

Child abuse by insertion of insulin needles through fontanel

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Abstract

Attempted infanticide by insertion of intracranial needles is rare with only 25 reported cases in the English-language literature. We present a case of attempted infanticide by insertion of insulin needles, intracranially, through the anterior fontanel of a 15-month-old girl. The mother discovered the needles incidentally and they were removed surgically. These attempts may lead to the death of the child without obvious signs of child abuse, which could explain why there are a limited number of cases in the literature. (p99-101)

Keywords: Child abuse, infanticide, needle, fontanel and intracranial

Introduction

The subject of child abuse and attempted infanticide has attracted a good deal of attention in recent years. In the USA, child abuse and neglect was responsible for approximately 1,400 deaths in the year 2002. Forty-one percent of deaths occurred among children under 12 months of age.⁴ Different patterns of child abuse have been described in the literature.⁷ A very rare type of abuse involves the insertion of sewing needles into the brain through the fontanels.^{1,2} This type of abuse is not new; rather, it is a known old practice used by midwives as a method of attempted infanticide. Brouardel (1897), quoted by Gerlach and Jensen (1958), described the case of a French midwife who had killed about 20 newborn babies using this method.⁵

With a review of the literature, only 25 reported cases were found.^{1-3,6,8} Many of these were reported from Iran, while others were reported, sporadically, from Poland, Germany, Yugoslavia, USA, Israel, and Hungary.¹ We are reporting the first case of intracranial needling from the Kingdom of Saudi Arabia.

Case report

A 15-month-old girl of a diabetic mother, the fourth child in her family, was brought to the Emergency Department after the mother noticed the tip of a needle projecting through the child's anterior fontanel. Clinical assessment revealed an active child with no neurological deficit and no evidence of child abuse, except for a small puncture mark over the anterior fontanel. Skull x-rays and cranial computed tomography scan showed two small intracranial needles below the area of anterior fontanel around midline structures (Figs. 1 and 2); these were removed surgically through a small bilateral parasagittal craniotomy. The first needle was passing through the sagittal sinus into the right side of the falx (Fig. 3), and the second needle was passing into the left cerebral hemisphere through a bridging vein.

Laboratory microscopic examination of the needles revealed that both were hypodermic 24 French gauge insulin needles, which had been broken off the insulin syringe to allow full entrance of the needles intracranially without superficial skin evidence (Fig. 4). The appropriate authorities were contacted. Investigations revealed that the housemaid (an expatriate from India) was the one responsible for the needle insertions. The patient had a smooth postoperative course and was discharged home without obvious neurological deficit.

Discussion

Insertion of intracranial needles through the fontanel is a rare type of child abuse and attempted infanticide. Only 25 reported cases were found in the literature. In all but 4 cases, the needles were discovered during adulthood.^{1,8}

We believe death occurs in this type of child abuse as a result of massive intracranial haemorrhage caused by the presence of the needle in midline vascular structures. Those

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Figure 1 - AP and lateral skull x-rays showing two small intracranial needles below the area of anterior fontanel. **Figure 2** - CT Brain (non enhanced, bone window), showing the two needles near the midline in the frontal area

