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**CASE REPORT**

**GENERAL; PSYCHIATRY**

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# Parental Substance Abuse and Accidental Death in Children

**ABSTRACT:** In this report, the authors present two cases of accidental death in children of addicted parents. In the first case, the child was left unattended at home while the mother went out to buy cocaine. She was arrested and detained with no mention of the unsupervised child. The cause of death in this case was determined to be starvation and dehydration. In the second case, a child mistakenly received a methadone suppository by her father instead of an antipyretic suppository. Toxicological analysis of the femoral blood revealed methadone at a concentration of 1.2 mg/L. The cause of death was determined to be methadone intoxication. The literature is reviewed and discussed. We report these cases to illustrate the risk of harm to children from illicit drugs and prescription medications at home and because there is no mention of accidental death in children following a methadone suppository administration in the current literature.

**KEYWORDS:** forensic science, forensic pathology, substance abuse, methadone, intoxication, child

Since the introduction of methadone maintenance programs in opiate dependence, fatal and nonfatal accidental methadone intoxications in children have been reported by several authors (1–37). Often such intoxications occur in families in which parents or relatives are receiving methadone prescribed for opiate addiction (11). The abuse of alcohol and other drugs has been clearly linked to the perpetration of child maltreatment, including child neglect as well as physical, emotional, and sexual abuse (38–40).

Two cases of accidental death in children of addicted parents are herein presented. In the first case, the child was left unattended at home while the mother went out to buy cocaine. In the second case, the child mistakenly received a methadone suppository by her father instead of an antipyretic suppository.

## Case Reports

### *Case History*

The first case concerns a 16-month-old child. The mother was unemployed, heroin and cocaine addicted. One night, she left home to buy cocaine. She left her child asleep and unsupervised. She was arrested and taken to the nearest police station for questioning. She was placed in a holding cell and did not mention the existence of the child, because of the fear she had of losing all parental rights. She said she had thought her boyfriend, a drug user like herself, would take care of the child. Nobody attended to the child for days and the corpse was found in the apartment several days later. Inspection of the house revealed very simple furnishings. In the entrance was an ironing-board, with drug preparation equipment (for inhalation and injection) on it. The body of the child was found lying on the bathroom floor, dressed and in a state of advanced decay. The nappy was soiled with urine and feces. The Ion Scan Narcotics Detection System was used for the purpose of detecting residue of narcotics and revealed traces of cocaine on most of the furniture and other objects.

### *Autopsy Findings*

The child's body weight was 6080 g (<3rd percentile), height was 79 cm. X-ray examination of the body was negative. Autopsy revealed marked skin maceration in the perineal region and extreme dehydration, with sunken eyes and dry and wrinkly skin. The ribcage and pelvis were easily visible under the skin. The pharynx, esophagus, stomach, duodenum, larynx, and trachea were empty. The lungs were dry. The small intestine contained minimal amounts of brown material. Examination of the large intestine revealed minimal amounts of dried fecal masses. Histological examination revealed fatty hepatic degeneration, interstitial pneumonia, and autolytic changes in heart, spleen, and kidney. Periodic acid-Schiff and Periodic acid-Schiff diastase staining revealed severe glycogen depletion. Neuropathological and microbiological investigation was negative.

### *Toxicological Findings*

Blood, urine, and gastric content were absent. Postmortem specimens (bile, liver, muscle, kidney, and hair) were collected. Extracts of bile, kidney, and liver underwent a screen using gas chromatography-mass spectrometry.

Toxicological analysis showed traces of cocaine (<20 ng) and benzoylecgonine (200 ng) in the bile. High levels of cocaine and traces of 6-monoacetylmorphine were detected in hair, suggesting a repeated exposure to cocaine and to a lesser extent to heroin. The cause of death was determined to be starvation and dehydration.

