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Case Report Open Access

Bitter Guard: A Gut Wrenching Surprise

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Abstract

Bottle gourd and bitter gourd in India, is considered to have many health benefits in traditional Ayurveda and folk medicine. However, in last few years there have been multi-centric reports of toxic gastroenteritis due to consumption of its extract, leading to severe adverse effects of upper gastrointestinal bleeding and shock. Few fatalities have also been reported. Here, we report one such case of fatal gastrointestinal bleeding resulted from consumption of raw bottle and bitter gourd juice.

Keywords: Bottle gourd; Bitter gourd; Gastroenteritis; Consumption; Toxicity

Introduction

Bottle gourd (*Lagenaria siceraria* popularly known as lauki or dudhi bhopla in Hindi) and bitter gourd (*Momordica charantia* locally called karela in Hindi) belong to the Cucurbitaceae family [1,2]. These plants are advocated to have cardio-protective, anti-diabetic, diuretic, purgative, aphrodisiac, antihyperlipidemic, analgesic, anti-inflammatory properties and are likely antidotes to certain poisons. References supporting these health benefits are given in various complementary alternative medical scripts. Despite such benefits un-accredited use may cause untoward symptoms and become dangerous to life because there is no scientific guidance on the quantity and quality of juice to be consumed. Several case reports have been published worldwide which talk about the adverse effects and fatal consequences of the plant products when consumed in large quantity. Despite that, public awareness seems to be still less. Several task forces recommend avoiding consumption of these extracts and be watchful for harmful symptoms and signs.

Case Presentation

A 72-years-old gentleman, known hypertensive and compliant to medications, presented to the medical gastroenterology department of our hospital with complaints of recurrent bouts of vomiting followed by 3 episodes of massive hematemesis. A thorough history was taken which revealed consumption of a glass (around 200 mL) of a mix of bottle and bitter gourd juice a couple of hours prior to the onset of symptoms.

On evaluation, the patient was found to be in shock, although patient was completely conscious and alert. Pulse rate was around 120 beats per minute, with a systolic blood pressure of 100 mm of Hg on dual inotropes. Respiratory rate was around 26 cycles per minute; saturation was 98% on room air. ECG showed sinus tachycardia with no dynamic ST-T changes. On physical examination, patient was found to signs of dehydration such as dry tongue, cold extremities. A robust effort was made to resuscitate, and the patient was started on IV fluids, empirical antibiotics, proton pump inhibitors, anti-emetics and analgesics. CBC revealed Haemoconcentration-Hb was 17 gm/dL, HCT was 58%. LFT, RFT, serum electrolytes and other coagulation parameters were fairly within the normal limits. Upper GI scopy was done which showed erythema and edema with circumferential superficial and deep ulcerations in esophagus and stomach respectively. Additionally, eschar was seen in fundus and body of stomach. Zargar IIB type of injury in the esophagus and a Zargar IIIB injury in stomach.

Despite all resuscitative effects the patient continued to be in hemodynamic shock and subsequently developed acute cerebral infarcts and succumbed due to multi organ dysfunction and cardiac arrest (Figures 1-3).

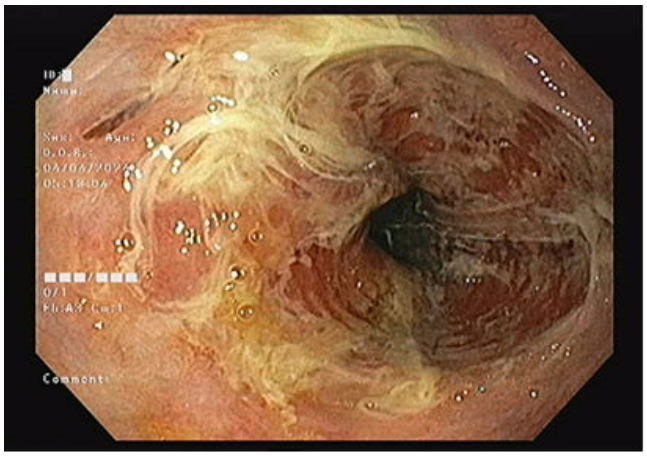

Figure 1: Esophagus.

