



Case Report

A case of drug facilitated sexual assault in a child – approach and challenges

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Abstract

Drug-facilitated chronic sexual assault on children presents significant challenges for medico-legal practitioners, the police, and all other stakeholders in the criminal justice system. The objective of this case report is to illustrate the difficulties encountered in cases of drug-facilitated child assault. In this particular case, a 12-year-old girl tragically lost her life after being sexually assaulted multiple times following the administration of a drink laced with drugs. We highlight the challenges faced in determining the cause of death in this case owing to negative toxicological findings. To be an expert in opining on matters of child abuse, thorough training in the fields of paediatric and adult gynaecology is necessary for forensic medicine practitioners. There is also a strong need to create awareness among the health fraternity about the need to be vigilant about child abuse and follow an initiative-taking approach in reporting the incidents of such abuse. By fostering professional discourse and knowledge exchange, we

can enhance the quality of our work and ensure successful prosecution in cases of child sexual abuse.

Keywords: Expert testimony, Sexual assault, Child abuse, Drug facilitated rape, Cerebrovascular accident.

Introduction:

Drug-assisted chronic sexual assault on children is a disturbing and complicated issue with profound consequences for their physical and psychological well-being. Successful prosecution of such cases presents distinct obstacles within India's legal and medical systems. This case report aims to highlight the specific hurdles encountered in prosecuting drug-facilitated chronic sexual assault cases against children in India, with a focus on the analytical toxicology aspect. Given their quick metabolism and narrow detection window, the problems in detecting and identifying the drugs employed for this purpose represent a substantial barrier in clinical forensic casework.

Case Report:

A 12-year-old girl child was admitted to a government tertiary care hospital in Hyderabad with complaints of reeling sensation, burning micturition and difficulty in walking. The case was referred from the Bharosa Center of the Government of Telangana. During the examination conducted by a gynaecologist at the Bharosa Centre (One Stop Crisis Management Centre), the patient was observed to have differentially healed contusions on the inner parts

of her thighs. Additionally, the gynaecologist noted that the hymen was not intact, and an old scar was located at the 6 o'clock position (Level III of Adams evidence criteria in children). Further investigation revealed that the patient had been repeatedly physically and sexually assaulted by an individual who administered a beverage laced with intoxicating substances and drugs (unwholesome substance). Examination revealed evidence of sexual assault; however, the assertion regarding the beverage laced with intoxicating substances is based on history, victim/witness statements, and corroborative evidence.

Physical examination revealed suprapubic tenderness and fungal infections in the genitalia and skin. Upon admission, the patient's vital signs were unstable, and appropriate treatment was initiated after consulting with a gynaecologist, radiologist, and psychiatrist. However, the patient's condition later rapidly deteriorated within a few hours, leading to endotracheal intubation and death. A few hours before death, the CT scan revealed a left cerebellar infarction, changes indicative of hypoxic insult to the brain, and compression of the fourth ventricle with tonsillar herniation of the cisterna magna.

During the autopsy, the deceased was lean built and averagely nourished, hyperpigmented patches were observed over the pubis, medial aspect of both thighs and various locations on the corpse. No fresh antemortem injuries were detected on the body. The brain exhibited edema, and a 2 cm diameter encapsulated cyst was identified in the dorsal medulla abaxially. The rupture of the cyst revealed straw-coloured fluid. Clots were observed in the left cerebellar area. Furthermore, the examination revealed that the hymen was not intact. The Forensic Science Laboratory (F.S.L) report indicated that the vaginal swabs tested negative for semen, spermatozoa, blood, and foreign material. The chemical analysis of viscera was also negative for common poisons. The histopathology of the brain showed changes of hypoxic insult with cerebellar infarction along with acute tubular necrosis of the kidney. The autopsy surgeon opined that "multi-organ dysfunction syndrome due to cerebellar infarction and acute tubular necrosis due to uro-

sepsis" as the cause of death in this case.

The investigating officer sought expert opinion on files in this case from one of the authors (Dr.R.S). On perusal of post mortem examination report, FSL report, histopathology reports, police case dairy and extracts of hospital records, the final cause of death was issued as, "urosepsis and cerebellar infarction consequent to drug-facilitated penetrative sexual assault unless proved otherwise".

