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CASE REPORT

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Suffocation and poisoning—the hard-hitting side of Munchausen syndrome by proxy

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Abstract Munchausen syndrome by proxy (MSBP) is a severe and difficult to diagnose form of child abuse characterised by the simulation, aggravation or production of symptoms of illness in a child by an adult. MSBP often leads to multiple hospitalisations and has a high mortality and long-term morbidity. This study describes the cases of 5 families with 8 children affected who presented with unexplained neurological or gastrointestinal symptoms or even loss of consciousness. All were victims of poisoning or suffocation by their mothers. Two of those children died and were initially diagnosed as SIDS or natural death, respectively. They were only recognised as MSBP victims after another sibling had fallen ill with similar symptoms. The cases are discussed in consideration of the relevant literature. In addition warning signs of this forensically relevant syndrome and a strategy for the management of suspected MSBP cases are described.

Keywords Munchausen syndrome by proxy · Factitious illness · Child abuse · Poisoning · Suffocation

The investigations reported in this manuscript were carried out in Münster.

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Introduction

Munchausen syndrome by proxy (MSBP) or factitious illness by proxy (FIP), first described in 1977 by Meadow [22], is a bizarre form of child abuse and a special type of factitious disorder. Disability or illness in a child is simulated, aggravated, manipulated or produced by an adult, usually the mother. The child is presented for medical care, often repeatedly, but knowledge as to the aetiology of the illness is denied by the perpetrator. This attention-seeking behaviour of the perpetrator bears a great risk to the child. It may also lead to multiple hospitalisations including invasive medical procedures and to severe psychological damage.

The definition of MSBP is neither based on a defined cluster of physical findings in the victim nor on a psychiatric disease of the perpetrator [7, 25] but on a form of child abuse which has only one thing in common, i.e. the fabrication of illness by one person to another. Consequently, the symptoms vary greatly and can mimic any known disease or syndrome. This chimerical and erratic phenomenology of MBPS and the well known reluctance of medical clinical staff to distrust mothers of child patients can make the diagnosis of MSBP very difficult. This paper reports eight cases of suffocation or poisoning including two fatalities. It is our intention to alert to the possibility of this rough and hard-hitting subgroup of MSBP, which is relevant in paediatrics as well as in forensic medicine.

Cases

Family A (children 1 and 2)

An 18-month-old girl (child 1) was admitted to hospital at least 3 times because of muscular weakness, drowsiness and respiratory distress. A few hours after her last admission she suddenly died showing signs of muscular paralysis and spasms. A clinical pathological autopsy revealed bilateral otitis media and putrid bronchopneumo-

nia. The cause of death was defined as "cardiorespiratory failure due to bronchopneumonia".

After this girl's death her younger sister (child 2) was hospitalised 9 times due to similar neurological symptoms, until a toxicological analysis revealed clozapine in her urine. The body of her deceased sister was exhumed 17 months postmortem and a toxicological hair analysis also detected clozapine.

Confronted with these findings, the mother admitted having repeatedly administered clozapine to her children in order to sedate them (50–100 mg) and even her husband (100–200 mg). The probably lethal dose given to child 1 was 1.5 tablets (150 mg clozapine).

The mother was found guilty of grievous bodily harm and poisoning and sentenced to 5 years imprisonment. Medico-legal and psychiatric reports substantiated the diagnosis of Munchausen syndrome by proxy and eventually led to the mother's admission to a psychiatric hospital [5].

Family B (children 3 and 4)

A young boy (child 3) was repeatedly hospitalised because of muscular weakness, inability to walk, dizziness, and pathological eye movements. A total of 12 hospitalisations occurred between the age of 18 months and 38 months without a diagnosis being made. Once he had suffered a life-threatening attack of bradycardia (heart rate <30 bpm) and loss of consciousness.

Growing suspicion eventually led to a toxicological analysis that revealed a highly elevated carbamazepine concentration of 20.3 μg/ml blood (therapeutic range: 2–8 μg/ml). At that time the boy's medical treatment included carbamazepine so that the dosage of this drug was reduced accordingly by the medical staff.