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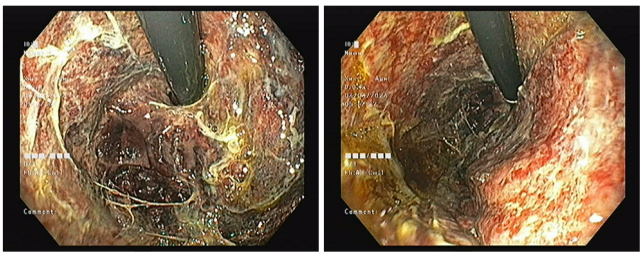

Figure 2: Gastric fundus.

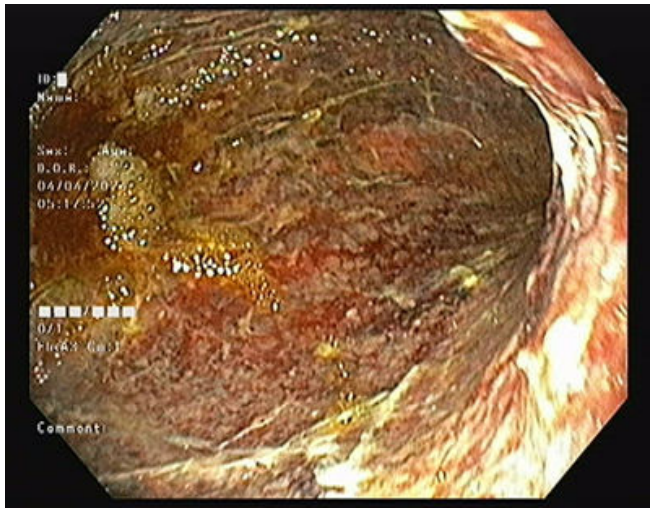

Figure 3: Gastric body.

Discussion

Bottle and bitter gourds and other fruits of the Cucurbitaceae family contain a toxic tetracyclic triterpenoid compound called cucurbitacin that are known for their cytotoxicity at high concentrations. These plants develop such toxins as a protective feature against insects and herbivores. High levels of cucurbitacin in these plants is found in regions with high atmospheric temperature such as in summers, improper storage or due to over ripening. The bitterness of juice is an indicator of levels of toxicity. The toxin inhibits the bindings of cortisol to glucocorticoid receptors in He La cell, while its sub-type D is known to increase capillary permeability, leading to hypotension in mice. When these toxins enter the blood, they can cause hepatitis, pancreatitis, cholecystitis, and organ dysfunction. It also contains an allergic compound (aerpenebyonolic acid), a ribosome-inactivating protein (flavone-C glycosides), and choline. A dose of 200 to 300 ml is considered fatal [1-4].

Complementary medical sciences claim that extracts of Cucurbitaceae plants family have health benefits on diabetes, hypertension, heart diseases, liver diseases, hypertriglyceridemia. An inclination of the people especially of the older generation and health conscious millennials towards plant based natural products and unmindful consumption without thorough study, results in harmful effects. Poisoning starts in a couple of hours and results in toxic gastroenteritis, hemodynamic shock and subsequently multi organ failure. Patients present primarily with gastrointestinal complaints such as vomiting, abdominal pain, and hematemesis. Majority of patients develop signs and symptoms of shock. UGI scopy reveals varying degree of esophagitis with pan gastritis. Unfortunately, there is no specific anti dote and conservative medical management with a wait and watch approach that is the only source of hope. Surgical methods such as feeding jejunostomy or gastrectomy could be opted, provided the patient is hemodynamically stable, which is rarely the scenario [5-7].

Conclusion

Awareness about the likely hazards of bottle/bitter gourd juice or for that matter any member of the Cucurbitaceae family is a must for public consumers. People should be educated about the adverse effects associated, as, despite multiple case reports, crops of such clinical cases still pop up in the society. Communal awareness goes a long way in curbing such incidences. Since these plants otherwise have many anti-inflammatory and anti-cancer properties, methods to reduce the toxicity should also be identified to help avail the benefits. It is imperative that even clinicians are aware of such noteworthy cases as the incidence is very low and usually has multiple differentials. This will enable in prompt treatment and patient care.

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