

Case Report

Bottle gourd (*Lagenaria siceraria*) juice poisoning

Ankur Verma, Sanjay Jaiswal

Department of Emergency Medicine, Paras Hospital, Gurgaon, Haryana 122002, India

Corresponding Author: Ankur Verma, Email: anksv25@gmail.com

BACKGROUND: Bottle gourd (*Lagenaria siceraria*) is popularly known as lauki, ghia or dudhi in India. Its consumption is advocated by traditional medicine healers for controlling diabetes mellitus, hypertension, liver diseases, weight loss and other diseases. However, in last few years there have been reports of suspected toxicity due to consumption of its juice leading to severe vomiting and upper gastrointestinal bleeding. As emergency physicians we need to be aware of this very rare poisoning specially in India.

METHODS: We present a case of a 52-year-old woman who presented with multiple episodes of hematemesis and shock to the emergency department (ED) after consuming bottle gourd juice. The patient was resuscitated and stabilized with fluids, proton pump inhibitors and antiemetics and shifted to the intensive care unit (ICU) under the care of a gastroenterology team for urgent endoscopy and further management.

RESULTS: The patient received intravenous fluids, antibiotics, antiemetics, and antacids and underwent upper gastroenterologic endoscopy during the hospitalization. She was discharged in a stable condition 4 days later.

CONCLUSIONS: 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. It is important to educate the public about the harmful effects of this potentially life-threatening toxicity.

KEY WORDS: Bottle gourd; Shock; Toxicity

World J Emerg Med 2015;6(4):308–309

DOI: 10.5847/wjem.j.1920–8642.2015.04.011

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.^[2] This kind of toxicity is extremely rare and very few cases have been reported. Though there are a few beneficial effects of bottle gourd extracts in animal models,^[3] 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.^[4] It is important for emergency physicians to be aware of this toxicity especially in India where bottle gourd is consumed a lot.

CASE REPORT

A 52-year-old hypertensive woman presented to the ED at 1 720 hours with complaints of severe upper abdominal pain, multiple episodes of vomiting and fresh blood in vomitus since the morning. The episode had begun after she had consumed bottle gourd juice in the morning. She presented with weak pulse 70/minute, systolic BP 70 mmHg, respiratory rate 18/minute, room

air saturation 100%, temperature 98 °F, and random sugar 100 mg/dL. Her abdomen examination revealed a soft abdomen with epigastric tenderness. No organomegaly was appreciated. The rest of the systemic examination was unremarkable. The patient was given intravenous omeprazole, ondansetron and hyoscine. She was given 2 litres of isotonic normal saline and a Ryle's tube was inserted for gastric lavage. After 2 litres of isotonic fluid resuscitation, blood pressure was recorded as 140/100 mmHg. She was referred to the gastroenterology team and shifted to the ICU, with a diagnosis of bottle gourd poisoning with upper gastrointestinal bleeding associated with severe dehydration. Initial blood work showed signs of severe dehydration: hemoglobin 18.8 gm/dL, total leucocyte count 22 010/cumm, red blood cells 7.32/L, packed cell volume 58.3%, SGOT 611 U/L, and SGPT 613 U/L. Renal profile and coagulation profile were within normal limits.

The patient underwent endoscopy which revealed grade A esophagitis, pangastritis and severe duodenitis. She was managed with intravenous fluids, antibiotics, antiemetics, proton pump inhibitors and discharged in a stable condition after 4 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.^[5] 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.^[6] 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.^[7] Cucurbitacin D enhances capillary permeability,^[8] which is associated with a persistent fall in blood pressure and accumulation of fluid in thoracic and abdominal cavities in mice.

There are a few reports of human toxicity due to cucurbits. In the period of 1981–1982, in Australia and Alabama, and in 1984 in California, 202 cases of

human poisoning were reported by bitter zucchini, a cucurbitaceae member.^[9–12] Similarly, Khan et al^[13] reported 5 cases of bloody diarrhea due to colocynth toxicity.