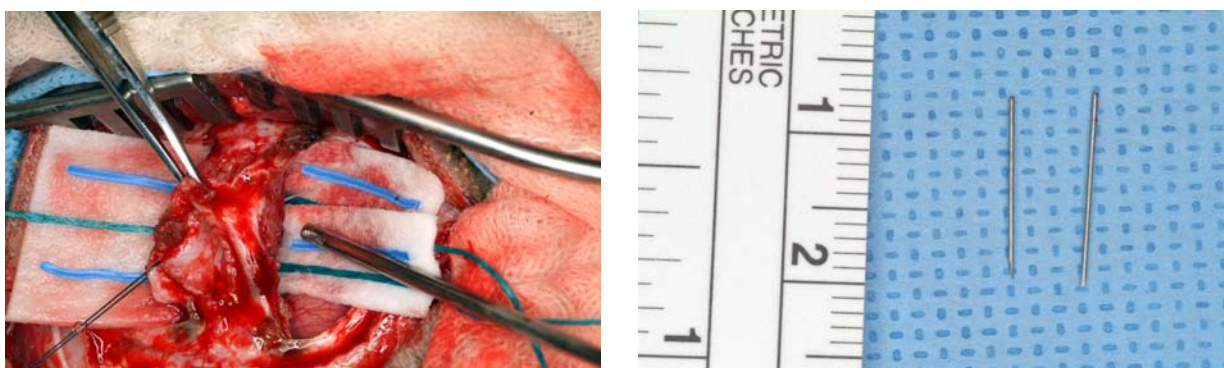


Figure 3 - Dura opened bilaterally around the sagittal sinus. (The needle projected through the sinus into the right side of the falx). **Figure 4** - Extracted insulin needles

children who survive this event are likely to develop bacterial meningitis. If the children survive the above events, they usually live to reach adulthood. The discovery of these needles later on in life may happen during routine workup for headache or seizure, which is the most common presenting complaints.^{1-3,6,8} Other reported cases, were discovered after a work up done for head injury or other medical problems.^{1-3,6,8}

A small percentage of the surviving cases are discovered soon after the event because of either confession of the person responsible or bulging of the needle at the insertion site, as in our case.

Stepmothers have usually been found responsible for needle insertion.^{2,8} However, insertion may occur at the hands of psychopathic mothers, aunts, housemaids, and midwives.^{1,5} In our case, the housemaid confessed after being interrogated by the appropriate authorities.

The management strategy for a patient with recently inserted intracranial needles should differ from the

management of a patient with incidental finding of the needles after years of initial insertion. Rahimizadeh and other colleagues, discussed the management of intracranial needles after reporting 6 cases in one of the largest series.⁸ They suggested removal of the needles if the diagnosis is made early after the insertion because of the potential source of infection. However, in long standing cases they suggested surgical intervention whenever the needle is situated along the falx or with one of its ends immediately under the dura mater. Otherwise, the needle should be left in situ unless a complication (such as brain abscess) occurs. They also recommended excision of the cortical scar tissue at the needle entrance especially if preoperative or intraoperative electrocorticography shows that the seizure focus is in the cortex rather than in the surrounding sub-cortical parenchyma.⁸

The management of our patient included not only surgical removal of the needles, but also a full assessment of the child for other evidence of child abuse. Informing the appropriate authorities to initiate an investigation of the case was a very important part of the management, to prevent

further injury or death of the involved child in the future. We believe that surgery will not only reduce the risk of infection, but it may also reduce the future risk of seizure due to scar tissue formation around the needles, as well as any future psychological impact on the patients retaining needles in their head.

This case is the first to be reported in the Kingdom of Saudi Arabia. This may either reflect a low incidence in our country or it may be related to a failure to report or publish similar cases in the literature. The true incidence of this method of child abuse is very difficult to assess because the children may die suddenly; this could happen in a society where the sudden death of a child is accepted without routine post mortem examination.

Conclusion

We are reporting a serious method of child abuse that has been reported for the first time from Saudi Arabia. This is to alert other physicians in our geographical area for the presence of such a method of child abuse.

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GENTLE REMINDER

Clinical parameters for emergency department management of children with minor head injuries

Age ≥ 24 months
One or more of the following:
<ul style="list-style-type: none"> • More than a brief loss of consciousness (measured in seconds) • Significant amnesia • More than one episode of vomiting • Lethargy/decline in mental status
Lowest recorded in-hospital GCS score of 13-15
No focal neurologic deficits referable to head injury
No posttraumatic seizure
No spinal fluid otorrhea or rhinorrhea
No shock or other major organ system injury that would preclude discharge
No anticoagulant or chronic anti-inflammatory drug use or bleeding diathesis
No suspicion of child abuse
No prior cranial neurosurgical procedure