Successive forensic toxicological analyses revealed carbamazepine, clonazepam and phenobarbital. Clonazepam and phenobarbital had never been prescribed to the child (Table 1).

At the same time this boy's younger brother (child 4)—then 17 months old—was admitted to hospital with similar neurological symptoms. Alerted by his older brother's medical history, forensic toxicological investigations were performed and phenobarbital and clonazepam were detected (Table 1).

After the siblings had been placed with foster parents they showed no more signs of neurological illness.

The mother eventually conceded to having administered initially clonazepam and later phenobarbital that had never been prescribed as well as having overdosed carbamazepine, which, in a therapeutic dose, was part of the older boy's medical treatment. In retrospect an overdose of clonazepam, phenobarbital and probably carbamazepine had been responsible for the life-threatening attack of bradycardia and unconsciousness.

The mother had consistently appeared very caring for her apparently seriously ill children and received great appreciation from inside und outside her family.

A forensic psychiatric examination concluded that an abnormal development of the maternal personality had led to a depressive and histrionic personality disorder and Munchausen syndrome by proxy with a typical attention-seeking behaviour was diagnosed.

The woman was sentenced to 4 years and 6 months imprisonment and admitted to a forensic psychiatric hospital.

Family C (children 5 and 6)

The mother of these children one day allegedly found her 2-month-old daughter (child 5) lifeless in her cot, her nose and mouth covered by a pillow and the girl's arm lying on that pillow. Cardiopulmonary resuscitation was primarily successful and the girl was taken to hospital and intensive care including mechanical ventilation and administration of catecholamines became necessary. The girl died 18 h later and a medico-legal autopsy was performed.

The main autopsy findings were signs of protracted cardiopulmonary failure, brain oedema and an alternation of dystelectatic and emphysematic areas of the lung. On external examination no signs of upper airway obstruction or mechanical violence were detectable. The autopsy findings were greatly influenced by the intensive care treatment over a period of 18 h. The cause of death remained uncertain while being highly suspicious of suffocation.

Table 1 Family B: serum concentrations of carbamazepine, clonazepam and phenobarbital

Details	Carbamazepine (therapeutic range 2–8 μg/ml)	Clonazepam (therapeutic range 10–80 ng/ml)	Phenobarbital (therapeutic range 10–30 μg/ml)
Child 3			
October 1st	2.3 μg/ml		
October 15th	20.3 μg/ml		
January 9th		25 ng/ml	77 μg/ml
January 13th		<5 ng/ml	
Child 4			
December 30th	<1.5 μg/ml	29 ng/ml	
January 10th	<1.0 μg/ml	9 ng/ml	20.8 μg/ml
January 14th		<5 ng/ml	

The mother gave birth to a son (child 6) 9 months later who was provided with a cardiorespiratory home monitor due to the previous death of his sister. During the following 9 months unexplained attacks of bradycardia led to at least 10 hospitalisations on 2 occasions because of life-threatening bradycardia and asphyxia.

The head of the paediatric department finally informed the police because of growing suspicion that external airway obstructions were responsible for the bradycardia attacks.

The mother, an assistant nurse, was accused of grievous bodily harm with fatal consequences and in court conceded to having repeatedly obstructed the nose and mouth of child 6, allegedly in order to be seen as a caring mother of a severely ill child. At that time she had been under psychiatric therapy for 8 years due to episodes of depression and anxiety. A forensic psychiatric expert diagnosed Munchausen syndrome by proxy with typical attention-seeking behaviour. In spite of the highly suspicious circumstances in the death of child 5 the mother was sentenced to 2 years imprisonment only for attempted suffocation of child 6.

Family D (child 7)

A 2.5-year-old boy was admitted to hospital because of cramp-like abdominal pain, diarrhoea and vomiting and cerebral convulsions. Similar complaints led to 16 further hospitalisations of up to 2 weeks duration within the following 13 months.

During his stays in hospital the mother cared for the boy most of the time and repeatedly reported the signs of her son's alleged illness to the medical clinical staff.

Six different paediatric departments were involved in the diagnosis and treatment of this boy. Chronic inflammatory bowel diseases were suspected as well as rare metabolic disorders. Three endoscopic examinations and a diagnostic laparotomy were undertaken but no pathological findings could be detected.

