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Topical Review

Neurological Manifestations of Medical Child Abuse

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ABSTRACT

BACKGROUND: Medical child abuse occurs when a child receives unnecessary and harmful, or potentially harmful, medical care at the instigation of a caretaker through exaggeration, falsification, or induction of symptoms of illness in a child. Neurological manifestations are common with this type of maltreatment. **OBJECTIVES:** We sought to review common reported neurological manifestations that may alert the clinician to consider medical child abuse. In addition, the possible sequelae of this form of child maltreatment is discussed, as well as practice recommendations for establishing the diagnosis and stopping the abuse once it is identified. **METHODS:** A review of the medical literature was conducted regarding the reported neurological presentations of this entity. **RESULTS:** Neurological manifestations of medical child abuse include false reports of apparent life-threatening events and seizures and reports of induction of symptoms from poisoning. Failure to correlate objective findings with subjective complaints may lead to unnecessary and potentially harmful testing or treatment. This form of child maltreatment puts a child at significant risk of long-term morbidity and mortality. **CONCLUSIONS:** A wide variety of neurological manifestations have been reported in cases of medical child abuse. It is important for the practicing neurologist to include medical child abuse on the differential diagnosis.

Keywords: medical child abuse, Munchausen syndrome by proxy, child abuse, multidisciplinary child protection team, covert video surveillance

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Introduction

Initially labeled as Munchausen syndrome by proxy by Roy Meadow in 1977, this syndrome was described as a form of child abuse in which a person induces or fabricates illness in a child in order to gain medical attention, resulting in unnecessary medical investigations and treatments.[1] Now more commonly labeled as medical child abuse (MCA), this condition has recently been defined by Roesler and Jenny[2] as the clinical condition that occurs when a child receives unnecessary and harmful or potentially harmful medical care at the instigation of a caretaker. This framework emphasizes that this condition is a diagnosable form of child abuse that potentially puts a child and his or her siblings at significant risk of harm, including long-term morbidity and mortality. Although there continues to remain much variability in the terminology used to describe this form of child maltreatment, for the purposes of this article, we use the term MCA to describe clinical situations in which caregivers exaggerate, falsify, or induce symptoms in a child.

The diagnosis of MCA in a child can be difficult, as the signs and symptoms reported by a caregiver may not actually be present during the medical evaluation.[3] One of the most common manifestations of MCA includes reports of neurological symptoms.[4] It has been estimated by prior MCA research, and is consistent with our clinical

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observation, that nearly 40%-50% of cases present with neurological symptoms, most commonly central nervous system (CNS)-related symptoms including epilepsy and apnea.[5,6] It was estimated by Schreier and Libow[7] that just over 50% of pediatric neurologists have encountered at least one case of MCA in their practice. As mentioned, there is grave concern for the morbidity and even mortality that can occur from such abuse. It is estimated that the mortality rate from all known MCA cases ranges from 9% to 30%.[8,9] The long-term physical morbidity is estimated at around 8% by Rosenberg,[8] and the psychological morbidity is much higher. For many years, it was assumed that 100% of the perpetrators of MCA were female caregivers (98% biological, 2% adoptive), but in the past few decades there have been reports implicating male caregivers as well.[10]

Reported neurological symptoms have been shown to be exaggerated, fabricated, or even induced by the caregiver via various methods including asphyxia, carotid sinus pressure, incorrect medication dosing, overdosing or poisoning, or complete falsification of absent symptoms.[4-6] In medical practice where the diagnosis depends on a thorough, and presumably reliable, history, it is important that MCA remains a possible etiology in the differential diagnosis. It is therefore essential for the medical provider evaluating neurological symptoms to understand that MCA is not rare, and the complicated presentation and nature of this abuse, especially with neurological manifestations, can often cause it to go undiagnosed for years. The longer these children go undiagnosed, the greater the risk that they will incur serious morbidity or even death, and the greater the burden on health care resources.[11,12] This article highlights common neurological manifestations based on the existing medical literature that could be used to consider the possibility that a child is the victim of MCA, as well as review next steps once this condition is suspected.