One hour after ingesting bitter bottle gourd juice most patients can have onset of symptoms such as vomiting, diarrhea, upper gastrointestinal bleeding and hypotension.^[14] 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.

In conclusion, it is important not only for the general population but for emergency medicine physicians to be aware of this uncommon presentation and recognize it without delay especially in our country where traditional medicine is widely prevalent. Patient and family education plays an important role in spreading knowledge about the possible harmful effects of traditional medicine. In current times where the internet has become an inseparable part of life, the role of social media in spreading such knowledge should be emphasized.

Funding: None.

Ethical approval: Not needed.

Conflicts of interest: The authors have no competing interests.

Contributors: Verma A is the principal author, and Jaiswal S provided supervision.

REFERENCES

- Sharma SK, Puri R, Jain A, Sharma MP, Sharma A, Bohra S, et al. Assessment of effects on health due to consumption of bitter bottle gourd (*Lagenaria siceraria*) juice. *Indian J Med Res* 2012; 135: 49–55.
- Milind P, Kaur S. Is bottle gourd a natural guard? *Int Res J Pharmacy* 2011; 2: 13–17.
- Deshpande JR, Choudary AA, Mishra MR, Meghre VS, Wadodkar SG, Dorle AK. Beneficial effects of *Lagenaria siceraria* (Mol.) stand. Fruit epicarp in animal models. *Indian J Exp Biol* 2008; 46: 234–242.
- Puri R, Sud R, Khaliq A, Kumar M, Jain S. Gastrointestinal toxicity due to bitter bottle gourd (*Lagenaria siceraria*) –a report of 15 cases. *Indian J Gastroenterol* 2011; 30: 233–236. Epub 2011 Oct 11.
- Ghule BV, Ghanti MH, Saoji AN, Yeole PG. Antihyperlipidemic effects of metabolite extract from *Lagenaria siceraria* stand. Fruit in hyperlipidemic rats. *J Ethnopharmacol* 2009; 124: 333–337.
- Miro M. Cucurbitacins and their pharmacological effects. *PhytotherRes* 1995; 9: 159–168.
- Witkowski A, Knopa J. Binding of the cytotoxic and antitumor

- triterpenes, cucurbitacins, to glucocorticoid receptors of He La cells. *Biochim Biophys Acta* 1981; 674: 246–255.
- 8 Edery H, Schatzberg PG, Gitter S. Pharmacodynamic activity of elaterician (cucurbitacin D). *Arch Int Pharmacodyn* 1961; 130: 315–335.
- 9 Ferguson JE, Fischer DC, Metcalf RL. A report of cucurbitacins poisoning in humans. *J Emerg Med* 2014; 46: 772–775.
- 10 Rymal KS, Chambliss OL, Bond MD, Smith DA. Squash containing toxic cucurbitacin compounds occurring in California and Alabama. *J Food Prot* 1984; 47: 270–271.
- 11 Aldous JC, Ellam GA, Murray V, Pike G. An outbreak of illness among school children in London: toxic poisoning not mass hysteria. *J Epidemiol Commun Health* 1994; 48: 45–46.
- 12 Goldfain D, Lavergne A, Galian A, Chauvenic L, Prudhomme F. Peculiar acute toxic colitis after ingestion of colocynth: a clinicopathological study of three cases. *Gut* 1989; 30: 1412–1418.
- 13 Khan SA, Shelleh HH, Bhat AR, Bhat KS. Colocynth toxicity. A possible cause of bloody diarrhea. *Saudi Med J* 2003; 24: 904–906.
- 14 Puri R, Sud R, Khaliq A, Kumar M, Jain S. Gastrointestinal toxicity due to bitter bottle gourd (*Lagenaria siceraria*) –a report of 15 cases. *Indian J Gastroenterol* 2011; 30: 233–236.

Received March 16, 2015

Accepted after revision July 27, 2015