

## Bottle gourd (*Lagenaria siceraria*) juice poisoning

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### Abstract

A 52 year old lady, positive for HIV, on a triple-drug regimen for the same, presented 2 hours after consuming bitter bottle gourd (*Lagenaria siceraria*) juice with watery diarrhea and vomiting. Her laboratory parameters showed few derangements in the form of low serum bicarbonate, leukocytosis, and transaminitis. Other investigations such as stool examination and colonoscopy were within normal limits. Her condition improved after 4 days with symptomatic and supportive therapy.

### Keywords

Toxicology; bottle gourd; HIV; anti retroviral therapy; diarrhoea

### Abbreviations

HIV: human immunodeficiency virus; C.difficile: clostridium difficile; PT: prothrombin time; aPTT; activated partial thromboplastin time; INR: international normalised ratio

### Introduction

The bottle gourd (*Lagneria siceraria*), popularly known as *Lauki/ Ghia/ Dudhi* in India, is a commonly used vegetable in Indian cuisine. It is also used by some people as a health tonic to control or to avoid health related problems like diabetes mellitus, weight loss and hypertension [1,7].

Bottle gourd belongs to the *cucurbitaceae* family and it contains a toxic tetracyclic triterpenoid compound which is responsible for its bitter taste. Features of its toxicity include nausea, vomiting, abdominal pain, diarrhoea, hematemesis, haematochezia, melena and oliguria. Death is extremely rare, but has been reported, and ironically, both, diabetes mellitus and hypertension are risk factors for death [2].

There is no antidote for its toxicity and the treatment is purely symptomatic [1].

### Case Presentation

Our patient, a 52 year old lady, positive for HIV since 3 years and on anti-retroviral therapy consisting of raltegravir, lamuvidine and nevirapine, presented to the emergency department with a 2 hour history of diarrhoea and vomiting. The diarrhoea was watery, large volume, non-bloody, and non-foul smelling. The vomiting was non-projectile, non-bloody. 2 hours prior to her presentation, she had consumed 250 cc of bitter bottle gourd juice which was freshly extracted. She used to consume it daily,

albeit non-bitter juice, since the preceding 2 months as a health drink.

At the time of presentation her blood pressure was 80/46 mm Hg, pulse was 120/min, her tongue appeared dry, and her skin turgor was poor. There was mild lower abdominal tenderness. Her blood pressure improved to 110/60 mm Hg after intravenous normal saline. She was also given symptomatic treatment in the form of ondansetron and pantoprazole. In the meantime, en route to her transfer to the critical care unit, she had 1 episode of bloody diarrhoea.

TEST	DAY 1	DAY 2	DAY 3	DAY 4
HEMOGLOBIN (11.5-16.5 gm%)	16.3 gm%	14.9 gm%	10.3 gm%	11.3 gm%
HEMATOCRIT (35-47%)	48.5 %	42.7 %	35.5 %	38.9 %
WBC (4000-11000/cumm)	14,200/cumm	11880/cumm	9740/cumm	7670/cumm
PLATELETS (140000-440000/cumm)	275000/cumm	190000/cumm	160000/cumm	170000/cumm
SODIUM(135-145 mmol/L)	141.0 mmol/L	140.8 mmol/L	139.8 mmol/L	138.5 mmol/L
POTASSIUM(3.5-5.0 mmol/L)	4.6 mmol/L	4.1 mmol/L	3.5 mmol/L	3.8 mmol/L
BICARBONATE(23-32 mmol/L)	18.0 mmol/L	21.7 mmol/L	25.9 mmol/L	27.4 mmol/L
PT (13 SECONDS)	13	-----	-----	13
aPTT (30 SECONDS)	30	-----	-----	30
INR (1 - 1.1)	1.0	-----	-----	1.0
SERUM CREATININE (0.6-1.0 mg/dL)	0.9 mg/dL	0.8 mg/dL	0.6 mg/dL	0.6 mg/dL
AST (5-40 U/L)	697 U/L	420 U/L	131 U/L	49 U/L
ALT 5-40 U/L)	508 U/L	374 U/L	214 U/L	44 U/L
TOTAL BILIRUBIN (0.2-1.3 mg/dl)	0.8 mg/dl	1.0 mg/dl	1.3 mg/dl	0.4 mg/dl

Her latest HIV viral load, done 15 days prior to presentation was less than 20 copies/mL, CD4 count at the time of presentation was 128/cumm.

