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CASE REPORT

Cannabis Exposure in an Omani Child
First case report from Oman

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تعرض طفلة عُمانية للحشيش (القنّب)
تقرير لأول حالة من عُمان

ثريا الشيداني وفينيتا أرورا

الملخص: هذا تقرير لحالة مؤكدة تبين تعرض طفلة عُمانية للحشيش، وهي تعاني أيضا من تأخر في النمو. يمكن أن يؤدي تعرض الأطفال للحشيش إلى الكثير من التداعيات، على سبيل المثال، الاستخدام المزمن يمكن أن يؤدي إلى تأخر في النمو، والسلوك الشاذ، وفرط النشاط، في حين أن هناك مخاطر من حصول غيبوبة في حالة التعرض الحاد. من المهم بالنسبة للأطباء النظر في تعاطي المخدرات بوصفها التشخيص التفريقي لعروض مماثلة عند الأطفال المرضى، حيث الملاحظ أن يكون الأطفال عرضة لخطر التعرض للحشيش إذا كان الوالدان/مقدمو الرعاية يعانون من الإدمان عليه.

مفتاح الكلمات: تعاطي الحشيش، إساءة معاملة الطفل، نمو الطفل، اضطرابات تأخر النمو، تقرير حالة، عُمان.

ABSTRACT: We report a confirmed case of cannabis exposure in an Omani female child with developmental delay. Cannabis exposure in children can lead to many consequences; for example, chronic use can result in developmental delay, abnormal behaviour, and hyperactivity while there is a risk of coma with acute exposure. It is important for clinicians to consider substance abuse as a differential diagnosis for similar presentations in paediatric patients, noting that children are at risk of cannabis exposure if their parents/caregivers are cannabis users.

Keywords: Cannabis abuse; Child abuse; Child development; Developmental delay disorders; Case report; Oman.

Cannabis is the most widely used illicit drug in many developed societies. It is estimated in the USA that the population incidence rates of marijuana use from late childhood to adolescence increase from 1.30% to 16.29% from age 11 to 16 years, and then appear to plateau. A sharp increase is noted during ages 13–15 years.[1] There is a paucity of statistics about the prevalence of cannabis use in Oman; however, the government has recently established a new 50 bed psychiatric hospital specialised in the treatment of addiction. Absolute numbers from 1994 indicate that 150 people were addicted to cannabis (hashish) and, in 2009, 19 people died of drug abuse.[2]

According to botanical classification, cannabis comes from family of *Cannabaceae* and species of *stiva*, *indica* and *ruleralis*.[3] The common names for cannabis are: marijuana, marihuana, potweed, grass and Mary Jane.[3] There are multiple risks from using cannabis, e.g. decreased ability to concentrate, decreased motivation, balance problems, increased heart rate and blood pressure, damage to fertility and increased risk of serious psychiatric illness.[4] Behavioural problems were associated with early marijuana use specifically in those who started to use cannabis prior to 15 years of age.[5] Recent cannabinoid research discovered an endocannabinoid system with specific genes coding for cannabinoid receptors (CBRs).[6] The availability of these endocannabinoids in breast milk can affect the development of the newborn baby.[6]

Substance abuse includes the abuse of legal drugs as well as the use of illegal drugs. A caregiver's self-use and abuse of alcohol, cannabis (marijuana),

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heroin, cocaine, methamphetamine, and other drugs expose children to risk in multiple ways. Members of the medical community need to understand these risks, and be aware of the consequences on children in the care of adult abusers. The misuse of drug substances by children may have far-reaching consequences, and may impact family unit functions. Many substance abusers are polysubstance users leading to a compounded negative effect which may be difficult to measure. Often, other interrelated social factors, such as untreated mental illness, alcoholism, trauma history and domestic violence also affect these families.[7]

There are several paediatric case reports found in the literature regarding cannabis abuse/exposure leading to effects on cognitive function/behavior and coma, but none specifically on cannabis exposure in children in Oman.[8,9] This case report describes illicit cannabis exposure in an Omani female child with developmental delay.

Case Report

An Omani female child, aged 2 years and 10 months, was brought by her parents to the Accident and Emergency Department of Sultan Qaboos University Hospital, Muscat, Oman. The patient presented with drowsiness, abnormal eye movements, was lethargic and had been unable to sit or stand for the previous 4 hours. The history was reluctantly provided, so the physician on call documented the unconfirmed information given by the parents, noting that it was somewhat inconsistent in nature. The father made little eye contact with medical personnel, and seemed uncomfortable. His verbal and non-verbal expressions and cues to his wife indicated that she was not to offer any information. Apparently, the patient had ingested an unknown blackish substance mixed with sand, followed by vomiting, further lethargy and drowsiness, with nystagmus. The parents sought medical assistance approximately 4 hours after the onset of symptoms. Of note, the child's chart indicated that she had been a full term baby. However, there had been a delay in gross motor skill and language development noted to have begun at approximately 2 years of age. The parents indicated that the patient was a hyperactive child who occasionally ate her own hair. The physician noted that the family as a unit presented with psychosocial and alcoholism/substance issues, and loss of income. It was noted that two older siblings were "normal" as indicated by the mother of the patient.

