

# Does A Potato Threat Your Life? A Case Study

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## Abstract

The mistakes on consuming the foods that are stored in improper conditions or that are kept longer than what it is supposed to be can cause some of the clinical symptoms from basic to life threatening ones. We present a case study of a 28 years old patient that came to our clinic with hemodynamic disturbance after eating green potatoes where he/she kept them in a storage to consume them in the winter season. Our discussion based on the fact that the formation of the Solanine toxin which is likely seen on the foods whose natural form changed can cause poisoning.

**Keywords:** Potatoes, Solanine, Poisoning

## Introduction

Consuming the green surface of the potatoes that is formed by the germination is so harmful for the human health because of the toxic substance that is called Solanine. The normal tuber contains only small amounts of solanine in the peel and none in the flesh. Solanine is initially developed in the sprout of the potatoes, but eventually it can be detected in the flesh of the tuber so that concentration-gradient between the peel and the flesh is lost. Solanine is an inhibitor of acetylcholinesterase that blocks the breakdown of acetylcholine. Solanine poisoning displayed by gastrointestinal and neurological disorders. Symptoms include nausea, diarrhea, vomiting, stomach cramps, burning of the throat, headaches, and dizziness. Solanine is strongly offensive and corrosive to gastrointestinal mucosa, hence we should also consider the possibility of observing severe hemorrhagic ulceration of gastrointestinal system. Hallucinations, loss of sensation, and paralysis, fever, jaundice, mydriasis have been reported in more severe cases. We want to discuss the case of the patient that came to our emergency room with the symptoms of acute hypotension and high fever as a result of food poisoning.

## Case

A 28 year of male patient were transferred to our clinic with food poisoning. He was poisoned in one to two hours after eating potatoes that he brought from his hometown for his

dinner. He described the nausea, vomiting, and diarrhea. He was conscious and cooperative. His vital signs were: the blood pressure 100/70 mmHg, pulse 98 ppm, respiration rate 20 ppm, SpO<sub>2</sub> 96%, and his temperature was 37.1°C.

According to the patient's physical examination the patient had a sensation on the epigastric region, and he had a hyperactive intestinal peristaltic sound. The patient was hemodynamically stable. He was transferred to observation room, and then we established a vascular access for the fluid treatment, but in the next two hours the patient's general situation was getting worse, it was observed the disorientation in his conscious and excessive sweating. To know the patient's vital signs he was monitored, and we observed that the patient's blood pressure 70/40 mmHg, pulse 124 ppm, respiration rate 22 ppm, SpO<sub>2</sub> 97%, and his temperature was 39.8°C. The fluid treatment for hypotension was accelerated and 1gr paracetamol IV accompanied by peripheral cooling were applied to drop his fever. Following this we called the national poisoning consultation center to enroll the patient and to hear their suggestions. We were told that the patient likely was poisoned by solanine after eating green potatoes and they advised to monitor the patient in the next 24 hours. In the next four hours we observed that the patient hemodynamically stable:

His blood pressure 110/65 mmHg, pulse 98 ppm, respiration rate 18 ppm, and his temperature was 37.4°C. The patient's blood test came normal, and following the 24 hours observation the patient's disorders were disappeared, therefore the patient was discharged from the hospital with a return condition after 24 hours.

## Discussion

The most common cause of the food poisoning is the toxic substances produced by bacteria. Some of the bacteria are reproduce in millions when they find the necessary temperature, moisture, nutriment, and time. Potatoes that are stocked for winter-use are germinated when the temperature of the weather raise and when they found enough light and moisture. In our cases, the potatoes that are stocked for winter are germinated when they found necessary temperature, light, and moisture (figure 1). Therefore, the foods which are not in the natural form should not be consumed. Solanine is a toxic found in many food plants. It is formed in many food plants such as potatoes, tomatoes, eggplants, and grapes. It is rare to see its poisoning in literature, but the high doze of consumption might be very serious. When solanine consumed at 0.4-0.6 mg/kg, the symptoms of nausea and emesis may occur, and the lethal dose is 3-6 mg/kg. Even the Solanine poisoning cases have seen in history, it is very rare in nowadays. The reason of discussing this case is that we like to stress out the importance to know how to store the foods properly and not to consume the food plants that are not in their natural form as explained in our example.



Figure 1. Germinating potatoes

The case we encounter seemed at first a simple food poisoning, but on the advancing hours the patient's situation got worse that led us to examine the case in detail and later we knew that this was a serious food poisoning case. Therefore, food poisoning case should be investigated holistically in detailed by questioning the patient's stories, his vital signs, physical examination and so on.

## Result

As emergency service physicians we should always consider the food poisoning cases seriously, even the first phase of the food poisoning related to green potatoes is monitored as a simple food poisoning later on the situation might turn out serious, hence it is advised to observe the patient 24 hours before discharge him/her from the hospital. It is also advised not to underestimate any type of food poisonings, the food caused the poisoning should be investigated in terms of its characteristics.

To eliminate the food poisoning we should develop a social consciousness through educating the society about how and under which circumstances the toxic substances are formed on foods.

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