Bottle Gourd (Lagenaria Siceraria) Juice Poisoning

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Abstract

We present the case of a young woman who presented to us with multiple episodes of vomiting, followed by hematemesis and abdominal pain after consuming bottle gourd juice. The patient was resuscitated and stabilized with fluids, proton pump inhibitors and antiemetics and discharged in stable condition. As a member of the Cucurbitaceae family, bottle gourd contains toxic tetracyclic triterpenoid compounds called cucurbitacins which are responsible for the bitter taste and toxicity. There is no known antidote for this toxicity, and clinicians treat such patients symptomatically only.

Introduction

The calabash or bottle gourd (Lagenaria siceraria) is popularly known as lauki, ghia or dudhi in India. In Ayurveda, bottle gourd is advocated for treatment of diabetes mellitus, hypertension, flatulence, cooling properties, liver diseases, weight loss and other conditions.¹ It is part of complementary and alternative therapy which is widely prevalent in India.¹ Though there are a few beneficial effects of bottle gourd extracts in animal models, human studies are few. In recent times it has been unearthed that bottle gourd juice with a bitter taste can cause severe toxic reactions and lead to symptoms such as abdominal pain, vomiting, diarrhea, hematemesis, hematochezia, shock and death.³ It is important for emergency physicians to be aware of this toxicity especially in India where bottle gourd juice consumption is common place.

Case Report

A 36-year-old woman presented to with complaints of severe upper abdominal pain, multiple episodes of vomiting and fresh blood in vomitus since morning. The episode had begun after 2 hrs of she consumed 200 ml bottle gourd juice in the morning. She presented with pulse 110/ minute, systolic BP 100 mm Hg, respiratory rate 18/ minute, room air saturation 100%, temperature 98°F, and random sugar 100 mg/dL. She had severe epigastric tenderness. No organomegaly was noted. The rest of the systemic examination was unremarkable. The patient was given intravenous pantoprazole, ondansetron and hyoscine, and 2 litres of isotonic normal saline infusion. After 2 litres of isotonic fluid resuscitation, blood pressure was recorded as 140/100 mmHg. She was shifted to the ward, with a diagnosis of bottle gourd poisoning with upper gastrointestinal bleeding associated with severe dehydration. Initial blood work up showed signs of severe dehydration: hemoglobin 17.9 gm/dL, total leucocyte count 33200/ cumm, red blood cells 7.32/L, packed cell volume 58.3%, SGOT 380 U/L, and SGPT 328 U/L, serum bilirubin 2.0mg/ dl,and renal profile and coagulation profile were within normal limits. The patient underwent endoscopy which revealed pangastritis and severe duodenitis (Figure 1). Ultrasonography of abdomen was normal. She was managed with intravenous fluids, antibiotics, antiemetics, proton pump inhibitors and discharged in a stable condition after 5 days. Repeat blood test was normal at the time of the discharge.

Discussion

We report a rare kind of poisoning that can occur in any population. Bottle gourd (Lagenaria siceraria) known as “Lauki” in northern India is a member of the cucurbitaceae family. It is cultivated throughout the tropical and subtropical regions of the world for its unripe edible fruit as a vegetable. Other members of this family include cucumber, colocynth, bitter gourd, water melon, etc. The ethanolic extract of L. siceraria fruit showed antihepatotoxic and antihyperlipidemic activity in rats.⁴ Bottle gourd fruit contains trace amount of cucurbitacins specially types B, D, G, and H. Normally, the levels of cucurbitacins do not exceed 130 ppm.⁵ Cucurbitacins inhibit the bindings of cortisol to glucocorticoid receptor in He La cells at 37 °C in a dose dependent manner, showing a strong correlation with cytotoxic activity.³ Cucurbitacin D enhances capillary permeability,³ which is associated with a persistent fall in blood pressure and accumulation of fluid in thoracic and abdominal cavities in mice. Cucurbitacin is a strong signal transducer and activator of Transcription-3 (STAT3) inhibitor. Cucurbitacins not only inhibit the JAKSTAT pathway, but also affect other signalling pathways, such as the MAPK pathway.³ Though toxic to animals, the bitter taste prevents poisoning in humans. Higher levels of these cucurbitacins are triggered by environmental stress, like wide temperature swings low pH, high temperature, too little water, low soil fertility and improperly stored or overmature vegetables.³

There are a few reports of human toxicity due to cucurbitis. In 1981–1982, in Australia and Alabama, and in 1984 in California, 202 cases of human poisoning were reported by bitter zucchini, a cucurbitaceae member.¹

One hour after ingesting bitter bottle gourd juice most patients can have onset of symptoms such as vomiting, diarrhea, upper gastrointestinal bleeding and hypotension.¹ There is no known antidote for this poisoning, and management includes control of upper gastrointestinal bleeding and management of shock, for example, adequate isotonic fluid resuscitation and blood transfusions if necessary. Antibiotics are frequently administered to prevent and treat supervening...
infections.

**Conclusion**

It is important to be aware of this uncommon clinical presentation especially in countries like India, where the practice of traditional medicines is widely prevalent.

**References**