On initial examination, the following parameters were significant: lethargy, drowsiness, Glasgow coma scale of 12/15, tachycardia, nystagmus, and pupils dilated (4 mm), but reactive to light. A gastric lavage was performed, producing gastric aspirate mixed with food particles. During this procedure, the child vomited a blackish sticky substance, with subsequent clinical improvement over the ensuing hours. The samples were sent for analysis, and she was hydrated intravenously. Investigations revealed microcytic hypochromic anaemia while all other investigations were normal. The patient rested through the night, and continued to improve. The subsequent plan was to involve social work and perform an HIV test, but the patient's father discharged her against medical advice. An incident report indicating suspected child abuse was filed. Five days later, tetracannabinoid substance was confirmed in the child's vomit.

Discussion

Children exposed to maternal addiction have increased rates of cognitive, socio-emotional, and behavioural problems.[10] This case report illustrates an Omani female child who was exposed to cannabis. The child was noted to have developmental delay and hyperactivity to which prenatal/chronic cannabis exposure may have been a contributing factor. A prospective investigation showed that there is a significant association between substance use disorder in parents and cannabis use disorder and behavioural disinhibition in their sons.[11] The Generation R study showed that multiple demographic, emotional and social characteristics were associated with maternal cannabis use. These characteristics should be considered when investigating offspring exposed to cannabis *in utero* as they may be important in mother-child interaction and child development.[12] There is indirect evidence of post-pregnancy resumption of substance use. Pregnant and parenting women, regardless of race or ethnicity, benefit from prevention efforts focusing on cessation rather than temporary abstinence from substance use.[13]

This patient demonstrated speech delays and hyperactivity, which were also found in one case report in which a Californian teacher of a 7 year-old boy, who had been exposed prenatal to cannabis, noted that he demonstrated frequent fidgety behaviour, hyperactivity, and trouble focusing on learning tasks. Noted by family to be a "sweet and happy" child at home, his parents still expressed concern about his repetitive behaviours, fear of leaving the house, and insistence on a certain order of his toys. He also displayed "meltdowns" and tantrums at non-compliance with his wishes. A receptive and expressive language disorder had previously been diagnosed at 4 years of age, and been followed by speech therapy and a social skills language group programme.[14]

Survival analysis in another study revealed that aggressive, co-morbid, and inattentive/hyperactive schoolchildren had a significantly earlier onset of drinking, drunkenness, marijuana and overall illicit drug use compared to healthy schoolchildren.[15] The conclusions of this study were as follows: three levels of behavioural risk of substance abuse exist: 1) the highest level has trajectories of increased aggressive and inattentive/hyperactive problems throughout childhood; 2) the next level involves only an increased inattentive/hyperactive behavioural trajectory, and 3) the lowest level involves those with neither type of problem.[15] Children with both inattention/hyperactivity and aggression have the greatest need for childhood intervention to prevent substance abuse in adolescence.[11] Emerging evidence from human studies and animal research demonstrates that an early onset of cannabis consumption might have lasting consequences on cognition; may increase the risk of neuropsychiatric disorders, promote further illegal drug use, and increase the likelihood of cannabis dependence. These findings suggest that young people represent a highly vulnerable cannabis consumer group, carrying a higher risk than adult consumers of suffering adverse consequences from cannabinoid exposure.[16]

There are four independent factors in early or middle childhood that predict early initiation of use of substances and subsequent substance use disorders by early adulthood: 1) Disrupted families or drug-using parents 2) Problem behaviours; 3) Poor parental monitoring, and 4) Poor parental supervision.[17] The father of this patient had no consistent employment, possibly partly due to cannabis abuse. High levels of cannabis abuse are related to poorer educational outcomes, lower income, greater welfare dependence and unemployment, and lower relationship and life satisfaction.[18]

Conclusion

It is important for clinicians to consider substance abuse as a differential diagnosis for presentations similar to this case in other paediatric patients. Emergency medicine clinicians should be able to detect suspicious behaviour as described above, supported by inconsistent information/history given by family members in order to provide appropriate immediate treatment, and also initiate follow-up care for the patient and possibly also for the family.

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