

CASE REPORT

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# Datura stramonium seed ingestion leading to unintentional poisoning in a 3-year-old Ethiopian toddler: case report

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## Abstract

**Introduction** Datura stramonium poisoning, resulting from the ingestion of seeds, leaves, or flowers of Datura stramonium, is a severe condition with significant risks, particularly for young children. Most documented cases of Datura stramonium poisoning in the literature involve teenagers who intentionally ingest the plant to induce hallucinogenic and euphoric experiences. This report presents a rare instance of unintentional Datura stramonium poisoning in a 3-year-old Ethiopian toddler.

**Case presentation** He presented with symptoms consistent with anticholinergic toxidrome, including altered mental status, agitation, seizures, dilated pupils, and tachycardia. Laboratory tests, including complete blood count, liver function test, renal function test, electrolyte levels and cerebrospinal fluid analysis were normal. Results of blood toxicology screen were negative. Timely recognition and supportive care lead to a positive outcome.

**Conclusion** Through this report, we aim to add to the limited body of literature on Datura stramonium poisoning in toddlers and offer insights into its clinical course and management in paediatric patients.

**Keywords** Datura stramonium, Poisoning, Anticholinergic toxicity, Case report

## Background

Datura stramonium a highly toxic plant, known by the common name jimsonweed is used as a traditional medicine for toothache, skin diseases, and asthma in southern Ethiopia [1]. poisoning resulting from ingestion of Datura stramonium seeds, leaves, or flowers. Poses a significant risk, it can result in a wide range of symptoms, ranging from mild anticholinergic effects to life-threatening complications, especially in paediatric patients [2, 3]. Most cases of Datura stramonium poisoning reported in the

literature typically involve teenagers who voluntarily ingest the plant to experience its hallucinogenic and euphoric effects [4–6]. To our knowledge, this could be the first paediatric case report of its kind in Ethiopia. This case report presents the clinical course, management, and outcome of a 3-year-old toddler with Datura stramonium poisoning. he presented with symptoms consistent with anticholinergic toxidrome following ingestion of the seed of Datura stramonium. By detailing the prompt recognition and appropriate intervention in this case, we aim to offer insights into its clinical course and management in paediatric patients.

This report also serves to raise awareness among healthcare providers, parents, and caregivers about the potential risks associated with toxic plants in the environment and the significance of preventive measures.

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### Case report

A 3-year-old male toddler presented to the emergency department with complaint of seizure expressed as generalized rigidity followed by rhythmic flexion and extension of extremities with loss of consciousness each lasting 2 to 3 min. in association to this he had bizarre behaviour characterized by incoherent speech, smiling alternative with frequent crying episodes with no stimulus, dry lips and reddened tongue. He also had non projectile, non-bilious, non-bloody vomiting of 7–8 episodes of ingested matter of 1 day duration. Otherwise, he had no urinary or respiratory symptoms. no trauma history.

The patient's past medical history was unremarkable, with normal developmental milestones and no previous neurological or gastrointestinal disorders. There was no family history of neurological conditions. The patient was not on any medications at the time of presentation. On arrival, His vital signs showed a heart rate of 120 beats per minute, blood pressure of 100/60 mmHg, respiratory rate of 30 breaths per minute, and a temperature of 37.1 °C. Neurological examination showed that the child was agitated and disoriented with Glasgow coma scale of 11/15 (Eye: 4, Verbal: 2, Motor: 5), Fixed and dilated pupils.

With the aforementioned sudden onset neurological symptoms and physical examination findings poisoning consistent with anticholinergic toxidrome was suspected. after rapid assessment of the airway, breathing, circulation, and mental status, targeted history was taken.

Upon further questioning, the child's parents reported that the symptoms began approximately 6 h after ingesting plant seeds while playing at backyard. On further inquiry, the parents brought the seed from their backyard, and it was identified as *Datura stramonium*.(Fig. 1).