Common neurological manifestations

Apparent life-threatening events

An “apparent life-threatening event” (ALTE) is a relatively common occurrence in infancy that alarms a witnessing caregiver and often leads to the infant presenting to a medical provider. ALTEs are estimated to occur in up to 9.4 per 1,000 live-born infants and account for nearly 1% of all emergency department visits for infants (<12 months).[13] The National Institutes of Health drafted the description of ALTE in 1986 as “an episode that is frightening to the observer and that is characterized by some combination of apnea (central or obstructive), color change (often cyanotic or pallid), marked change in muscle tone, choking, or gagging. In some cases, the observer fears that the infant has died.”[14] As an umbrella term describing the observed symptoms of an event, ALTE has a very broad differential of diagnoses that can include any combination of the defined symptoms. This differential includes broad medical categories such as gastroesophageal reflux, seizures, respiratory infections, metabolic or genetic disorders, cardiac arrhythmias or congenital cardiac abnormalities, sepsis, ingestion or medication overdose, nonaccidental trauma including abusive head trauma and asphyxia, or, in more rare cases, MCA. According to Kahn,[15] less than 3% of ALTEs appear to be related to child abuse, but Bonkowsky et al.[16] more recently estimated this prevalence to be closer to 11% (of 1 in 9). ALTE, as a presentation of MCA, is a small percentage of those cases caused by abuse. These cases are most often brought to medical attention as a complaint of an apneic episode or cyanotic spell, although seizure-like activity can fall under this description of ALTE in their initial presentation before evaluation and diagnosis.

It is important to keep in mind that a presentation of ALTE as a manifestation of MCA can fall into one of two categories: fictitious ALTE versus induced ALTE. Fictitious ALTE is where the deception is limited to false reporting and there is no actual cyanotic, apneic, or other alarming symptomatology. Fictitious ALTE can progress to the even more dangerous and concerning form of induction MCA. In this category, the caregiver may use carotid pressure or suffocation to cause a combination of symptoms in the infant that could include cyanosis, apnea, choking, gagging, and hypotonia. Induction by a caregiver does not necessarily need to begin as fictitious reporting. There are numerous case reports of confirmed recurrent suffocation as the etiology for symptomatic presentation, often initially labeled as ALTE. Truman and Ayoub[17] reviewed two decades of case reports yielding 121 reported cases of children presenting with some form of recurrent apnea, cyanosis, bradycardia, and ALTEs who were subsequently discovered to be victims of repeated suffocation by caretakers. These infants may not initially present from fatal suffocation, but instead the caregiver compresses or impedes the airway to restrict sufficient oxygenation long enough for symptoms to manifest. The assessment and evaluation of these patients can be complicated by the fact that the history depends on caregiver reliability, the caregivers present themselves as concerned and attentive, the infant is nonverbal and therefore unable to give an account of symptoms and events, and more often than not there are no findings of suffocation on physical examination or imaging.

Suspicion should be raised for MCA as the possible etiology of an ALTE presentation when there is a history of recurrent ALTEs that occur only in the presence of a single caregiver, or may only be witnessed briefly by others when that caregiver requests assistance.[15] Also of concern are prior unexplained infant deaths of a patient’s siblings ruled as possible sudden infant death syndrome, a sibling with multiple ongoing presentations for ALTE, or an older sibling with a history of multiple ALTE presentations that ceased upon birth of the patient.[15]

As previously stated, there are often no findings of suffocation on physical examination or imaging in these children who present with recurrent ALTEs concerning for MCA. Southall et al.[18] described 30 patients of initially alleged ALTEs later confirmed by videotape as suffocation. In their study, nine of the children had histories of frank blood from the nose or mouth on initial presentation and three children had facial petechiae on initial examination.[18] Despite the small numbers studied, they concluded that children presenting with fresh blood from the nose or mouth after recurrent, poorly explained ALTEs should heighten suspicion for suffocation-induced symptoms.[18]