Discussion:

The victim's fatality ensued from the development of cerebellar infarction, aggravated by urosepsis and septic shock, culminating in heightened intracranial pressure and eventually cardiac arrest. The corroborative brain CT scan findings, including fourth ventricle compression and cisternal herniation, provide substantial support for the hypothesis of vital centre compression. Employing the "but for" test, unequivocally establishes that, but for the drug-facilitated sexual assault, which incited urosepsis and precipitated cerebellar infarction, the victim's demise would not have transpired. The consideration of a possible 'drug-facilitated' component was given appropriate significance in the final opinion to ensure that justice was served effectively (The girl testified that she had woken up nude in the morning on multiple occasions after being given a drink by the perpetrator during the nights. The same was corroborated by a few witnesses). The 'drug' based aspect of the final opinion was put to a rigorous test in the court of law as there was no tangible proof for it in the evidence submitted by the prosecution. However, strong ocular evidence coupled with corroborative medical evidence of sexual assault led to a successful conviction in this case leading to life imprisonment for the accused despite negative toxicological findings

The factors leading to stroke in drug abuse can be attributed to the impact of the drugs on cerebral circulation, their effects on the heart, which in turn influences cardiac output, or their effects on the liver, which can affect the coagulation pathways, and also the effects on sympathetic and parasympathetic systems

influencing blood flow dynamics. Stroke due to drug abuse is relatively uncommon in our region. However, the reason behind stroke in cases of stimulant abuse, such as cocaine and amphetamines, is undeniable. It is highly possible for individuals abusing these drugs to experience ischemic stroke although a haemorrhagic stroke is also not unlikely. Delayed intracranial haemorrhage in amphetamine abuse is linked to chronic vasculitis induced by the drugs. Cannabis also can cause transient ischaemic attacks and infarction stroke whereas synthetic cannabinoids have been linked to haemorrhagic stroke as well. Opioids like morphine and heroin have also been implicated as a causative factor for both kinds of stroke. Heroin abuse can lead to post-anoxic encephalopathy and global hypoperfusion of the brain due to heroin-induced hypotension, bradycardia, cardiopulmonary arrest, and hypoxia. Hypereosinophilia induced by chronic heroin use has been associated with cerebral infarction, possibly caused by focal damage to the endothelium of the endocardium and arteries. Opioid dependence, including heroin addiction, may increase plasma fibrinogen levels, which are known risk factors for atherosclerosis development and can contribute to heart infarctions or stroke. Haemorrhagic stroke can occur from heroin abuse through the haemorrhagic transformation of ischemic infarction, pyogenic arteritis, or rupture of a mycotic aneurysm.[1]

Based on the provided history, the child experienced a loss of consciousness after consuming a drug-laced drink and woke up nude in the morning with pain in the genital area. Therefore, our initial assumption is that the drug is likely a central nervous system (CNS) depressant. It could potentially be a benzodiazepine, barbiturate, or opioid mixed with alcohol. The case involves drug-facilitated sexual assault (DFSA) with signs of penetrative assault, including the non-intact-hymen, old scars, and genital pigmentation. The FSL report did not detect semen or spermatozoa due to the delay in the examination, i.e., the alleged instance of chronic sexual abuse was three months before reporting at the Bharosa Centre. DFSA commonly involves drugs like alcohol, tranquilizers like benzodiazepines, ketamine, morphine and

Gamma Hydroxy Butyrate (GHB), sleeping aids (some of them like melatonin which is easily available over the counter), and cocaine. Drug abuse, particularly morphine, and cocaine, increases the risk of strokes and other cardiovascular complications. In this case, the autopsy surgeons should have considered performing toxicology tests on hair and nail samples. These tests have the unique advantage of providing a larger detection window for identifying drugs.[2] However, such tests were not done in this case.

