

## An elderly patient of formalin poisoning presenting with hematemesis

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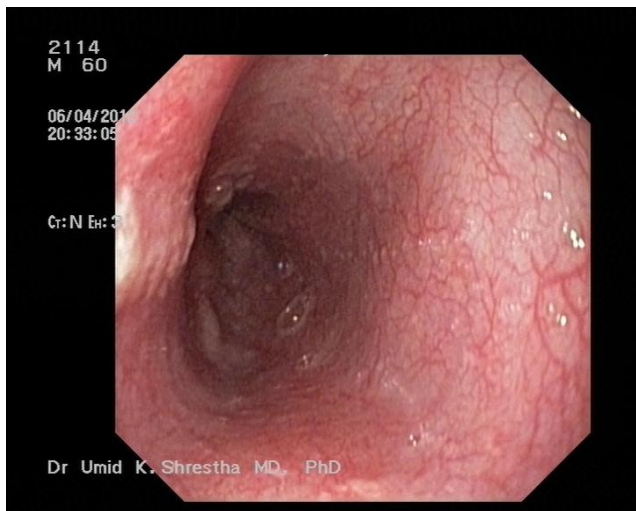


Figure 1. Esophagus (normal)

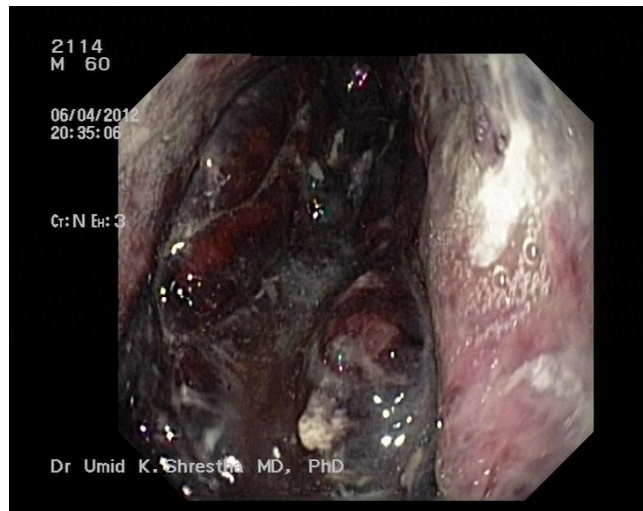


Figure 2. Stomach (completely charred mucosa: the rarest picture)

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### CASE

A 60-year-old male was admitted on April 6, 2012 to Kaski Sewa Hospital and Research Center, Pokhara, Nepal with a history of hematemesis. He had three episodes of vomiting of blood, each bout of vomitus containing about 100 ml of blood. He was non-alcoholic and non-smoker. He denied having any liver disease in the past. He had been taking medicines for some psychiatric illness. On reviewing the history, the patient admitted that he had ingested some liquid material accidentally prior to the episode of blood vomiting, but could neither bring the substance nor tell its name.

At the time of presentation, pulse was 92/minute, blood pressure was 100/70 mm Hg and abdomen was soft and non-tender without any organomegaly. Laboratory studies revealed elevated serum creatinine (3 mg/dl), reduced hemoglobin (8 gm/dl), elevated white blood count (25,000/cmm with neutrophil 78%, lymphocyte 20%, monocyte 2%), normal platelet count and normal liver function test. Other investigations showed normal coagulation tests with a normal prothrombin time (international normalized ratio, 1.1) and partial thromboplastin time (30 seconds with normal value ranging from 24–36 seconds).

Upper gastrointestinal (UGI) endoscopy revealed normal esophagus (figure 1), but the mucosa of stomach was completely charred with the color turning brownish black and the mucosa around the pylorus was edematous causing the gastric outlet obstruction (figure 2).

Considering his clinical and imaging findings, what substance the patient might have ingested and how could it be treated?

Answer on page 68

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## ANSWER

### Formalin poisoning

The UGI endoscopy done at the time of presentation had shown that the patient might have ingested some corrosive substance. On reviewing the history again, it was found that the patient had ingested 50 ml of formalin (40% solution of formaldehyde in water). The patient was treated conservatively with bowel rest, intravenous (IV) nutrition supplement, IV proton pump inhibitor, IV antibiotic and blood transfusion. The serum creatinine level, white blood cell and hemoglobin returned to normal range after 3 days of treatment. This is a case of formalin poisoning with the strange endoscopic finding, which was unusual in the sense that there was completely normal esophagus, but the presence of severely burnt gastric mucosa. The UGI endoscopy was repeated after 4 weeks of treatment with a full bowel rest to the patient. The repeat endoscopy after 4 weeks was normal (figure 3) with no traces of burn injury to the mucosa. Gastric outlet obstruction has been described as the late complication of formaldehyde ingestion.<sup>1</sup> In our case, after a follow up of 12 weeks, the patient was doing well and did not develop any features of gastric outlet obstruction or other late complication.



**Figure 3.** Stomach (normal mucosa, after four weeks of treatment)

Formaldehyde poisoning has been described previously by some authors.<sup>2,3</sup> The few signs and symptoms that develop following the ingestion of formaldehyde are severe abdominal pain, retching, development of seizures, hypotension and difficulty in breathing. To our knowledge, this is the first report of formalin poisoning presenting with hematemesis, having the finding of normal esophagus, but severely burnt gastric mucosa, which returned to completely normal condition after a 4 week of bowel rest and other conservative treatment.

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