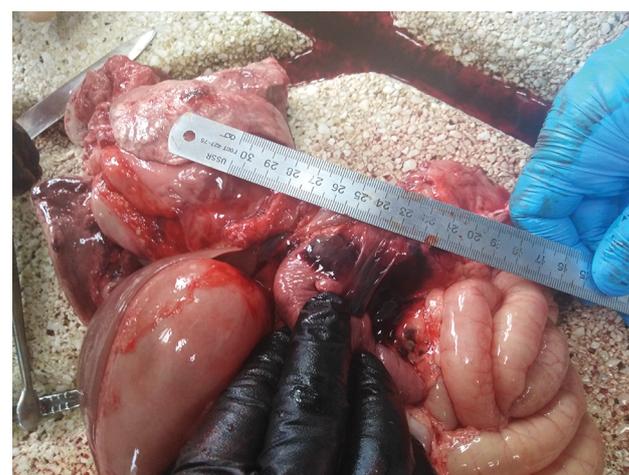
duced by direct mechanism, with hemorrhages in the area of the fracture lines. Bruising of the thoracic wall around the 8th rib on the right half of the chest along the paravertebral line was also observed (**Fig. 5B**). The diaphragm was bruised near the esophagus and this bruise expanded into the tissues of the mediastinum. On the left half of the diaphragm, a slit-shaped, incomplete 1-cm long tear was seen, with irregular and bruised margins, with the presence of tissue bridges between the walls of the rupture. Blood collection of around 250 ml was found into the peritoneal cavity. The examination of the abdominal cavity revealed that the spleen was with normal shape, a wrinkled, grayish capsule, and that near the spleen, the soft tissues were bruised with a dark reddish color in an area with dimensions approximately 4×7 cm in size (**Fig. 6**). The examination of the right lobe of the liver showed many linear tears of the capsule and the parenchyma, disrupting the normal anatomic structure of the lobe (**Fig. 7A**). The margins of these lacerations were irregular and bruised. There was also a dark red colored bruise with a tear 2 cm in length of the mesentery of the small intestine (bucket-handle tear trauma) (**Fig. 7B**).

## DISCUSSION

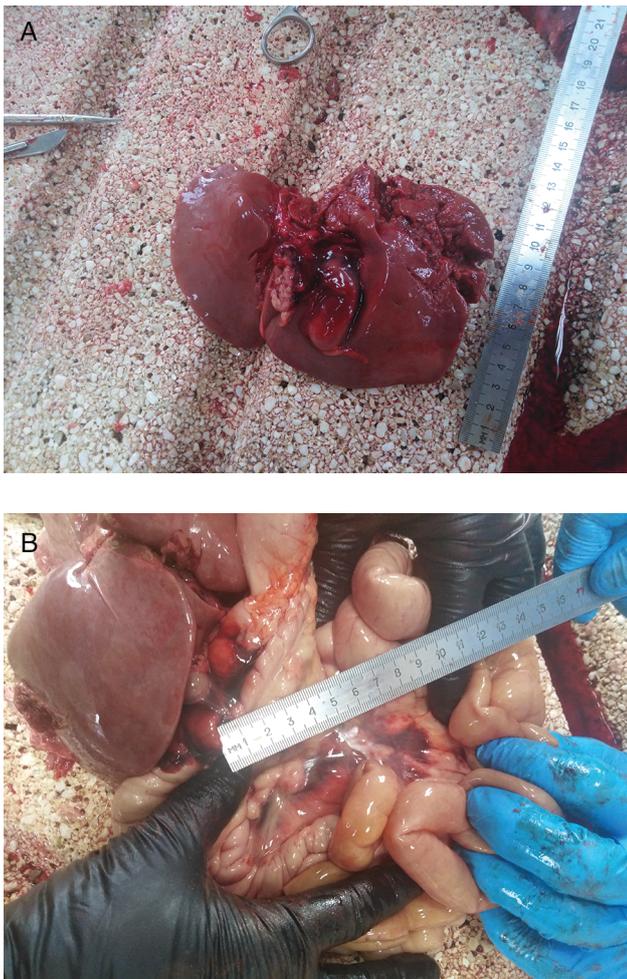
Cases of aggressive, impulsive homicides of children after a sudden attack of provoked aggression are rare; these cases



**Figure 5.** (A) Lacerations over the inferior lobe of the left lung and over the middle lobe of the right lung; (B) Fractures of the 3rd to 6th ribs on the left along the midclavicular with hemorrhages in the area of the fracture lines.



