Case Report

Colocynth toxicity

A possible cause of bloody diarrhea

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ABSTRACT

Five cases of toxicity due to consumption of an uncommon wild fruit called Colocynth are described. These cases were seen over a period of 2 years. Severe bouts of bloody diarrhea were encountered in these patients. The plant, its ingredients, the medicinal and other uses, features of toxicity and the management is discussed. Doctors are advised to be aware of this uncommon clinical problem.

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Traditional medicines are being used in many parts of the world. Some have stayed due to ignorance and some due to their beneficial effects. Many types of herbs and roots are used in the Kingdom of Saudi Arabia (KSA) by common people for various ailments.[1] The use of some may prove to be undesirable. An uncommon fruit called colocynth, or bitter apple can be particularly harmful.

Case Report. ***Patient One.*** We report a series of 5 patients who had taken Colocynth in various forms and for different reasons. These patients were admitted with us over a period of 2 years between July 2000 through to July 2002. All the patients had an uneventful recovery, and upto a follow up of one month did not report back with any complications.

A 43-years-old Saudi male was admitted to the Medical Department with main complaints of diarrhea with mucus and blood, and crampy abdominal pain of 6 hours duration. There was a history of constipation for which patient had taken some treatment from a local traditional healer. Examination revealed a healthy adult with no fever, normal pulse and blood pressure. His abdomen was soft and non tender. Bowel sounds were exaggerated. Other systems were normal. There was no bleeding from any other site. Investigations showed normal blood counts, coagulation profile, urea and creatinine as well as normal liver function tests. Intravenous fluids (IVF) were started and samples sent for blood and stool examination. Patient was started on intravenous metronidazole 500 mg 8 hourly and oral cotrimoxazole 800 mg twice a day. After around 2 hours of admission patient was found sitting on the commode in the toilet. We advised him to return to the bed, but he said he was more comfortable there. He was almost continuously pouring small amounts of blood and mucus. We arranged a cholera chair for him and shifted him back to the ward and restarted IVF. As his diarrhea did not stop we enquired more from him about the local treatment. He said he had taken a small green wild fruit of the size of an orange and one walnut sized he had put in his rectum. The latter was passed out at home. The

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Arabic name he gave us was "Handal". For 48 hours the patient was on the cholera chair passing blood and mucus. We transfused 6 liters of fluid during those hours along with the previously mentioned chemotherapeutic agents as well as 10 mg of hyoscine bromide IV every 6 hours. Routine stool examination as well as culture reports were negative. Chemotherapeutic agents were stopped on the third day. Patient improved, and on the fifth day of admission he was discharged with advice not to use similar treatment in the future.

Patient 2. A 26-years-old Egyptian farmer was admitted with history of passing bloody diarrhea after taking extract of a small green rounded fruit called Handal in Arabic. He was advised this by his colleagues in the farm who had advocated its use for his diabetes mellitus. His clinical condition and investigations were almost similar to case number one and had an uneventful recovery on conservative management. His diabetes was managed after improvement and was controlled on insulin injection.

Patient 3. A 45-years-old Indian mechanic was admitted with bloody diarrhea after consuming a small amount of colocynth extract for pain abdomen of a long duration. He had similar presentation and outcome without use of any antibiotics. Investigations carried out for his pain abdomen were negative for any significant illness.

Patient 4. A 42-years-old Saudi male had taken it for "cleaning" his body. Somebody had advised him that Handal is effective in "cleaning the body from inside"and that he will get rid of any internal disease. Fortunately, he developed only a moderate diarrhea and responded to conservative treatment.

Patient 5. A 25-years-old Saudi male had taken colocynth fruit of the size of a small orange for chronic constipation. Clinical picture, investigations and outcome on conservative management were almost the same as in the other cases described above.

Discussion. Colocynth, Citrullus colocynthis of Genus Citrullus of Family Cucurbitaceae is commonly called wild-gourd or bitter-apple or bitter-cucumber in English and "Handal" or "Hadaj" in Arabic. The plant grows wild as a non hardy, herbaceous perennial vine, branched from the base. It is found in North Africa, the Middle East, and India and is cultivated in Spain and Cyprus. The stems are angular and rough; the leaves are rough, 5–10 cm in length, deeply 3–7 lobed. Each plant produces 15–30 round fruits, regarding 7–10 cm in diameter, green with undulate yellow stripes, becoming yellow all over when dry. It is almost like a diminutive water melon in shape and color **(Figure 1).** But, unlike water melon it is very bitter. It has small seeds (6 mm in length), which are smooth and brownish when ripe. The fruits are widely used by practitioners of homeopathy, especially for pain abdomen. The pulp, as of its content of glucosides, such as colocynthin, is a drastic hydragogue, cathartic, and laxative.[2] The fruits were exported as a laxative from the Gaza Strip to Europe in the early 20th century. The seeds are edible and when ground, used to provide a coarse bread for the desert Bedouins. The seeds have high oil content (17-19%) and in ancient times it was among the oils permitted to be used for candle light.[3]

Figure 1 - Shows colocynth with cut section.

