INTRODUCTION

Infants and toddlers represent an age range at high-risk of injuries and accidental deaths since their lack of skill makes them unable to avoid potentially dangerous situations present in their environment [1-5]. In fact, an environment where infants sleep is an example of a potentially hazardous situation that may result in accidental death caused by strangulation [2,4]. Although such accidents are relatively rare, it is necessary to closely examine those types of situations to highlight the recommendations for standards of environmental safety of infants and toddlers. The following case of the accidental hanging of an infant in bed is an illustration of this kind of uncommon but dangerous situations.

CASE REPORT

An 18-month-old girl was found by her nanny dead in her bed, hanging from one of her bed’s pillars. There was a toy attached to the bed, which had two straps of 10 cm each, the toy consisted of a doll head with two strands of hair hung by two nylon belts to a pillar of his bed. She was suspended by her toy’s belt, was not breathing and cyanotic with both knees resting on the mattress.

The nanny related that she left the little girl during two hours thinking that she was sleeping and that she unhanged her immediately before taking her to emergency where she was declared dead. The nurse did not attempt any rescue breathing.

Criminal case was strongly suspected by authorities and the body was addressed for autopsy. At autopsy, we observed an ecchymotic incomplete neck’s furrow, and a fracture of the thyroid cartilage. No other violence signs were observed. The toxicological screening was negative. A reconstitution with a doll was performed in the death scene illustrated that an accidental hanging was possible.

ABSTRACT

Infant hanging remains a relatively rare but no less interesting to analyze cause of death. In fact, it may be difficult to confirm whether hanging was accidental or not. Thus, through this case, we will highlight the importance of modeling the commemoratives on site with a toy if examination of the death scene is not possible. Besides, the pathologist can through the study of such cases detect manufacturing defects of certain childcare articles and identify potential risk situations facing infants. The victim was an 18-month-old girl. She was found dead, hanging from one of her bed’s pillars by a toy’s belt. At autopsy, we observed an ecchymotic incomplete neck’s furrow, and a fracture of the thyroid cartilage. No other violence signs were observed. The toxicological screening was negative. A reconstitution with a doll was performed in the death scene illustrated that an accidental hanging was possible.

KEY WORDS: Forensic sciences, forensic pathology, accidental hanging, infant, autopsy, prevention
bed high. The strap made one turn around the neck. Instead of the node, the link did a whorl encircling the cervical region.

According to the combination of the different data from the police investigation, interrogation of the nanny, autopsy and reconstitution of the scene, the instruction judge retained the hypothesis of accidental hanging.

**DISCUSSION**

Deaths by hanging and strangulation are frequent in adults but uncommon among children and infants and when it happens to them, it is usually accidental [1-3].

Thus, unintentional asphyxia is the most common encountered in toddlers and infants first because of their lack of understanding of potentially hazardous situations, and second because of their small size, lack of aptitude and muscular strength that do not allow them to get out of dangerous situations [3,4].

Infant accidental hanging is a very well-known cause of infant asphyxia death. Sleeping environment represents one of the most potentially dangerous situations that may result in infant accidental death by hanging or strangulation [5-7]. The risk is higher with severely disabled children [8]. Children can be trapped between a mattress and side rails or between the slats of a crib [4]. Cases were reported with scarf wrapped around swing-like cradles [9]. Out of the sleeping environment, hanging can occur when children will wrap around their necks curtain cords or electric flexes [4,10] or when they slip down in high-chair or restraining seats and will hang on the waist strap [11]. Cases of hanging due to head entrapment were also reported [12,13] and of accident in playgrounds [14]. However, literature search does not readily identify child hangings specifically related to a toy such as our case [1].

The US Consumer Product Safety Commission (CPSC) reported 276 deaths involving children <15-year-old related to playground equipment between 1973 and 1989 [15]. Hanging and strangulation were the cause in 131 cases, and drawstrings on children’s toys and clothes were associated with at least 12 deaths.

Another study was based on the reports of this same organization, the CPSC, collected in the United States between 1980 and 1997 [16]. It found that 70% of the suffocations among infants were attributable to mechanical asphyxia rather than respiratory obstruction. The leading pattern of suffocation overall and for each age group was wedging associated with 40% of the cases hanging was involved in 111 cases which represented 5%.

Many components of sleeping environments were charged in explaining how can a supposedly safe place like a bed can turn into a trap for infants and leads to a tragic accidental death. These were included mattress, defective or badly constructed cots, bed bars, coverings, pillows, adult’s beds and many others factors to be the cause of the unfortunate fatal outcome [17-20].

We noticed through these different studies that hanging occurs mainly among infants older than 6 months. This situation is probably explained, in addition to their exploratory behavior at this age, as a consequence of increasing motor skills of toddlers at this age so that they have more head control, can push up on hand and knees to toddle or even to walk or climb.

From another side, the case we present had combined another risk factor, which is the toy. Indeed many items placed by adults in the infant’s environment are thought to be safe like toys with cords, necklaces and even pacifier cords since they create nooses that could be involved in hanging accidents [19].

Regarding our case, the toy included two large loops which obviously represented a potential danger to the little girl who, when added to the lack of address due to her age, greatly increase the risk of accident.

The hypothesis of accidental hanging has been better understood after reconstituting the death scene. Indeed, although the ideal alternative for the pathologist is to examine the scene before the body is moved, this is not always possible. Thus, a carful death scene examination is required with carful description of the bed, different toys and objects present in the
scene. Therefore, it is of prime importance to have photography of a manikin or a doll placed in the supposed position of the body [4]. This allows pathologists to avoid misdiagnosing such cases. In fact, except cases where a neck furrow is identified or less often a fracture of the thyroid cartilage or the hyoid bone (as in our case), autopsy findings in cases of accidental hanging are non-specific and above all may be identical with those of sudden infant death syndrome [20]. All these features added to the fact that parents can give false version of the facts because they feel guilty about the death of their child or for fear of being prosecuted for negligence. That is why it requires from the pathologist to do all possible investigations and to consider all hypotheses before affirming any mechanism of death.

But what is as important as to put the right diagnosis is that pathologist may have a great contribution by identifying, through these cases of unfortunate accidents, potential dangers faced by infants.

Indeed, most cases of accidental asphyxiation could be prevented [14,18] and pathologists are in an excellent position that allows them to give very precious information to public health to elaborate specific safety strategies, especially in developing legislation regarding the children’s safety relating to different items that can be present in their environment.

Regarding this issue, unfortunately much progress remains to be done in Tunisia because we still have many legal shortcomings regarding various safety standards in addition to the difficulties we have in controlling the illegal importation and sale of toys that are not compliant to safety standards.

Finally, the most important aim must be education of consumers: Parents or any other person dealing with the child, as this case, the nanny. They should be informed about such hazards by doctors or any other employees in the health sector.

In conclusion, this case emphasizes the importance of the pathologist role and its difficulty. In fact, this role consists in identifying the cause of death and confirming or refuting its accidental nature. This can only be done after a complete and methodical approach that includes, in addition to autopsy, examination of the parents, complementary examinations and especially a meticulous examination of the death scene.

In addition to that pathologist can give a great contribution by identifying hazards and giving some recommendations without forgetting to mention his prime role as a doctor, which is education on consumers.

REFERENCES


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