**Figure 6.** Bruised soft tissues near the spleen with a dark reddish color.



**Figure 7.** (A) The right lobe of the liver with many linear tears of the capsule and the parenchyma, disrupting the normal anatomic structure of the lobe; (B) Dark red colored bruise with a tear of the mesentery of the small intestine (bucket-handle tear trauma).

have a special place in the classification of violent deaths as a result of physical abuse against children. Usually, this type of abuse is associated with the impulsive and explosive nature of the violence – with multiple impacts, applied with great force for a short period of time, in combination with throwing the child against any hard interior surfaces – a process of sudden acceleration/deceleration of the whole body.<sup>[5]</sup> In the specialized forensic literature, bruises as a specific type of injuries in children are described as the most common traumatic findings in cases of physical abuse. Michael Tsokos<sup>[6]</sup> describes in his study the specific criteria for the assessment of bruises with non-accidental origin in children. These criteria include 1) the location of bruises, 2) the presence of specific patterned bruises or oval bruises, 3) the presence of injuries of different ages (bruises with different colors), and 4) injuries in clusters. An important point in the determination of the violence is the separation of the accidental injuries from those with a non-accidental origin. Usually, injuries from accidental falling are typically located in the area of the forehead, the nose, the chin, the palms, the back of the elbows, knees,

and lower legs. Bruises as a result of accidental falling are usually small in size and are located over prominent, unprotected parts of the body. In the process of examination of the child, it is important for these bruises not to be interpreted independently and should always be evaluated in the context of the given medical and social history, stages of development of the injuries, explanations given by the parents, and after performing a complete examination of the whole patient's body. In cases of physical violence against children, especially in cases of applied blunt force trauma, the leading cause of death is usually severe thoracic or abdominal trauma, presented with acute internal bleeding due to damages to the internal organs. In the presented case manifested injuries from direct trauma as a result of impacts with hard blunt objects in combination with trauma having an inertial origin.

Specific long bone fractures also can play an important role as predictors of this type of violence. These are the fractures of the distal intra-articular parts of the femurs ('corner fractures' and 'bucket handle fractures'), fractures of the ribs, fractures of the scapulae, complex skull fractures (Le Fort I, II, III), vertebral fractures, fractures of the fingers of children who are unable to walk, as well as fractures of various ages.<sup>[7]</sup> It should be noted here that not in all of the cases these fractures are associated with child abuse. That is why all these traumatic findings must be always evaluated in the context of the given medical and social history about the accident and the stages of development of the injuries. Many cases of traumatic bone injuries in children are associated with high kinetic energy trauma. Therefore, these injuries cannot be associated with child abuse syndrome, such as the complex fractures of the scapulae and the pelvis.<sup>[8,9]</sup> These injuries are more common in cases of road traffic accidents and fallings from high places.

Based on all these established specific morphologic predictors of physical child abuse, in the present case, the lethal outcome could have been prevented if these features had been reported in time to the responsible government agencies and institutions by the mother or by the general practitioner during the routine medical examinations of the child. In most of cases of child abuse syndrome, an early diagnosis of the committed violence based on all these specific predictors could prevent the fatal outcome.

## CONCLUSIONS

Child abuse syndrome continues to be a worldwide problem with significant importance.<sup>[11]</sup> All unidentified cases of child abuse raise a number of moral and ethical issues related to ensuring an adequate comfortable environment for the children for their proper physical and psycho-emotional development. Each child's death results in a loss for society as well as a terrible sorrow for the victim's family. One of the main roles of our society is to analyze the causes leading to child mortality and take appropriate reciprocal and adequate steps to prevent and reduce this mortality.<sup>[12]</sup> Timely diag-

nosis of cases of child abuse would significantly reduce the traumatism and mortality in this type of violence, as well as the recurrence of such cases over time. Furthermore, the consequences of each misdiagnosed case suspicious for child abuse can also have similar negative and undesirable consequences.<sup>[10]</sup> This case confirms how important it is in the routine medical practice to have the knowledge of this type of violence and its specific morphological manifestations.

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## Author contributions

All authors are part of this work in all its aspects by sharing and contributing their knowledge, expert opinion and expert practice skills.

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# Синдром жестокого обращения с детьми – судебно-медицинское дело об импульсивном акте насилия с летальным исходом

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## Резюме

Синдром жестокого обращения с детьми – широко распространённая в мире медико-социальная проблема, включающая в себя комплекс клинически проявляющихся форм насилия в отношении детей. Этот синдром включает различные формы физического насилия, сексуального насилия, безнадзорности и эмоционального насилия в отношении детей. Основной проблемой этого вида насилия по-прежнему остаётся большое количество незарегистрированных «скрытых» случаев. Последствия насилия в отношении детей серьёзны и оказывают длительное негативное воздействие на физическое и психическое здоровье жертв. Жестокое обращение с детьми часто является результатом импульсивного насильственного поведения с минимальной провокацией и может привести к летальному исходу.

Мы представляем случай 3-летнего мальчика, поступившего в отделение неотложной помощи городской больницы в Асеновграде, Болгария, в состоянии биологической смерти. Обстоятельства дела в ходе полицейского расследования остались невыясненными, и тело было доставлено на судебно-медицинскую экспертизу. При судебно-медицинском вскрытии наблюдалось множество травматических повреждений по всему телу – ушибы разной давности, переломы костей, абдоминальные травмы с разрывом брюжейки по типу „ручка ведра“, травмы грудной клетки с ушибами и разрывами лёгких, разрывы диафрагмы, и многие другие травмы, которые являются специфическими предикторами такого вида физического насилия над детьми.

Основной целью настоящего доклада является обогащение знаний медицинских работников в их повседневной практической работе по выявлению и определению синдрома жестокого обращения с детьми. Это могло бы предотвратить летальный исход и снизить смертность от этого конкретного вида насилия.

## Ключевые слова

синдром жестокого обращения с детьми, смертельная телесная травма, импульсивное действие, физическое насилие