Munchausen syndrome by proxy was suspected by the medical personnel 10 months after the first hospitalisation. Forensic toxicological investigations of the gastric content were performed and propyphenanzone and doxylamine were detected. Successive analyses showed propyphenanzone in the blood (116 ng/g) and urine. Neither of the two substances had ever been part of the boy's medical treatment.

A psychiatric expert suspected Munchausen syndrome by proxy like behaviour of the mother which, however, did not affect her legal responsibility for the alleged actions. The boy's medical condition improved to full recovery.

Family E (child 8)

A university hospital paediatrician informed the police that he suspected that an 11-month-old boy had been poisoned by theophylline administered by his mother. Previously he had been treated for agitation and cerebral convulsions in two other paediatric departments where the care including the administration of drugs lay mainly with the mother. One afternoon—the boy had spent some time with his mother—the child was found to be in a life-threatening state. The heart rate was 210 bpm, the body temperature elevated and the skin noticeably pale. The child was agitated and vomited repeatedly.

A toxicological investigation revealed a serum theophylline concentration of 49.4 μg/ml (therapeutic range 8–20 μg/ml). This substance had neither been prescribed to this boy nor to any other child on the paediatric ward at that time.

The mother denied having given any non-prescribed drugs to her child although she was found to be in possession of at least one theophylline-containing capsule as well as a few frusemide tablets. According to the medical documents the mother had given her child an overdose of a frusemide-containing solution during a previous hospital stay.

According to the medical personnel's observations the boy's condition improved when he was separated from his mother. Unexplained deteriorations occurred only in connection with contact between mother and child. Although the mother's behaviour was highly suspicious of MSBP the diagnosis could not be made with certainty.

Discussion

MSBP-related disease in a child may be the result of inventing medical histories (e.g. seizures, apnoea), manipulating specimens (e.g. adding blood to urine), inflicting direct physical harm or secretly giving drugs in toxic amounts. The cases presented all belong to the latter groups of direct physical harm or poisoning.

The mortality of MSBP in 2 large review studies was 8% [30] and 12% [32], the physical as well as the psychiatric long-term morbidity is close to 50% [9] and approximately 40% of the siblings had been the subject of fabricated illnesses [8, 21]. The children's age at diagnosis according to Rosenberg was 39.8±32.1 months and the MSBP abuse lasted for 14.9±14 months [30].

Apnoea from suffocation represents a small subgroup of MSBP which, together with the poisoning cases, is almost exclusively responsible for the fatalities [21, 26, 27, 28, 30]. Suffocation in MSBP is one important differential diagnosis in suspected cases of SIDS [4, 29].

Similar to the cases of families A and C, a number of siblings of MSBP deaths had previously died with a diagnosis of SIDS but most likely were victims of MSBP [21, 26, 30] and several reports of SIDS cases are now suspected to represent homicides [14, 16]. Apparent life-threatening events (ALTE) also turned out to be caused by MSBP [18]. The histological finding of haemosiderin-laden macrophages in the lungs or the liver provides supportive evidence of deliberate upper airway obstruction [6, 15, 27].

A large variety of medical drugs were reported to have been administered in MSBP—for example ipecac [3, 32, 34], laxatives [11], benzodiazepines [35], frusemide [12, this study], warfarin [36], theophylline [37, this study], amitriptyline [20], or clozapine [1, 5, this study]. In addition, illegal drugs and substances such as paint or dyes were also reported [30]. To clarify suspected poisoning, detailed toxicological investigations in a specialised (forensic) laboratory are essential and should include the family members, especially the siblings.

In addition to direct physical harm inflicted by the perpetrator, multiple hospitalisations including invasive procedures can lead to long-lasting impairment [9, 19]. This is very well illustrated by the case of family D where the child even had to undergo an unnecessary diagnostic laparotomy.

