



Acute *Datura stramonium* Poisoning in East of Algeria – Three Cases

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Authors' contributions

This work was carried out in collaboration between all authors. Author RH examined the patients. Author TZ did the biochemical and hematological analyzes. Authors NM and ZB collected the data and made an analysis of the data and draft the article. Author AB managed and corrected the article. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Poisoning hallucinogenic plants rarely occurs in children but it is a significant problem for the emergency doctor. We report the case of three boys who suddenly exhibited behavioral problems, one of whom was in serious condition. The three children had no remarkable medical history and were not receiving prescription medication, healthy there. The rapid hospitalization of three children by their parents, who informed the physician taking the seeds of *Datura* by their children, facilitated the treatment. The doctor undertook gastric lavage for patients because it is performed by several authors. Two boys were able to leave the hospital the same evening; the third hard hit was evacuated to the University Hospital of Setif. The medical history should be taken several times in cases of unknown etiology, and doctors should keep in mind the possibility that anticholinergics unexplained symptoms could be the result of exposure to hallucinogenic plants like *Datura*.

Keywords: *Datura stramonium*; children; intoxication; anticholinergics symptoms.

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1. INTRODUCTION

Datura stramonium is a toxic and hallucinogenic plant. It has several names throughout the world as Jimson weed, thorn apple, angel's trumpet, thorn apple, grass of the devil. *Datura stramonium* belongs to the family Solanaceae. The plant blooms in summer and fruits in autumn.

It is a plant encountered in urban and rural areas especially near vegetable crops [1]. Toxicity is due to the tropane alkaloids atropine, scopolamine and hyoscyamine. All parts of the plant are known to contain these alkaloids, with high rates in the seeds. So the whole plant is potentially toxic. In general, poisoning plants occupies 5th place in acute poisoning in Algeria [2]. The *Datura stramonium* poisoning in adults is generally voluntary, for its hallucinogenic and euphoric effects. In children, the Jimson weed poisoning is rare and accidental and occurs in rural areas where vegetable growing is developed [3]. Mortality *Datura stramonium* is very rare, but these effects are common after taking, causing acute anticholinergic syndrome [4]. There is no known antidote for Jimsonweed. Treatment includes gastrointestinal decontamination (gastric lavage and activated charcoal), intravenous fluids, sedation, and physostigmine in severe cases [5]. In general, poisoning *Datura stramonium* develops favorably after treatment of symptoms [6].

This report illustrates 3 cases of accidental poisoning *Datura stramonium* admitted to the emergency department of the hospital of Ain Oulmène - Sétif Province (East-Algeria).

2. PRESENTATION OF CLINICAL CASES

Three children (two brothers and a neighbor), aged 5 to 10 years, rural residents in the region of Iafrikate Ain Oulmene in Sétif Province (East-Algeria), this is an agricultural area, famous for its vegetable crops and tobacco.

The three children had an unremarkable past medical history and were not receiving any prescription medications, healthy up there, suddenly with behavioral disorders. The distraught parents bring their children to the emergency department of the hospital where the three children arrived in a state of intoxication, one was unconscious. Their general statements

were altered with a tight miosis. As in all countries of the world, the doctor on duty will contact the poison control center of Algiers (Algeria) to discuss the possibility of intoxication and then know what to do. The three patients underwent gastric lavage and a standard medical balance sheet. Laboratory tests (blood count, electrolytes, urea, creatinine, glucose) came back normal (Table 1). The toxicology report was not done.

The interrogation of the family clarified the incidental taking of imprecise quantity of seeds "Sikrane" (*Datura stramonium*), pushing around the houses next to the market garden (Fig. 1).

3. DISCUSSION

Datura stramonium is known in Algeria under the name "SIKRANE". *Datura stramonium* is an annual plant of the family Solanaceae, which flowers in May-september and fruit pods appear in autumn and sometimes even until the beginning of winter, due to climate change hotter. The whole plant particularly leaves and seeds are toxic. The parts of the plant can be chewed, drunk as a tea or even smoke [7]. They contain tropane alkaloids that are majority atropine and its isomer of hyoscyamine and scopolamine, but their concentration is highest in seeds [8]. Alkaloids are responsible for the central and peripheral anticholinergic syndrome related to reversible inhibition of the muscarinic acetylcholine receptors. The central syndrome includes agitation, delirium, altered sensorium and hallucination. Also convulsions and coma can be observed in severe poisoning. The peripheral syndrome associates hyperthermia, dilated pupils, dry mouth and skin and urinary retention and reduced gastric movement. However, it is possible to observe in patients with poisoning *Datura stramonium* the central or peripheral syndrome independently [9].

Voluntary intoxications of *Datura* are not negligible in adults, especially among young people in search for strong sensations [7-10]. Sometimes poisoning is accidental by confusion of *Datura* with other edible plants [4]. In our study, the different quantities of seed consumed by children were probably the cause of their different clinical symptoms, although the mode of consumption was identical and the three children were admitted at the same time in the service of hospital emergency.

Table 1. Standard medical balance sheet of the three patients

Parameter	Patient 1	Patient 2	Patient 3
Blood sugar	0.75 g/l	0.8 g/l	0.9 g/l
Urea	0.25 g/l	0.22 g/l	0.2 g/l
Creatinine	6.25 mg/l	6.00 mg/l	6.54 mg/l
Na+	137 mmol/l	136 mmol/l	137.4 mg/l
K+	4 mmol/l	3.75 mmol/l	4.41 mmol/l
WBC	11.3 x 10 ³ /μl	8.5 x 10 ³ /μl	13.6 x 10 ³ /μl
RBC	5.28 x 10 ⁶ /μl	5.41 x 10 ³ /μl	5.28 x 10 ³ /μl
HGB	11.2 g/dl	12.3 g/dl	10.9 g/dl
HCT	33.6%	35.1%	32.7%
PLQ	370 x 10 ³ /μl	390 x 10 ³ /μl	470 x 10 ³ /μl
LYM	47.3 %	28.5%	53.5%

**Fig. 1. Plant and fruit of *Datura stramonium***

In the absence of skilled toxicological laboratory, it is difficult to make an accurate diagnosis. This is often the questioning of the family environment (parents, friends or neighbors) which facilitates the diagnosis [11]. The rapid hospitalization of three children by parents, who informed the doctor of taking seeds of *Datura* by their children, facilitated the treatment. The doctor undertook gastric lavage for patients as it is performed by several authors [12,7].

The most affected patient (unconscious) was evacuated to the University Hospital of Setif. It is possible that the third child has consumed more seeds than the other two. The treatment implemented allows rapid improvement, allowing to the two children to leave the hospital the same evening. The third child left the hospital of Setif, after having remained two days in observation. In children, poisoning *Datura stramonium* is often

accidental. Cases similar to poisoning by *Datura stramonium*, are observed in the world, in Turkey [12], Morocco [11] and Nigeria [9]. Generally rapid hospitalization of patients and promulgated care allow a favorable evolution.

4. CONCLUSION

Datura stramonium grows in all regions of our country especially in northern Algeria. There is little epidemiologic information on jimsonweed exposures in Algeria. Poisoning by this plant is often unrecognized and practitioners should not be overlooked this kind of poisoning. These unusual cases should remember the importance of the toxicity and the potential risk of different types of plants, as the protection and education of children against abuse or accidental intake of these plants, because prevention is the best protection.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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