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Case Report

The Role of Emergency Physicians in Non-Accidental Trauma in Children, a Case Report and Narrative Review

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Received Date: June 05, 2024 | Accepted Date: June 13, 2024 | Published Date: June 21, 2024

Citation: Shaghayegh Rahmani, Roohie Farzaneh, (2024), The Role of Emergency Physicians in Non-Accidental Trauma in Children, a Case Report and Narrative Review, *Orthopaedics Case Reports*, 3(3); **DOI:**10.31579/2835-8465/014

Abstract

Child abuse is considered one of the public health problems and its various consequences can affect the whole life of the victims. In many cases, it is very difficult to identify young patients with child abuse due to the lack of cooperation of the child and giving a history of the parents, as well as the overcrowding of the emergency room

Keywords: Emergency Physicians; upper cervical spine; abnormalities

Introduction

Child abuse is considered one of the public health problems and its various consequences can affect the whole life of the victims. In many cases, it is very difficult to identify young patients with child abuse due to the lack of cooperation of the child and giving a history of the parents, as well as the overcrowding of the emergency room [1, 2].

Child abuse is related to the social structure. In society with low level social awareness, insight and understanding child abuse will be higher. In our country, the harm caused to children by parents is considered as punishment or education in many cases. So, proving child abuse in these cases might be very difficult [3].

It is very crucial to screen and diagnosis child abuse cases in emergency setting. Studies show that at least 10% of children under 5 years of age who are referred to the emergency department (ED) with trauma actually have non-accidental trauma. About 65 percent of all abused cases are initially visited in the emergency room [4]. Therefore, the first step in correctly identifying abuse is training hospital staff to recognize indicators of abuse. The wide range of findings, which can mimic other disease processes or natural variants, suggests that a definitive diagnosis of child abuse can only be achieved through interdisciplinary collaboration. Several studies have reported that 30-80% of confirmed cases of physical child abuse are missed at first presentation, and many infants are further harmed because of delayed diagnosis [5].

There are differences definition and classification for child abuse, but there are four types of child abuse that are commonly referred to in previous research: physical abuse, emotional abuse, sexual abuse, and child neglect [6]. Physical abuse refers to behaviors that result in any type of harm to the child (such as pulling hair, hitting). Emotional abuse includes behaviors that make children feel unloved, worthless, and unwanted (eg, insults, yelling). Sexual abuse forces children to participate in sexual activities. And neglect includes poor care of children's physical and emotional needs [7].

A study conducted in Tehran estimated the prevalence of physical abuse as 17.5% and the prevalence of neglect and emotional abuse about 36.4% and 49.46%, respectively [8]. Another study showed that the prevalence of emotional, physical abuse and neglect was 78%, 56% and 39% respectively in Zanjan [9]. In emergency department patients, physical injuries are usually one of the most common types of child abuse. In this article, we introduce a case of child abuse who went to the emergency room with an orthopedic injury.

Case presentation

An 11-month-old infant was referred to the emergency room by his grandmother with a history of pulled elbow. During the examination, when the right upper limb was touched, the child was restless and refused to move the elbow. Reduction maneuver was performed for the patient and the click was felt, and the child immediately bent and straightened the elbow without pain.

To make sure, the grandmother was asked to stay in the waiting room for more ten minutes to be re-examined. During this time, the nurse in charge of the waiting room heard the grandmother talked with another patient that “you don't always need to give the doctor a detailed history. The child's father had kicked his hand, but I said that it was pulled. The doctor agreed and discharged us”. After notifying the emergency physician, the child was re-evaluated, and according to the tenderness of the arm, radiography was

performed, and a fracture of the humorous shaft was observed. Orthopedic consultation and hospitalization were requested for this patient, and he was referred to the family counseling unit to investigate child abuse. Despite the recommendation to hospitalization, the patient's father, discharged the child with personal consent.

Discussion

Many children with orthopedic injuries and accidental fractures referred to the emergency room. Examining children in the emergency room is very challenging and difficult issue. Because in many cases, orthopedic injuries may have no outward appearance. On the other hand, the history might not be accurate in many cases. Because the abuser is the person who accompanies the patient [10].

Physical abuse is an injury that occurs as a result of physical aggression. Physical punishment is the use of physical force intended to cause physical pain, but not injury, for the purpose of correction or control [11]. Punishment can easily get out of control and turn into physical abuse. Emergency rooms do not adequately detect child abuse “a broken arm is too often an accident according to a parent's history!”

When an infant (under 18 months) presents with a fracture in the absence of an obvious history of significant trauma or a known medical condition such as bone fragility, it should be considered as a differential diagnosis [12]. The following indicators can be used to decide whether a child is likely to be abused:

1.Multiple fractures are more likely after physical abuse than non-traumatic injuries. 2.A child with multiple rib fractures has a 7 in 10 chance of being abused. 3. A trauma lead to femoral fracture has a 1 in 4 chance of being intentional [13-14].

Another important principle in the emergency department is to pay attention to the fact that the most important fracture missed in the ED is the second fracture. Therefore, in children with an orthopedic injury, you must look for other injuries [15].

Varis criteria and tools have been designed to improve the early detection of child maltreatment in ED. Screening tools increase the chance of detection of potential cases of child maltreatment and support health care professionals to identify these cases. The "TEN-4" criterion (The torso, ears, and neck) is a tool used to identify high-risk bruises and refers to bruises in any part of the body in children under 4 months [5].

The main facts should be considered in suspicion for child abuse include the following: [1] Compatibility of injury with history and age. [2] Consistency of repetition. [3] delayed visitation; [4] head to toe examination; [5] unexplained damage; and [6] parent-child interaction.

In the presented case, despite the history given to the doctor, there was another complaint in the child, which could not be identified due to the patient's young age [8].

Finally, history is important for medical management in clinical forensic practice because patient health cannot be separated from legal responsibilities. A good history, clinical examination, effective collection of medical and forensic specimens, guides indications for taking measures to protect the child from further abuse and evaluation of other medical conditions that may explain the clinical picture [11].

On the other hand, injuries caused by physical abuse may be clinically hidden and cannot be understood with physical examination. Therefore, using imaging modalities is important in identifying and documenting such injuries. The radiological approach to the potentially abused child has received considerable attention and recommendations based on decades of experience and rigorous scientific studies [2].

Skeletal injury is the most common form of injury (excluding external soft tissue injuries) in child abuse. Any fracture in infants and young children is significant and indicates a traumatic event. A classic metaphyseal corner or bucket handle fracture is virtually pathognomic for abuse, although there is other differential diagnosis. Rib fractures are very common in child abuse and are especially common in children under 2 years of age. The positive predictive value of posterior rib fractures due to child abuse is reported to be 80-90%. Fractures of the acromion, sternum, and spinous processes are so rare in the accidental so, they are highly specific for abuse [15].

In conclusion, it is necessary to notice that examining a child with trauma should be performed carefully and with details. Also, child abuse should always be considered as an important differential diagnosis in children with dislocations or fractures.

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