Citrullus colocynthis is of such irritant nature that severe pain is caused if the powdered drug be applied to the nostrils; it has a nauseous, bitter taste and is usually prescribed by homeopaths in mixture form with the tinctures of podophylum and belladonna. Colocynth fruits broken small are useful for keeping moth away from furs, woolens, for example. Colocynth in excessive doses may produce severe bloody diarrhea[4,5] and may even be potentially fatal. Death has resulted from a dose of 1.5 teaspoonfuls of the powder. Toxicity studies on mice suggest that the fruit causes organ damage in the liver, kidney and gastrointestinal tract.[6] A dose of 800 mg/kg of the ethanolic extract of the leaves killed 60% of the treated rats.[7] Our first patient had taken Handal in a unique way. More traditionally; however, quacks or traditional healers use this fruit in patients with resistant constipation. The method mentioned is strange too. The patient is made to stand on 2 small Colocynths kept in a bowl of warm water. After 30 minutes to 2 hours he feels a bitter sensation in his tongue. Some even report excessive sweating during this time. Sugar is given to him to taste and when he cannot appreciate sugar as sweet he has adequate doses of Colocynth.

In our cases the differential diagnosis was not entertained as of 1. Negative history of any bleeding per rectum in the past, 2. Causal relationship was supported by the temporal profile of colocynth intake and the illness, 3. Onset within 8-12 hours, 4. Negative bacteriologic cultures as well as 5. The rapid recovery within 3-6 days. Supportive therapy with IVF remains the cornerstone of management. In case of poisoning by Colocynth the stomach should be emptied, morphine may be given by mouth followed by demulcent drinks. In our 5 cases, we used injections of hyoscine bromide which proved useful in decreasing crampy abdominal pain and reducing the frequency of diarrhea. Antibiotics

have no role. Fortunately, all our patients had an uneventful recovery.

The importance of being aware of the herbal medicines used in the KSA has been recently stressed.[1] We have also previously highlighted on the harmful effects of traditional medicines in KSA.[8,9] Awareness of this uncommon cause of bloody diarrhea may be helpful to physicians working in the KSA especially in the peripheral parts where use of traditional medicines may be more common.

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References

1. Al-Awamy BH. Evaluation of commonly used tribal and traditional remedies in Saudi Arabia. ***Saudi Med J*** 2001; 22: 1065-1068.
2. Dafni A, Yaniv Z, Palevitch D. Ethnobotanical survey of medicinal plants in Northern Israel. ***J Ethnopharmacol*** 1984; 10: 295–310.
3. Palevitch D, Yaniv Z. Medicinal plants of the Holyland. Tel Aviv (IL): Tamus Modan Press; 1991. p. 56–58 (in Hebrew).
4. Goldfain D, Lavergne A, Galian A, Chauveinc L, Prudhomme F. Peculiar acute toxic colitis after ingestion of colocynth: a clinicopathological study of three cases. ***Gut*** 1989; 30: 1412-1418.
5. Al-Faraj S. Haemorrhagic colitis induced by Citrullus colocynthis. ***Ann Trop Med Parasitol*** 1995; 89: 695-696.
6. Diwan FH, Abdel-Hassan IA, Mohammed ST. Effect of saponin on mortality and histopathological changes in mice. ***East Mediterr Health J*** 2000; 6: 345-351.
7. Wasfi IA. Some pharmacological studies on Citrullus colocynthis. ***Journal of Herbs, Spices and Medicinal Plants***. 1994; 2: 65-79.
8. Khan SA, Khan LA. Prevalence of utilization of native medicine among primary care consumers (correspondence). ***Saudi Med J*** 1999; 20: 736-737.
9. Khan LA, Khan SA. Clinical approach to patient treatment by traditional cauterization. ***Saudi Med J*** 2000; 21: 1195-1196.