Following rapid assessment of the airway, breathing, circulation, and mental status, the child was promptly started on intravenous fluids, seizure was controlled with intravenous diazepam. Laboratory tests, including complete blood count, liver function test, renal function test, electrolyte levels and cerebrospinal fluid analysis were normal. Results of blood toxicology screen were negative for alcohol, amphetamines, tricyclic antidepressants and opiate agents.

The child was closely monitored in the paediatric intensive care unit for signs of respiratory depression, seizures, or cardiovascular instability.

The child gradually showed improvement over the next 24 h, with resolution of vomiting and agitation. His vital



**Fig. 1** *Datura stramonium* seed brought by family from their backyard

signs stabilized. He was discharged home after 48 h of observation with instructions to follow up.

## Discussion

Jimson seed poisoning, also known as *Datura stramonium* poisoning, is a serious concern, especially in young children who are more vulnerable to the toxic effects of the plant [2, 7–9]. *stramonium*, commonly referred to as jimson weed, contains potent tropane alkaloids such as atropine and scopolamine, which can lead to anticholinergic toxicity upon ingestion [6, 10, 11].

The clinical presentation of *Datura stramonium* poisoning can vary depending on the amount ingested, the patient's age, and individual susceptibility. In children, *Datura stramonium* poisoning can be particularly dangerous due to their low body weight and increased susceptibility to toxic effects [2, 5, 9, 11, 12].

In the case of the 3-year-old male toddler, his ingestion of *Datura stramonium* seeds led to symptoms consistent with anticholinergic toxicity, including seizure altered mental status, agitation, dilated pupils, and tachycardia. These symptoms are characteristic of the tropane alkaloids found in *Datura stramonium* seeds, which exert anticholinergic effects on the central and peripheral nervous systems.

The prompt recognition of the anticholinergic toxidrome by characteristic clinical features followed by the history of ingestion of *Datura stramonium* seeds allowed for the rapid initiation of management to provide supportive care.

It is important for healthcare providers to educate parents and caregivers about the potential dangers of toxic plants in the environment, and the importance of ensuring that children are closely supervised in outdoor settings. Collaborative efforts between healthcare providers, parents, and public health authorities are vital in promoting awareness and preventing toxic plant exposures in children.

Treatment is primarily supportive, involving gastric decontamination with activated charcoal, management of agitation and seizures using benzodiazepines, and control of hyperpyrexia using antipyretic and other cooling methods. Tachycardia is generally responsive to fluid therapy. While physostigmine is the antidote for anticholinergic toxicity, its use remains controversial. It is recommended in cases of severe agitation or psychosis unresponsive to benzodiazepines, or when the patient experiences intractable seizures or arrhythmias with hemodynamic instability. Barbiturates may be administered for seizures that are unresponsive to benzodiazepines. The prognosis for *Datura stramonium* intoxication is generally favourable, as seen in our case, but it can be fatal, particularly in cases of massive overdose [6, 7, 9, 13].

**In conclusion**, *Datura stramonium* poisoning in children is a severe condition that necessitates timely recognition and appropriate management. This case report underscores the importance of healthcare providers remaining vigilant. For plant poisoning in paediatric patients and highlights the significance of early intervention and supportive care to achieve a positive outcome. Efforts to raise awareness and educate the public about the risks of toxic plant exposures are essential in preventing such incidents in the future.

## Author contributions

Desalegn Mechal: Conceptualized the case report, conducted the literature review, and drafted the initial manuscript. Led the clinical care of the patient and provided detailed insights into the diagnosis and treatment and prepared the final version for submission. Aynalem Yemane: Provided expert consultation on the case, and critically reviewed the manuscript. Meron Tebeka: Contributed to the data collection and analysis. Assisted in the clinical management of the patient.

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## Data availability

No datasets were generated or analysed during the current study.

## Declarations

### Competing interests

The authors declare no competing interests.

### Ethics approval and consent to participate

This case report was conducted in accordance with institutional guideline for case reports, and informed consent was obtained from the patient's parents. Formal ethical approval was not required.

### Consent to publication

The child's parents have provided informed consent for the publication of this case report. The parents have been assured that personal identity will be kept confidential, and that no identifying information will be disclosed in the report.

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