

A Clinical Picture of Anticholinergic Toxidrome Developed Due to *Scutellaria Orientalis*: A Case Report

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Abstract

Scutellaria orientalis, also known as yellow eucalyptus, is a plant species with yellow flowers. Generally, it is used by locals as an antidiarrheal and antihemorrhagic, and to relieve fatigue in the regions where it grows endemically in eastern Turkey. The current case comprised a 23-year-old patient, who ate the plant in question, and presented with an overall clinical picture dominated by anticholinergic toxidrome. Although anticholinergic toxidrome is a syndrome that can be diagnosed using various clinical findings, its treatment is symptomatic and physostigmine can be used in the treatment of severe cases. Depending on the clinical course of the patient, the possibility of follow-up and treatment in intensive care units may arise.

Keywords: *Scutellaria orientalis*, anticholinergic toxidrome, antidiarrheal

Introduction

Scutellaria orientalis, also known as *kulilka kûçik* (small yellow flowers), or *dermana telî* in Ağrı Doğubayazıt, is a plant that is consumed by local people for the treatment of diarrhea, fatigue, etc. Lamiaceae family of *Scutellaria* species of the genus have been identified worldwide 360, turkey also comes with 16 types (1). While anticholinergic toxidrome may present with symptoms related to peripheral nervous system effects, such as flushing, urinary retention, ileus, dry mouth, and blurred vision, it may also present with findings related to effects on the central nervous system, such as agitation, delirium, stupor, and coma (2). Anticholinergic syndrome can be caused by drugs or substances that prevent the binding of acetylcholine to muscarinic receptors (3). In this article, it was aimed to discuss a patient who ate *Scutellaria orientalis* herb for 2 days for the treatment of diarrhea and was brought to the emergency room due to fatigue and fever.

Case Report

A 23-year-old male patient was brought to the emergency room by his relatives due to malaise. His vital signs were noninvasively measured fever of 38 °C, blood pressure of 110/70 mmHg, heart rate of 132 beats/min, and respiratory

rate of 20/min, on admission electrocardiography of sinus tachycardia, and blood oxygen level of 100%. On arrival at the emergency department, his Glasgow coma score was evaluated as 15, he was conscious, presenting with abdominal bloating, but no tenderness. In the anamnesis taken from the patient, it was learned that he had not been able to urinate for a while. On first examination, his general condition was poor and his breathing was irregular. The face and neck of the patient were flushed, the oral mucosa was dry, the pupils were mydriatic, the vesical globe was detected, and 1000 cc of stomach contents were drained using a nasogastric tube. After the urinary catheter was inserted, 1000 cc of urine was drained. The laboratory parameters were pH of 7.23, lactate level of 8.8, urea: 102 mg/dL, creatinine: 3.32 mg/dL, aspartate Aminotransferase (AST): 118 U/L, alanine aminotransferase (ALT): 97 U/L, and creatine kinase (CK): 3227 U/L. There was no leukocytosis or hyperglycemia. The other blood parameters were within the normal ranges.

No infiltration was detected in the thoracic computed tomography of the patient. In the abdominal computed tomography of the patient, the stomach and intestines were dilated. This was evaluated together with general surgery and radiology clinics and it was determined that no pathology requiring urgent surgical intervention was detected. The light reflex of the patient, whose pupils were mydriatic in the neurological examination, was bilateral. Antipyretic, empirical antibiotics, and fluid replacement

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therapy were started. According to the information obtained from the relatives of the patient, it was learned that the patient, whose family history and personal history was unremarkable, had diarrhea for two days, and had consumed *Scutellaria orientalis* (yellow eucalyptus) for 2 days to treat it. Photographs were taken of the flower brought during the hospital follow-up and its type was confirmed (Figure 1); however, no case related to this plant was found in the literature. In the follow-up of the patient, while his breathing had become shallower, with a blood oxygen level of 70 and Glasgow coma score of 7, the patient was intubated with drug induction. Spontaneous circulation was established after 20 min of cardiopulmonary resuscitation in the patient, who had arrested 10 min after intubation, and he was transferred to the intensive care unit. In light of this information, anticholinergic toxidrome was considered based on the patient's clinical findings and anamnesis.

Discussion

Worldwide, 360 species of the genus *Scutellaria* of the Lamiaceae family have been described, 16 species of which are in Turkey (1), with *Scutellaria orientalis* being one of them. It is used by locals as an antidiarrheal in the regions where it grows endemically in Turkey.

In the literature review on this species, although in the *in vitro* anti-leukemic activity of the plant was studied (4), no studies on its anticholinergic content could be found.

Anticholinergic toxidrome is characterized by both central and peripheral physical findings. Central anticholinergic syndrome, which is a term used to describe symptoms resulting from decreased cholinergic activity in the central nervous system, is primarily characterized by signs and symptoms consistent with hyperactive delirium. Peripheral anticholinergic syndrome include mydriasis and blurred vision, chills, ataxia, fever/hyperthermia, red and dry skin, dry oral mucosa, decreased bowel sounds, constipation, and urinary retention. In advanced cases, central anticholinergic syndrome may be associated with seizures, coma, respiratory failure, and cardiovascular collapse (5).

Anticholinergic syndrome may be caused by drugs or substances that prevent acetylcholine from binding to muscarinic receptors (3). These drugs include antihistamines (diphenhydramine, hydroxyzine, promethazine), antiparkinsonian agents (benztropine, trihexyphenidyl), antipsychotics (phenothiazines, butyrophenones), belladonna alkaloids (atropine alkaloids and similar, hyocyanin, ipratropium), and mydriatics (cyclopentolate, tropicamide) (2).

During the patient's application, the history of such drug use was carefully questioned, but no drug use history was found. However, after the patient's deterioration in the

follow-up, the patient's relatives presented the plant that they brought with them, and toxidrome came to mind in the diagnosis.

In anticholinergic syndrome, the pupils are usually dilated and their response to light is poor. Clinical conditions such as fever, flushing, ileus, cardiac arrhythmias, tachycardia, urinary retention, hypoactive bowel sounds, choreoathetosis, myoclonus, visual and auditory hallucinations, convulsions, and coma may also be observed (2).

Benzodiazepines for sedation are frequently used to control the delirium and agitation resulting from anticholinergic findings (2). Physostigmine is a specific antidote, it crosses the blood-brain barrier and inhibits reversible anticholinesterase. Physostigmine should be given in cases of tachycardia, coma, and respiratory arrest (6). Delirium and agitation were not present in the current case. However, anticholinergic syndrome was considered for the patient, whose general condition deteriorated during the follow-up. The patient who was intubated due to respiratory and cardiac arrest, was referred to a center where physostigmine could be administered, since physostigmine was not exist in the hospital. It was learned that he died 1 day after his transfer to the intensive care unit.

Conclusion

Poisoning cases have an important place for morbidity and mortality in Emergency Medicine services. Among these, poisoning cases due to plants are quite rare (7). In patients presenting to the emergency department with agitation, delirium and anticholinergic symptoms, poisoning due to plants used in the treatment of many diseases common in our country should be considered. It should not be forgotten that plants that are widely used among the public often cause poisoning and toxic effects.

A detailed anamnesis should be taken in patients presenting with anticholinergic findings, and the consumption of such plants should be questioned in addition to the intake of anticholinergic drugs in the anamnesis. Although no such case could be found in the literature, it is our belief that anticholinergic syndrome may develop as a result of the ingestion of *Scutellaria orientalis* (yellow eucalyptus).

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