

# Datura Poisoning in a Family - A Tale of Mistaken Identity

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**ABSTRACT:** Numerous plants are traditionally grown in kitchen gardens and consumed by the general population. Incidents of accidental ingestion of harmful plants due to their striking resemblance with the edible ones are well-known. Cases: A family of three (a mother and her two children) unintentionally consumed leaves of small plants of *Datura stramonium*, instead of *Solanum nigrum*. They were admitted in intensive care unit with anticholinergic symptoms, treated symptomatically and discharged. On probing further, it is understood that both the plants look similar when young. However, it is easy to distinguish between them when the plants are fully grown. Conclusion: It is essential to educate the public regarding proper identification of locally available leafy vegetables that are fit for consumption. Also, clinicians should have a high index of suspicion in such cases of family poisoning even in the absence of a reliable history.

**KEYWORDS:** Accidental poisoning, datura, *Solanum*, anticholinergic, acute psychosis.

## Introduction

Numerous plants with medicinal properties have been used traditionally for common ailments [1].

Some like *Datura stramonium* (*umaithan ilai* in tamil) has also been abused for its hallucinogenic properties, besides being used in asthma and cough [2].

Its main principles are atropine, hyosine and scopolamine [3].

However, its resemblance with other commonly edible plants of the same family Solanaceae poses a risk of accidental consumption in large quantities, thereby causing toxic effects including fatality [4].

Here we encountered a family of three, mother and her children who had cooked and consumed the toxic leaves mistaken for the edible leaves of *Solanum nigrum* (*manai thakkali keerai* in tamil).

This unfortunate incident happened in a small village of Tamilnadu, India.

The leaves of *Solanum nigrum* are consumed to cure anemia, diabetes and common cold [1].

## Patient 1

A 50 years old lady without any comorbidities or addictions, presented to the emergency room with an alleged history of altered behavior for 6 hours.

She complained of severe lower abdominal pain.

Her bystanders revealed that one hour prior to the onset of the above complaints, she and her two children (Patients 2 and 3) had consumed a stew made of *Solanum nigrum* (quantity

unknown) [Figure 1a], which was contaminated with *Datura stramonium* [Figure 1b], plucked from their own garden.

On examination, she was delirious, had an increased heart rate of 150 beats per minute (bpm) (other vital signs normal), dry mouth, dry eyes with dilated pupils (4 millimeter and showed bilateral equal reaction to light) [Figure 2a] and lower abdominal distension possibly due to a full bladder.

So continuous bladder drainage was secured. Stomach wash was instituted without delay. Electrocardiogram revealed only sinus tachycardia.

After the necessary baseline investigations [Figure 3a], patient was admitted in our ICU and was given single dose of intravenous

Neostigmine due to non-availability of physostigmine.

In addition, supportive therapy with activated charcoal, intravenous fluids and antibiotics was provided for 72 hours.

She had a transient thrombocytopenia (platelet count 85,000 per mm<sup>3</sup>) and elevated ESR (18mm and 38mm at half hour and one hour respectively) on day 1.

Platelet count became normal by day 3.

Other blood investigations like random blood sugar, renal and liver function tests, serum electrolytes and creatinine kinase were normal.

She gradually recovered and was discharged on day 5.

## Patient 2

A 24 years old lady (daughter of patient 1) without any comorbidities or addictions,

presented to the emergency room with an alleged history of altered behavior for 6 hours.

She complained of dry mouth and feeling warm.

One hour prior to the onset of the above complaints, she too had consumed the same dish.

On examination, she was conscious but confused; she had tachycardia, heart rate 140bpm, with body temperature of 101 degree F, dry mouth, dry eyes with dilated pupils (3 millimeter and showed bilateral equal light reaction) [Figure 2b].

After securing continuous bladder drainage, tepid sponging and stomach wash were initiated immediately.

Electrocardiogram showed only sinus tachycardia. Baseline investigations revealed elevated ESR (17mm and 36mm at half hour and one hour respectively).

Her chest radiogram revealed dilatation of bowel loop [Figure 3b]. Her Hemogram, Random blood sugar, creatinine kinase, electrolytes, renal and liver function tests were unremarkable.

After emergency management, patient was admitted in ICU for monitoring and given supportive therapy with activated charcoal, intravenous fluids and antibiotics for 48 hours.

She responded well to the treatment measures and was discharged on day 4.

### Patient 3

A 21 years old lad (son of Patient 1) without any comorbidities or addictions, presented to the emergency room with an alleged history of altered behavior for 6 hours.

He also complained of dry mouth and blurred vision.

One hour prior to the onset of the above complaints, he had consumed the same dish.

On examination, he was conscious and oriented with psychotic behavior; he had tachycardia (heart rate 110bpm), dry mouth, dry eyes with dilated pupils (2.5 millimeter and showed bilateral equal light reflex) [Figure 2c].

After securing continuous bladder drainage, urgent stomach wash was given.

Electrocardiogram revealed isolated sinus tachycardia.

Chest radiograph showed dilated bowel loops [Figure 3c].

