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Ingestion of 35% Hydrogen Peroxide

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A 23-year-old woman presented to the emergency department with epigastric pain and vomiting after unintentionally ingesting a cleaning agent stored in her refrigerator. On physical examination, the patient was tachycardic at 100 beats/min, but was otherwise well-appearing with a soft, non-tender abdomen. Initial blood work was unremarkable. Computed tomography of the abdomen and pelvis (Figure 1) and upper endoscopy were performed (Figure 2).

Diagnosis

Ingestion of 35% hydrogen peroxide

Unlike dilute (3-9%) hydrogen peroxide sold for home use as a disinfectant and topical antiseptic, 35% hydrogen peroxide is used primarily for industrial purposes and for cleaning fruits and vegetables. It has also been promoted as an alternative health remedy, known as “hyperoxygenation therapy.” Although dilute hydrogen peroxide is a mild irritant, concentrated hydrogen peroxide is a caustic, causing necrosis and ulceration of mucosal tissue (1,2).

Assuming one mouthful equals 30 mL, such ingestion of 35% hydrogen peroxide could yield approximately 3,000 mL of oxygen gas. Following systemic absorption of hydrogen

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peroxide, metabolism by catalase in red blood cells liberates oxygen. If intact hydrogen peroxide bypasses the liver prior to metabolism, cerebral gas embolism may occur (3).

The patient was treated at the local hyperbaric treatment facility (3,4) with resolution of her abdominal pain. Her course was complicated by two bouts of coffee-ground emesis. Endoscopy revealed a Zargar 2A mucosal injury associated with diffuse erosion of the esophagus and stomach (Figure 2). The patient responded well to treatment with esomeprazole, ondansetron, and simethicone and was discharged on hospital day three.

Acknowledgments

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Figure 1.
Computed tomography of the abdomen and pelvis revealing gas in the stomach and hepatic portal veins.

Figure 2.
Upper endoscopy images, revealing erythema and superficial erosion to the lower esophagus (left panel) and the body of the stomach (right panel).