In a study conducted in the United States, the purpose was to identify the extent and types of drugs found in alleged drug-facilitated sexual assaults (DFSA). The study reviewed a total of 1000 cases across thirty-seven states and 1 territory, to shed light on this concerning issue. Among the cases with gender information available (613), the majority of victims were women (91.68%) with an average age of 26.8 years. Blood and urine samples were assessed, revealing that 21.6% of the cases showed no presence of intoxicating substances. However, a wide range of 101 different substances were detected in the remaining cases, with ethanol being the most prevalent (30.9%), followed by cannabinoids (28.8%), amphetamine / methamphetamine (16.5%), cocaine/metabolites (10.4%), and clonazepam/metabolite (7.6%).[3]

A study conducted by the Unit of Forensic Toxicology at the University of Florence and the Sexual Assaults Centre at Hospital Careggi aimed to address the lack of scientific evidence and standardized protocols in cases of drug-facilitated sexual assault (DFSA). They implemented a shared protocol in 2015 to investigate toxicological findings in women seeking healthcare after sexual assault. Between 2010 and 2018, 256 female patients above 18 years of age were included in the study. Among these patients, 37.1% tested positive for at least one substance. Alcohol was the most frequently detected substance (57 cases), followed by cannabis (19 cases), cocaine (15 cases), and opiates/methadone (heroin: five; morphine: 1; methadone: 6). Benzodiazepines were found in thirteen cases, amphetamines in two cases, and gamma-hydroxybutyrate (GHB) was observed in a

solitary case. No new psychoactive substances were detected. In cases where proactive DFSA was suspected, sedative drug findings were present, suggesting non-voluntary consumption.[4]

Incidents of drug-facilitated sexual assault in children by using drugs like xylazine and GHB are reported in the literature. [5,6] Similarly, the use of tetrahydrozoline and buprenorphine in some child sexual assault cases has been reported as well. [7,8] Ketamine, flunitrazepam, and prescription drugs were also used in DFSA cases in adults.[9]

Analytical toxicology faces limitations when detecting drugs in cases of chronic drug-facilitated rape in children. Rapid metabolism is a primary challenge as these drugs are quickly broken down and eliminated from the body. The limited detection window further complicates the analysis, as drug concentrations decrease rapidly and may become undetectable within a brief period. Additionally, the complexity of drug combinations used presents a significant hurdle. Perpetrators often employ multiple drugs with varying metabolic rates and detection methods, requiring thorough testing and analysis to accurately identify and quantify each substance involved.

A study analysed clinical forensic examinations for suspected child sexual abuse at Hanover Medical School from 1999 to 2008. Of the 223 children evaluated, 15.2% had relevant diagnostic findings. Convictions were more common when the perpetrator was not a family member and when victims were seven years or older. Medical examination results are not always necessary for conviction.[10]

In cases of suspected child sexual abuse, it is crucial to consider the possibility that the person bringing the child to the casualty may be the perpetrator of the abuse. This can occur when the abuser tries to maintain control, manipulate the situation, or appear concerned by seeking medical attention for the child. Additionally, the presence of bleeding per vaginum in a prepubertal girl should be carefully evaluated as it is not a common occurrence in this age group and can be indicative of sexual abuse. Even in the absence of visible genital trauma, certain infections leading

to white discharge or manifestations of sexually transmitted infections (STIs) in a sexually inactive child should raise strong suspicions of sexual abuse and prompt a comprehensive evaluation by medical professionals and child protection authorities.

The physical examination in cases of child abuse has to be conducted considering the high possibility of misinterpreting normal findings as signs of abuse. The Adams classification on the evidentiary value of the findings of abuse is of immense help in this regard.[11]

Conclusion:

In conclusion, drug-facilitated child abuse presents significant challenges in detection, investigation, and victim support. By utilizing toxicological analysis, medical examinations, and multidisciplinary collaboration, professionals can identify drug presence, physical findings, and behavioural changes indicative of abuse. Advancing research, refining protocols, and raising awareness are crucial in addressing this issue. Comprehensive support, including medical care, counselling, and legal advocacy, is essential for victims' recovery and justice. Addressing drug-facilitated child abuse requires diligence, compassion, and a commitment to protecting children. Apart from routine toxicology and serology, some novel approaches like studying the microbiome of the vagina in children can give some lead towards sexual assault.

Conflicts of interest: None to declare

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