Baseline investigations divulged elevated ESR (20mm and 45mm at half hour and one hour respectively) and creatinine kinase (31U/l) while hemogram, electrolytes, renal and liver function tests were unremarkable.

Patient was admitted in ICU and provided supportive therapy with activated charcoal, intravenous fluids and antibiotics for 48 hours.

His symptoms gradually improved, he was discharged against medical advice on day 3.



Figure 1. a) Small plant of *Solanum nigrum*; b) small plant of *Datura stramonium*; c) Grown plant of *Solanum nigrum*; d) Grown plant of *Datura stramonium*.

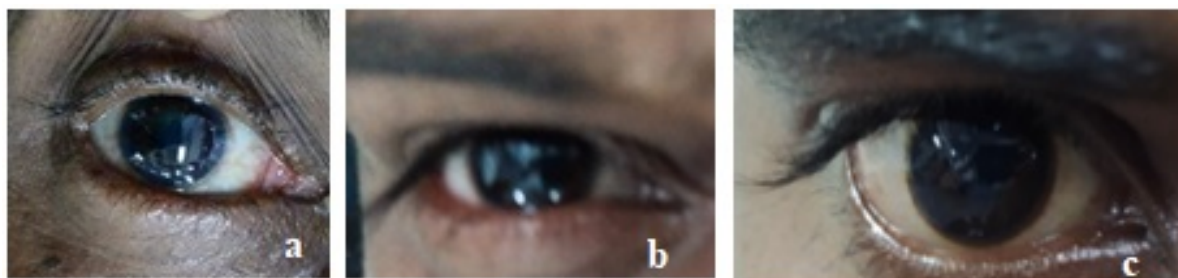


Figure 2. Dilated pupil of a) Patient 1 b) Patient 2 c) Patient 3.



**Figure 3. Chest Radiograph a) Patient 1: Normal; b) Patient 2: shows dilated bowel loop; c) Patient 3: shows dilated bowel loops.**

**Table 1. Clinical summary of Patients 1, 2 and 3.**

S. No	Clinical manifestation	Patient 1	Patient 2	Patient 3
1	Psychosis	Present	Present	Present
2	Tachycardia	Present	Present	present
3	Mydriasis	Present	Present	Present
4	Urinary retention	Present	Absent	Absent
5	ileus	Absent	Present	Present
6	Dry mouth	Absent	Present	Absent
7	fever	Absent	Present	Absent

## Discussion

*Datura* belongs to family Solanaeaceae [1].

*Datura* is being widely abused for its hallucinogenic properties.

Accidental consumption predominantly occurs due to its uncanny resemblance with other edible plants of the same family [4].

The main chemical principles of *Datura* are tropane alkaloids and anti-cholinergic drugs atropine, and scopolamine [3].

Therefore, the toxic effects of this dangerous plant are those of anticholinergic syndrome [5].

Earlier case reports have also identified anticholinergic syndrome, including fatalities associated with this deadly plant.

The anticholinergic syndrome occurs within 1-4h after ingestion of *Datura*.

The clinical manifestations can be tachycardia, hyperthermia, dry flushed skin and mucous membranes, pupillary dilatation, visual disturbance, ileus, urinary retention, delirium, psychosis, sedation, and hallucinations.

Seizures and coma occur late, particularly after high doses [6].

All the above described patients (Patients 1, 2 and 3) have developed anticholinergic syndrome following the unintended consumption of *Datura* [Table 1].

All three of them had sinus tachycardia, dilated pupils, dry skin and mouth at presentation.

First patient had urinary retention at presentation. Patients 2 and 3 had dilated bowel loop in radiograph.

Patient 2 had fever.

These clinical features gave us a clue regarding the dose dependent effects of the poisoning; allegedly the mother consumed the maximum amount of the dish, while her son consumed the least.

The degree of pupil dilatation was varying among the different members, and possibly reflecting the probable quantity of *Datura* consumption [Figure 2 a,b,c].

When investigating the scenario, we found that the leaves of *Datura stramonium* and *Solanum nigrum* look the same when the plants are small, posing a difficulty in identifying the edible one [Figures 1a and 1b].

Nonetheless in the presence of fruits, flowers and when the plants are big, it is relatively easier to distinguish between them [Figures 1c and 1d].

The mishap could have been easily avoided if the leaves had been plucked from mature plants of *Solanum nigrum*.

It is also observed that cooking did not dilute the effects of *Datura*.

## Conclusion

The community needs to be educated regarding the proper selection of locally available greens and trained in identification of the edible plants from the harmful plants growing in house gardens.

Medical professional should also have a high index of suspicion in cases of poisoning in the family to look for any clues to arrive at a diagnosis using a systematic syndromic approach, even in the absence of reliable history.

*Datura* consumption is always to be kept as a differential diagnosis in patients presenting with acute psychosis to emergency room.

Prompt initiation of supportive therapy plays a pivotal role in saving victims of *Datura* poisoning.

## Consent

Informed consent has been signed by the mother for the participation of the three patients in this case presentation.

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## Conflict of interests

None to declare.

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