Anticholinergic Toxic Syndrome Caused by Atropa Belladonna Fruit (Deadly Nightshade): A Case Report

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Abstract
Atropa Belladonna poisoning may lead to anticholinergic syndrome. Ingestion of high amounts of the plant may cause lethargy, coma, and even a serious clinical picture leading to death. In this case report, we aimed to present a case with anticholinergic syndrome that developed after ingestion of the fruit called “Deadly Nightshade” in our country.

Key Words: Poisoning, atropa belladonna, anticholinergic agents

Introduction
Anticholinergic toxic syndrome (ATS) may not only occur due to a wide variety of drugs including tricyclic antidepressants, antipsychotics, antihistamines, atropine, and scopolamine, but may also occur due to the consumption of some certain herbs as prepared by infusion or to the ingestion of their fruits (1). Atropa belladonna (deadly nightshade), also found in our country, is one of those plants that may cause ATS. This plant of the Solanaceae family has greenish leaves and small, bright and sweet black fruits (Figure 1). The fruits and the leaves of the plant contain high levels of alkaloids, namely atropine, scopolamine and hyoscyamine (2). If the plant is accidentally ingested or consumed for its hallucinogenic effects, the alkaloids in its structure competitively block the postganglionic parasympathetic muscarinic receptors and the muscarinic receptors in the central nervous system and cause ATS (3, 4). Differential diagnosis is of importance especially in cases associated with fatigue and loss of consciousness in addition to psychotic findings. Therefore a thorough history should be obtained and a detailed physical examination should be performed.

In this paper, along with the literature, we aimed to report a patient who consumed plenty of deadly nightshade fruits and was brought to our emergency department with loss of consciousness.

Case Report
A 49-year-old female patient was brought to the emergency room by her relatives due to fatigue and loss of consciousness. At the initial physical examination, her general condition was poor, the coma scale score was low and she was breathing irregularly. On admission to the emergency department, her non-invasive blood pressure was 135/57 mmHg, pulse rate was 132 per minute and respiratory rate was 22 per minute. The neurologic examination revealed that her pupils were isochoric, mydriatic and pupillary light reflexes were bilaterally normal. As the patient’s general condition was poor; breathing irregular (intercostal retractions, paradoxical thorax and abdominal movements) and the Glasgow coma scale score was 7, she was intubated. Physical examination revealed redness of the face and neck, dryness of the oral mucosa, isochoric and dilated pupils and normal breathing sounds on auscultation. The axillary temperature was normal and she had an over-distended urinary bladder. She had hypoactive bowel sounds. Her medical history and family history was unremarkable. The patient’s relatives told us that she had eaten a forest fruit in large amounts. They stated that they did not know the name of this fruit, and she began showing restlessness, aggression and hyperexcitability after 3-4 hours. Gastric lavage was performed using a nasogastric tube, and then 1 mg/kg of activated charcoal was administered through the tube. Approximately 1000 ml of urine was drained using a urinary catheter. We took the photo of the plant brought by the patient’s relatives, and searched the literature on the subject. Based on the clinical findings and the literature, it was suggested that the patient had intoxication due to the ingestion of the plant known as Atropa Belladonna in the literature and as deathly nightshade in the region. The laboratory values were within normal limits except a leukocyte count of 15.700 mm3 and blood glucose level of 224 of mg dL–1. The informed consent was obtained and the patient was transferred to the intensive care unit for close hemodynamic monitoring and management. Hemodynamic monitoring was performed using invasive arterial catheterization and standard measures. Respiratory support was initiated with the ventilator initially set to deliver synchronised intermittent mandatory ventilation (SIMV) with volume-support. Six hours after the admission to the intensive care unit, when her Glasgow Coma Scale score increased to 15, her vital parameters were stable and blood gas variables were consistent with the FiO2 level delivered, the patient was ex-
Promethazine), drugs used for Parkinson’s disease (benztropine, and atropine are used to block acetylcholine binding to muscarinic receptors (10). These drugs include; antihistamines (diphenhydramine, hydroxyzine, and trihexyphenidyl), antipsychotic drugs (phenothiazines, butyrophene-
nones), Belladonna alkaloids and counterparts (atropine hyoscy-
amine, ipratropium), and mydriatic agents (cyclopentolate, tropi-
camide) (11). During admission, we questioned in detail if the patient was on any of the drugs mentioned above, but she had no history of drug use.

In anticholinergic syndrome, the pupils are often dilated and poorly reactive to light. Clinical manifestations include fever, flushing, ileus, heart rhythm disturbances, tachycardia, urinary retention, hypoactive bowel sounds, choreoathetosis, myoclonus, visual and auditory hallucinations, convulsions and coma. Agitation and delirium are among the most serious problems in these patients (12). As it was also reported in the literature, our patient had delirium, which started 3–4 hours after the ingestion of atropa belladonna fruit and continued until an hour before she arrived to the emergency room. Also, our patient had anticholinergic symptoms such as tachycardia, hypertension, flushing, dry mouth, mydriasis and urinary retention.

Çaksen et al. (8) reported in their series that there was leukocytosis in three patients, hyperglycaemia in seventeen, a mild increase in AST levels in four, pyuria in two and metabolic acidosis in one patient. However, there was only leukocytosis and hyperglycaemia in our patient. The other laboratory findings were normal.

Treatment of atropa belladonna intoxication is conservative. Close monitoring in a quiet environment is recommended (13). Conservative treatment is based on maintenance of airway patency and respiratory and circulatory support (13). We performed close hemodynamic monitoring and provided respiratory support using mechanical ventilation. Performing gastric lavage with activated charcoal is recommended in the treatment of atropa belladonna poisoning (13). Inserting a nasogastric tube, we also administered activated charcoal following gastric irrigation.

Benzodiazepines are frequently used for sedation to control anticho-
linergic findings including delirium and agitation (10). Phystostig-
mime is a specific antidote and crossing the blood brain barrier, it reversibly inhibits anticholinesterase. Phystostigmine should be given in cases of tachycardia, coma and respiratory arrest (1). Benzodi-
azepine infusion was started in our patient to sedate the patient, but as phystostigmine was unavailable we could not use it.

Conclusion

A thorough history taking is crucial in patients presenting with anticho-
linergic symptoms and in addition to the usage of anticholin-
ergic drugs, the patients should also be questioned about consump-
tion of this type of plants. We believe that it will be appropriate to perform close hemodynamic monitoring in intensive care units in patients suffering predominant from central symptoms.

Conflict of Interest

No conflict of interest was declared by the authors.

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Informed Consent: Written informed consent was obtained from patients who participated in this case.

Author Contributions


Figure 1. The atropa belladonna (deadly nightshade) fruit that was brought by the patient’s relatives.
References


