



Letters to the Editor

□ CAUSTIC INJURY DUE TO UNINTENTIONAL INGESTION OF A COOKING ADJUNCT

□ To the Editor:

A 46-year-old, non-English-speaking African man with no known medical problems presented to the emergency department (ED) by ambulance with a chief complaint of 4 h of abdominal pain, substernal chest burning, and nausea with hematemesis. With his wife translating, the patient related that several hours before presentation he had developed a headache, for which he swallowed one 600-mg ibuprofen tablet with approximately 250 mL of what he initially thought was water from a water bottle in his refrigerator. After noticing an unusual taste to the ingested liquid, the patient immediately questioned his wife, who explained that the liquid was for cooking and was not intended for consumption. The patient then self-induced emesis until his vomitus produced what he termed a "handful" of blood.

On further questioning the patient's wife explained that the bottle contained "squid refresher," which she used for rehydration of dried meats and seafood. She stated that she had placed the liquid in a water bottle because she had lost the cap to the original bottle. She was able to bring the original bottle to the ED for examination (Figure 1). It was noted to contain potassium carbonate and sodium bicarbonate, the concentrations of which were not listed. The instructions on the bottle state that the liquid is to be used to rehydrate dried squid and that it should be diluted 1:50 with water, and that food should be thoroughly rinsed before ingesting.

In the ED, the patient's presenting vital signs were: oral temperature 36.6°C (97.9°F), heart rate 75 beats/min, blood pressure 126/84 mm Hg, respiratory rate 17 breaths/min, and pulse oximetry 98% on room air. He was awake and alert, but in obvious discomfort. Examination of head, eyes, ears, and nose were unremarkable, and throat examination revealed the presence of a small uvula with mild erythema along the anterior tonsillar pillars and soft palate. There were no other lesions, ulcers, or defects in the mucosa. Cardiac examination revealed regular rate and rhythm without the presence of any murmurs, rubs, or gallops; pulmonary examination

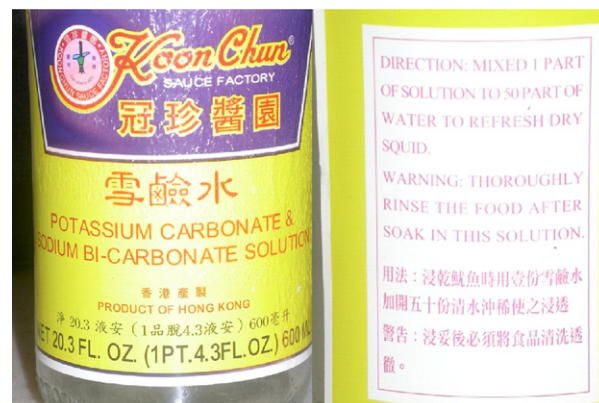


Figure 1. Label of the bottle containing potassium carbonate and sodium bicarbonate.

was clear to auscultation bilaterally, and abdominal examination revealed a flat, non-distended abdomen with normal bowel sounds and diffuse tenderness to palpation throughout the abdomen; no rebound tenderness or guarding was present. No hepatosplenomegaly was noted. The rest of his examination was unremarkable.

The patient was placed on a monitor and a large-bore peripheral i.v. was inserted. Electrocardiogram and chest radiograph were normal. Laboratory investigation revealed normal electrolytes, blood urea nitrogen, and creatinine. The patient was initially treated with intravenous ondansetron and opioid pain medications, and toxicology was consulted. Per toxicology recommendations, the solution remaining in the water bottle was tested with litmus paper and determined to have a pH of 10. Gastroenterology was then consulted to perform endoscopy to determine the presence of injury to the gastrointestinal tract.

Esophagogastroduodenoscopy revealed grade I linear mucosal injury to the body and antrum of the stomach. The patient was admitted to the hospital overnight and started on famotidine, 20 mg twice daily. He had an uneventful course and was discharged the following day after his symptoms improved significantly.

Toxic ingestions account for about 1% of ED visits yearly (1,2). Half of ingestions occur in children under the age of 5 years, and two-thirds of ingestions occur in patients under 20 years of age (1). Toxic ingestions can be divided into acid and alkali ingestions; acid ingestions

are typically the result of hydrochloric, sulfuric, or phosphoric acid (such as from pool supplies or battery fluid), whereas alkali ingestions are typically the result of sodium hydroxide, potassium hydroxide (lye), degreasers, or drain cleaners.

Although acid and alkali ingestions cause distinct pathology on histologic examination, the gross injury is similar, with mucosal swelling and ulceration that can lead to hemorrhage from erosion into underlying vessels and perforation. One study showed esophageal involvement in approximately 50% of patients, with one-quarter having severe ulceration. Two-thirds of those patients with severe ulceration had long-term sequelae involving stricture, for which dilatation was required (3).

Early endoscopy (usually within 24 h of ingestion) can help to determine the extent of injury to the upper gastrointestinal tract. Severity of injury has been shown to directly correlate with the risk of serious sequelae and even death in the near future. Those with superficial lesions rarely develop sequelae and do not require extensive follow-up, whereas those with more extensive injury are at higher risk for developing serious and sometimes life-threatening sequelae such as perforation, stricture, and fistula formation (4).

Although the report of caustic ingestion of alkaline solution causing injury is not new, the substance consumed by our patient and the fact that it is a cooking adjunct intended to be used with food is novel. This case demonstrates that easily available cooking supplies are capable of resulting in significant morbidity if misused, and their labeling may not reflect their potential to cause harm. Such substances should be

clearly labeled and kept in their original containers to avoid unintentional ingestion.

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