

Rare case of chronic naphthalene ball ingestion in a young Indian woman

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ABSTRACT

Chronic oral abuse of naphthalene balls is extremely rare. It is associated with different types of metabolic toxicity, neurological deficits and multiple organ failure. However, the psychological implication of naphthalene abuse is poorly understood. This is a unique case report of a 29-year-old lady who presented with a 17 year history of naphthalene ball consumption. Historically, there have been self-harm behaviors, fire setting, cleaning compulsions, and involuntary motor movements associated with naphthalene. A series of assessments were conducted to assess her personality, psychiatric symptoms and cognitive functions. Additionally, blood tests, CT scan and MRI were done. The patient's profile indicated no apparent medical, neurological or cognitive impairments. Her psychological profile revealed significant co-morbidities and marked personality pathology. The case study provides useful insights into the presentation of chronic naphthalene ball ingestion in an Indian woman, thereby indicating the need to identify psychosocial and biological markers longitudinally. It also highlights recognition of common household items that can be abused, suggesting better understanding of protecting vulnerable individuals from the same.

Keywords: Mothball toxicity, naphthalene ball ingestion, psychosocial factors inhalants

Introduction

Naphthalene (C₁₀H₈) is a volatile, white, solid polycyclic hydrocarbon. It is the main ingredient of mothballs, which are generally used as insect repellents or pesticides. It belongs to the group of inhalants, which includes volatile solvents (e.g., correction fluid, glue, and petrol), aerosols (example, paints), gases, and nitrates. Typically, inhalants are abused through sniffing or snorting fumes, huffing, and bagging or can be directly sprayed onto one's nose or mouth. It is mostly taken for its properties of generating euphoria. Acute toxicity is associated with marked medical complications, among which neurological effects stand out.^[1]

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Moreover, chronic use has a wide range of adverse consequences including nausea, dizziness, drowsiness, disinhibition, hemolysis, methemoglobinemia, liver, kidney, nerves, and brain damage.^[2,3] There have also been reports of renal failure, acute peripheral neuropathy, cardiac dysrhythmias, neuro-encephalopathy, and hepatic failure associated with naphthalene abuse.^[4]

Reports of accidental and nonaccidental oral ingestion of naphthalene are rare and suggest severe toxicity and are frequently fatal.^[5] Although some research has been conducted on acute intentional use of naphthalene balls, these have been restricted in terms of associated psychiatric manifestations.^[6] The psychosocial context, which is significant, needs further examination since it could provide primary health care physicians understand, both, addictive properties of naphthalene balls, screening for the same, and making appropriate referrals for management. Here, we report a case of prolonged naphthalene addiction in a female through oral ingestion with no apparent medical consequences.

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Case Report

The patient was a 29-year-old married lady with a six-year-old daughter, from semi-urban West Bengal, India. She presented to a de-addiction facility at a tertiary care mental health Institute in Bengaluru city, India, with a diagnosis of inhalant use disorder. The history indicated consuming betel nuts (areca nuts) at the age of 12 years and sniffing naphthalene balls. Gradually, she mixed naphthalene balls with betel nuts and consumed one ball per day, which would increase to more than five balls when she was distressed. This continued till she came for consultation, that is, for a duration of 17 years of use and abuse. According to her, she experienced a sense of well-being upon intake and also used it to deal with stressors. There were also instances within the family context when she would have extreme anger outbursts and would engage in self-harm behaviors such as setting clothes on fire and resorting to punitive parenting with her daughter on minor issues by beating her up and pouring ice-cold water on her. Temperamentally, her history was suggestive of low frustration tolerance and high impulsivity. About four years ago, the patient started developing a need for cleanliness and spent a significant amount of time washing floors, furniture, etc.,. These symptoms progressively worsened over the next two years, and she started washing electrical switchboards. This led to her having sustained electric shocks on two occasions. She experienced significant distress associated with this, which was temporarily alleviated through increased consumption of naphthalene balls. Simultaneously, she had complex withdrawal symptoms including multiple episodes of seizures, generally, when she would temporarily stop consumption of naphthalene balls. She also received an additional diagnosis of obsessive compulsive disorder. She was never treated for any of these symptoms. The patient was admitted in the female ward of the de-addiction facility for 20 days. On examination, there were no abnormalities detected in her spleen, kidney, and liver investigated through ultrasonography (USG) of the abdomen. Interestingly, no abnormalities were detected in blood investigations and computed tomography (CT) scan and magnetic resonance imaging (MRI) of the brain. Psychological assessments indicated moderate depression and obsessive compulsive symptoms, borderline personality traits, and high neuroticism. Surprisingly, cognitive functioning did not reveal any significant findings. She was treated with escitalopram, clonazepam, and lithium. Psychosocial interventions included relapse prevention, emotion regulation strategies, craving management, and family psychoeducation.

The case reveals a unique presentation of consumption of naphthalene balls that, while associated with additional comorbidities and marked personality pathology, do not reveal any neurological, physical, or neuropsychological deficits. This counterintuitive finding highlights the complex presentation of symptoms among women that can be best understood longitudinally.

Discussion

While addiction to inhalants has been well described, this case illustrates the symptoms involved in ingestion of an organic, toxic substance for its mind-altering properties. Existing literature has primarily focused on the neurological sequelae of naphthalene balls abuse, suggesting the need to have a more integrated approach incorporating psychosocial factors associated with these. Research in India suggests that inhalant abuse is predominantly seen among children, adolescents, and young males and is used by 0.70% of Indian population in the age range of 10-75 years.^[7] In women, it is also associated with pregnancy complications and low birth weight, bone, and brain problems in newly born babies. Acute and chronic use of naphthalene has been associated with hemolytic anemia in the user as well as in babies in cases of pregnant mothers abusing naphthalene.^[8,9] The traits of being low on frustration tolerance, impulsivity, and stubbornness has been seen in another case of a female with chronic naphthalene abuse.^[4] This indicates to the role of temperamental and personality factors in inhalant abuse, especially in women prone to have these traits and given the availability of the substance to all classes of society. In conclusion, naphthalene balls are uncommonly abused inhalants and their ingestion is rare, with associated severe toxicity. In the present case report, the patient presented with chronic oral intake of naphthalene, surprisingly, with no obvious detectable medical sequelae apart from seizures. Her memory functions were intact. However, she presented with significant psychosocial impairments including self-harm behaviors, compulsions, anger dysregulation, impulsivity, and marital discord. The report highlights the importance of understanding addiction in terms of its impact on the family, and the role of enhancing motivation to change, psychoeducation the family, and being mindful of utilizing a holistic approach to treatment when such individuals visit a primary healthcare facility. The report provides an argument of how common household materials can be abused, with a need to be sensitive toward safe utilization, awareness of quantities bought, and regular health check-ups in case changes in personality, behaviors, or neurological/cognitive impairments are seen.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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