It is very rare for the fathers to be actively involved in the abuse [26]. Common features of the deceiving mothers are that some had paramedical training, many of them find for themselves a paradoxical sense of purpose and safety in the midst of the disorders created by themselves, and most display a very caring attitude, build up close relationships to the nursing staff and appear to enjoy the hospital atmosphere [23, 25, 30]. Nevertheless MSBP does not apply to the psychopathology of the perpetrator because there is no characteristic finding and psychotic illness is rare. Personality disorders (especially histrionic and borderline types), somatising and self-destructive disorders including Munchausen syndrome [2], eating disorders, and abuse of alcohol or drugs prevailed among the mothers examined in detail [7, 10, 30, 31].

The common features of the mothers and the medical histories allow a number of warning signs to be listed (Table 2). A general strategy for the diagnosis and the forensic management of MSBP is suggested in Table 3. The strong and sometimes compulsory urge of the perpetrators explains why even hospitals should not be considered a safe place for the child. As many as 95% of the perpetrators are reported to have continued in the production of illness while the child was inside the hospital [30]. Covert video surveillance (CVS) may be appropriate in selected cases [17, 24, 33]. In cases where the child was sent back home after diagnosis, re-abuse was not uncommon [13] including fatal outcomes [30]. The safety and well-being of the child therefore requires separation from the perpetrator to be imposed by legal action.

The cases observed in our study have some features in common:

- All cases were observed between 1990 and 1999. There were no more observations of MSBP cases before or after this period of time.
- In nearly all cases several up to many hospital admissions had occurred before a forensic medical or toxicological investigation was initiated.
- All our cases were detected in only 4 out of 15 paediatric hospitals that exist in our region, although many more paediatric departments had been involved in the treatment of the children.

Table 2 Warning signs of MSBP (modified according to Meadow 1982)

No.	Warning signs
1.	Unexplained, prolonged or recurrent illness—"never seen a case like that before"
2.	Discrepancies between the clinical findings and the history obtained from the parent
3.	Symptoms and signs which show a temporal relation to the presence of the parent
4.	Established treatments that are not tolerated, e.g. because of vomiting
5.	A differential diagnosis consisting of disorders less common than MSBP, e.g. porphyria
6.	Repeated hospitalisation and vigorous but unsuccessful medical evaluation
7.	A mother who is permanently at the child's bed, who is overly attached to the staff, and who welcomes painful medical tests to her child
8.	A mother who is less concerned than the medical staff, sometimes comforting them
9.	Families in which unexplained infant deaths or peculiar medical histories have occurred

Table 3 Suggested strategy for confirmation and management of suspected MSBP

No.	Steps in strategy and management
1.	Check and double-check all information obtained from the parent also regarding non-medical issues— it is common for the fabrication to extend beyond the child's illness
2.	Check the reliability of symptoms: e.g. does the rash wash off, is this really the child's blood?
3.	Check for temporal relationships to the presence of the mother, consider a "diagnostic separation"
4.	Extend the investigation to the family, especially siblings, and to associated forms of abuse
5.	Obtain and properly store sufficient specimens (blood, urine) for detailed investigation, especially when symptoms recur. Analysis in a specialised laboratory
6.	Confrontation of the family only after medical, social and legal precautions since the perpetrators have a strong tendency to deny and evade
7.	Legal actions should be directed towards removal from the family or return under strict supervision similar to other cases of non-accidental injury
8.	Initiate psychiatric help for mother (suicidal after confrontation?) and child

These findings let us draw the following conclusions:

1. There probably exist many more MSBP cases in our region than detected. Detection of relevant cases does

not seem to be as easy as supposed, especially because the symptoms observed are also common to other diseases. It is therefore suggested that each child with symptoms that could be due to poisoning should be regarded as a case suspicious of MSBP. In such cases a full toxicological analysis must be performed, including a search for unknown drugs.

2. If a baby or a young child is admitted to a hospital for a second time because of trivial or unspecific symptoms and if a clear relationship between the symptoms and a diagnosed disease is missing, then suspicion of MSBP leading to a forensic medical or toxicological analysis would be a prerequisite.

In conclusion, MSBP is difficult to diagnose because of greatly varying symptoms. The major diagnostic mistake is the omission to simply consider the possibility of MSBP.

Efficient protection of the child requires clear evidence apt to stand up to judicial standards and an expert in legal medicine should be involved in the investigation of suspected MSBP cases.

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