### *Case History*

The second case concerns a 19-month-old child, who mistakenly received a methadone suppository from her father instead of an

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antipyretic suppository. The father, a former heroin addict, used to smoke cannabis daily and also occasionally bought black-market methadone in suppository form. The parents were divorced and child custody was granted to the mother. The father had custody every other weekend. On Friday night, the child was affected by a febrile state and the father decided to give her a suppository. He kept both methadone and antipyretic suppositories in the refrigerator. Early on Saturday morning, he found the child dead in bed. In the refrigerator, the police found two white suppositories with no inscription and one white suppository, with "Methadone 30 mg" marked on it. One empty packaging of a methadone suppository was found in the rubbish bin.

### *Autopsy Findings*

An autopsy was performed the same day. The child's body weight was 10 kg and height was 86 cm. X-ray examination of the body was negative. External examination was unremarkable. Internal examination showed congestion of internal organs and pulmonary edema. Subepicardial and thymic petechiae were also detected. Examination of the sigma-rectum revealed brown fecal masses and minimal amounts of white wax material. Neuropathological and microbiological investigation was negative. Histological examination showed moderate generalized congestion and pulmonary edema.

### *Toxicological Findings*

Toxicological tests included blood ethanol levels and screening for common drugs and illegal substances by gas chromatography and mass spectrometry. Methadone was the only drug detected in femoral blood at a concentration of 1.2 mg/L. Urine and gastric content were absent. Hair analysis was negative. Analysis of the white wax material found in the sigma-rectum revealed the presence of methadone, suggesting that it could be the residue of the methadone suppository. The cause of death was determined to be methadone intoxication.

## Discussion

Fatal and nonfatal accidental methadone intoxications in children have been previously reported by several authors (1–37). In some countries, the prevention of such events has been addressed by use of child-resistant containers; nevertheless, accidental methadone intoxication in children remains an important and topical problem (25,41–48).

Most of these cases have occurred as a result of accidental ingestion of methadone watery solutions and more rarely methadone tablets, which had been prescribed for a parent, parent's partner or relative. To date and to our knowledge, no case of accidental death in children following a suppository administration has been previously described up to the case herein presented.

Moreover, in most cases, methadone intoxications are an unfortunate consequence of methadone availability at home, when one or both parents are treated with methadone as a substitution therapy, and may be related to inappropriate storage or resemblance of the liquid preparation to common childhood drinks (29).

Exceptionally, these cases may result from a voluntary administration by an adult (29,31), from an accidental contamination of prescribed medication (19,21), or from an erroneous administration of methadone by an addicted parent, as described in our case, because of inappropriate storage.

As most of the authors have already pointed out in the past, the use of methadone as a maintenance drug in the management of heroin addiction has made this drug more accessible, thus increasing the danger of accidental ingestion by children. Previous studies of methadone poisoning in children revealed that the drug was not issued in child-resistant containers and that poison prevention should then focus on packaging issues (33). Moreover, parents with impaired judgment secondary to substance use may expose children to the risk of unintentional poisonings as well as numerous other kinds of accidents (40).

Substances that cause drowsiness and impair concentration and attention can reduce levels of parental supervision, thus putting children at risk of neglect not only of their immediate physical and emotional needs, such as meals and regular bedtime routines, but also for accidents, including unintentional poisoning, because of minimal supervision or monitoring.

Substances that produce a state of agitation, restlessness, and impaired judgment may bring a different set of problems. These may include the failure to appropriately regulate responses to children, in such a way that a child's behavior may be distorted and misinterpreted and thus reacted to inappropriately (38–40,49).

As we have indicated in the first case here reported, child neglect resulted from the mother's involvement in criminal activities that led to her subsequent arrest, as well as from her reticence to communicate with the police. Toxicological analyses on the child showed repeated exposure to cocaine and, to a lesser extent, heroin. These results suggest that the mother was used to using cocaine and heroin at home and that the child was exposed to these substances. As children are naturally inquisitive and learn through exploration, the presence of heroin and cocaine in hair is most likely to be the result of accidental and repeated ingestion or inhalation of these substances, as they were left unsupervised in the home and appeared on objects and furniture.

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