Serial monitoring of her haemoglobin showed a rising trend, attributed to hemoconcentration due to fluid loss in diarrhoea. Her blood cultures were negative. Stool was negative for C.difficile toxin, stool microscopy was negative for opportunistic infections and stool culture was negative. Colonoscopy did not show any abnormality in the rectum/colon/caecum. She was managed with intravenous fluids, and anti-diarrhoeals. Packed cells had to be transfused in view of her falling haemoglobin secondary to her blood diarrhoea. Her symptomatic treatment continued, and 4 days after her presentation, her

bloody diarrhoea subsided on its own.

## Conclusion

Bottle gourd (*Lagenaria siceraria*), a member of the *cucurbitaceae* family, is a commonly eaten vegetable, especially in northern India. Other members of this family are cucumber, bitter melon, water melon, etc. The ethanolic extract of *L. siceraria* fruit has favourable effects on the liver and on lipids in rats, as shown by Ghule et al [4]. In addition, it has only been shown to have anti-stress and anti-microbial effects [7,8].

Bottle gourd contains a small amount of cucurbitacins, namely types B, D, G, and H [5]. The binding of cortisol to the glucocorticoid receptor in He La cells is inhibited by Cucurbitacins in a dose dependent manner, showing a strong correlation with cytotoxic activity [3]. Cucurbitacin D enhances capillary permeability [3], which is associated with a fall in blood pressure and accumulation of fluid in thoracic and abdominal cavities in mice. The juice is toxic to animals, and the bitter taste prevents poisoning in humans. Higher levels of these cucurbitacins are triggered by environmental stress, like wide variations in temperature, acidic pH, dehydration, and improperly stored or overripe vegetables [3]. There have been few reports of human toxicity due to cucurbits in the past [6,9]. Cases of toxicity require hospitalization, with some needing intensive care [2]. Our case report is one of the rare incidences in which such a poisoning has occurred in an immunocompromised individual.

One hour after ingesting bitter bottle gourd juice, most patients can have onset of symptoms such as vomiting, diarrhoea and gastrointestinal bleeding and hypotension [3], as was seen in our patient.

Laboratory derangements such as a raised haematocrit, raised white blood cell count, and liver dysfunction in the form of transaminitis and raised bilirubin have been observed [2], including in our patient.

Normalization of liver and renal dysfunction may take up to 7 days [2], similar to what was observed in our patient.

There is no known antidote for this poisoning, and management is symptomatic, which includes control of gastrointestinal bleeding and management of shock; for example, adequate fluid resuscitation and blood transfusions if necessary. Antibiotics are frequently administered to prevent and treat supervening infections. Our patient followed a similar course, and improved with fluid resuscitation and symptomatic therapy.

Awareness is needed with regard to the following: A small piece of bottle gourd should be tasted before extracting the juice to ensure that it is not bitter. If bitter, it should be discarded. In case of discomfort after consumption (nausea, vomiting, diarrhoea or any feeling of uneasiness), the person should be immediately taken to a nearby hospital [2].

## References

1. Verma A, Jaiswal S. Bottle gourd (*Lagenaria siceraria*) juice poisoning. *World J Emerg Med.* 2015; 6: 308-10.
2. 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.
3. 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: 233–6.

4. Ghule BV, Ghanti MH, Saoji AN, Yeole PG. Antihyperlipidemic effects of metabolite extract from *Lagenariasiceraria* stand. Fruit in hyperlipidemic rats. *J Ethnopharmacol.* 2009; 124:333–7.

5. Miro M. Cucurbitacins and their pharmacological effects. *Phytother Res.* 1995; 9:159-68.

6. Ferguson JE, Fischer DC, Metcalf RL. A report of cucurbitacins poisoning in humans. *J Emerg Med.* 2014; 46: 772–775.

7. Prajapati RP, Kalariya M, Parmar SK, Sheth NR. Phytochemical and pharmacological review of *Lagenaria siceraria*. *J Ayurveda Integr Med.* 2010; 1: 266–72.

8. Milind P, Kaur S. Is bottle gourd a natural guard? *Int Res J Pharmacy.* 2011; 2: 13–7.

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