

A Case Report: Datura Intoxication in The Emergency Department

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Abstract

Datura Stramonium (DS) is a in our country; it grows wild in rural areas without the need for agriculture. DS can also be used as herbal medicine in respiratory system diseases such as asthma and bronchitis, in hemorrhoids and dermatological diseases such as eczema. It may lead to anticholinergic symptoms such as mydriasis, tachycardia, dry skin, flushing and urinary retention in humans due to its atropine content, and when it affects the central nervous system, it may cause symptoms ranging from restlessness, agitation, hallucination, convulsion to coma and death. We aimed to describe the case of the patient who was taken to the emergency department with the pre-diagnosis of altered consciousness, agitation, and psychiatric disorder, progressed with the signs of delirium and anticholinergic toxicity, was diagnosed with *Datura Stramonium* intoxication, was admitted to the intensive care unit after the first treatment, and was discharged with recovery.

Keywords: *Datura Stramonium*, Intoxication, Emergency Department.

Introduction

Datura Stramonium is a foul-smelling plant with a height of 60 to 150 cm, which belongs to the Solanaceae grass family, gives an average of 8-10 branches, and has white funnel-shaped flowers (the reason why it is called “tube flower” is because of the appearance of its flowers), green fruits of 3-5 cm in size, leaves varying between 8 and 20 cm, and an ability to regenerate annually¹. It grows naturally in rural areas of our country without needing any farming. It is locally called by different names such as thorn apple, jimsonweed, tube flower, mad apple, jimson, fireweed, devil’s apple, jasmine, apple of peru, and eggplant herb².

The main medicinal value of the plant is its alkaloid content. The majority of these alkaloids consist of tropane ring containing L-hyoscyamine, and atropine formed by racemization from scopolamine and L-hyoscyamine.

Datura Stramonium can also be used as herbal medicine in respiratory system diseases such as asthma and bronchitis, in hemorrhoids and dermatological diseases such as eczema³. It may lead to anticholinergic symptoms

such as mydriasis, tachycardia, dry skin, flushing and urinary retention in humans due to its atropine content, and when it affects the central nervous system, it may cause delirium symptoms ranging from restlessness, agitation, hallucination, convulsion to coma and death⁴. Delirium is defined as a neuropsychiatric syndrome which is frequently encountered in the emergency department^{5,6}.

We aimed to present the patient who was admitted to the emergency department with the pre-diagnosis of altered consciousness, agitation, and psychiatric disorder, had the symptoms of delirium and anticholinergic toxicity, and then who was diagnosed with *Datura Stramonium* intoxication, hospitalized in the intensive care unit after the first treatment and discharged with recovery.

Case

A 40-year-old male patient, a pump attendant in the fuel station in a rural area, was brought to our emergency department by his colleagues with complaints of agitation, restlessness, altered consciousness, irritability, and harming himself and those around him. During admission, his general condition was

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moderate, his orientation and cooperation were impaired, and he was restless and agitated, was talking to himself senselessly, and had hallucinogenic attitudes. When the patient's vital signs were examined, his arterial blood pressure was 150/90 mmHg, his pulse rate was 120/min, and he had a body temperature of 37°C. He had pupillary mydriasis, blurred vision, dry skin and mouth, tachycardic heart rhythm, decreased bowel sounds in the abdomen, no defense or rebound.

The patient's biochemistry tests (Glucose, BUN, Creatinine, AST, ALT, Amylase, Lipase, Sodium, Potassium, Chlorine), complete blood count, blood gas and carboxyhemoglobin (CoHb) levels examined in the emergency department laboratory were found to be normal. No acute pathology was detected in the cranial tomography of the patient. Electrocardiography revealed no finding other than sinus tachycardia.

In the anamnesis taken from the patient's relatives, the presence of sudden onset of symptoms, the patient's interest in herbal products, and the symptoms consistent with anticholinergic syndrome suggested that he could be a case of acute intoxication. When the patient's relatives were asked for the plant he ate at his workplace, it was learned that the plant brought was *Datura Stramonium* (Photos 1 and 2). The patient was given a benzodiazepine for sedation in the emergency department, he was hydrated, a urinary catheter was inserted for possible urinary obstruction, and a nasogastric tube was inserted for possible ileus. The patient was hospitalized in the anesthesia intensive care unit for follow-up. The patient's symptoms regressed and disappeared within 24 hours. He was discharged with full recovery. When the patient was contacted later, it was learned that he ate only a few seeds of the plant for the treatment of diarrhea.

Discussion

Datura stramonium is a plant known by the names of "jimsonweed, jimson, tube flower, bellflower, wild bishop, convolvulus sepium, eggplant flower, jimson, apple of peru, magic grass, devil's apple". It is usually used unconsciously as a medicine. It is commonly used among people by considering



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Photo 2: Photos were taken by us, All rights are reserved by us.

that it is useful in asthma, diarrhea, and gastrointestinal problems. Furthermore, it is also used as a narcotic drug⁷. Our patient used it for the treatment of diarrhea. In case of high doses, it may lead to tachycardia, mydriasis, flushing, restlessness, perceptual disorders and agitation caused by atropine. The symptoms begin approximately 30 minutes after oral intake^{8,9}. Our patient had complaints of agitation, restlessness, altered consciousness, irritability, and harming himself and those around him. Anticholinergic syndrome can be caused by a group of drugs or substances that prevent acetylcholine from binding to muscarinic receptors^{10,11}. Drug-related causes include antipsychotics, tricyclic antidepressants (TSA), antihistamines, carbamazepine, atropine and drugs containing scopolamine¹². Furthermore, *Datura stramonium* and *belladonnae* (*Herba Belladonnae*), the leaves of which are consumed as tea in our country and around the world and that are used uncontrollably in the treatment of gastrointestinal problems, hemorrhoids, asthma and bronchitis through cigarettes prepared from the leaves due to their antispasmodic effects, are also among the causes of anticholinergic syndrome. The symptoms such as blurred vision, tachycardia, inability to urinate, and mouth dryness, and ileus, facial flushing, dysrhythmia, auditory and visual hallucinations, and convulsions can also be detected after using it¹³. Indeed, our patient also had anticholinergic symptoms and signs such as tachycardia, mydriasis, restlessness, hallucinations, and dry mouth.

In patients with suspected anticholinergic toxicity, necessary antidote treatment should be administered after circulation, airway and respiration are secured¹⁰. Since the patient did not have a problem of airway protection when he presented to us, no intervention such as intubation was required. Furthermore, conservative treatment is generally performed in anticholinergic toxicity. Its specific antidote is 'physostigmine'. Physostigmine reversibly inhibits anticholinesterase and is also effective in neurological symptoms since it crosses the blood-brain barrier. Most of the cases can be treated without administering physostigmine. Physostigmine is recommended to be used if tachycardia, coma and convulsion conditions causing hemodynamic instability, and severe respiratory depression are present¹⁰. The current findings were not detected in our patient, so

there was no need to administer physostigmine. The use of physostigmine in cases without signs of anticholinergic toxicity leads to cholinergic symptoms such as bronchospasm, bronchorea, convulsions, and bradyarrhythmia¹¹. If the patient is very agitated, benzodiazepines can be used for sedation. In our patient, sedation was performed with benzodiazepines since agitation was high.

Furthermore, poisoning was caused by consuming a large number of plant seeds in cases in the literature, however, unlike the literature, our patient ate a few seeds. Therefore, it is necessary to consider that anticholinergic symptoms can also be observed due to very little consumption.

Conclusion

There are many admissions to the emergency department due to agitation and altered consciousness. Although cerebrovascular and psychiatric diseases first come to mind in the preliminary diagnosis of these patients, delirium (organic brain syndrome) should be evaluated in the differential diagnosis, and intoxications should definitely be considered in sudden-onset cases. Furthermore, although drug-related poisoning is first considered in cases of intoxication, plant intoxications should also be kept in mind and examined in detail in the anamnesis due to alternative medicine and phytotherapy methods, which are increasingly used today.

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