



Case report

Acute management of caustic injury patient in low-resource settings

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ABSTRACT

Background: Caustic ingestion causes high mortality and morbidity, so it is necessary to perform effective management for this case, especially in low-resource settings.

Case presentation: A 58-year-old male with caustic intoxication. The patient had acute complications in the form of hematemesis caused by gastric burns. The patient underwent immediate endoscopy and a Grade-IV Zargar gastric injury was noted. The patient was treated conservatively. He was given nutrition, proton pump inhibitors, antibiotics, and other supportive therapy during treatment.

Discussion: Insertion of a nasogastric tube in patients with caustic ingestion should be carried out after endoscopy or during endoscopy.

Conclusion: Endoscopy plays an important role in the acute management of caustic ingestion.

1. Introduction

Caustic ingestion is a health problem caused by ingestion of a toxic exposure intentionally or unintentionally [1]. More than 200,000 cases are reported annually in the United States and about 10% are adults [1,2]. Meanwhile, in Thailand, 19.5% of cases of caustic ingestion were reported [3]. However, there is still no specific data regarding the number of caustic ingestion in Indonesia [4]. The latest data currently available is only on Indonesian children [5]. Therefore, we were interested in presenting a case of acute management of Indonesian adults with caustic ingestion in low-resource settings. We presented the case report using the Surgical Case Report (SCARE) 2020 guidelines [6].

2. Case presentation

A 58-year-old man complained of pain when swallowing and burning in the pit of his stomach. Previously, the patient accidentally swallowed ± 50 mL of methyl ethyl ketone peroxide (MEKP) liquid. The patient immediately vomited the liquid in the form of food, not accompanied by red or blackish-brown liquid. After ingesting the chemical, the patient admitted that he immediately drank 2 glasses of water. The patient went to the nearest hospital about 2 h after swallowing. When he arrived at our hospital, the patient had an NG tube attached and a blackish-brown liquid came out. He denied complaints of cough, fever, shortness of breath. The patient was referred to our hospital after 12 h of ingesting

MEKP.

Patient was alert and Glasgow coma scale (GCS) point of 15 (composmetis) [7], blood pressure of 110/85 mm Hg, pulse rate of $90 \times / \text{min}$, respiratory rate of $23 \times / \text{min}$, the axillar temperature of 36.6°C . On examination of the head and neck, there was no anemia, jaundice, cyanosis, or dyspnea. Thoracic examination of symmetrical movement showed no chest retractions. On lung examination, breath sounds were vesicular in both lung fields. On the abdomen, bowel sounds are normal with gentle palpation, with tenderness in the epigastric region. Examination of the extremities found warm, dry, red acral. From the previous hospital, the patient had a nasogastric tube installed and 400 mL of brown fluid was obtained. Laboratory examination revealed Hb (14.1 g/dL), hematocrit (42.1%), mean corpuscular volume/MCV (91.3 fL), mean corpuscular hemoglobin/MCH (30.6 pg), mean corpuscular hemoglobin concentration/MCHC (33.5 g/dL), platelet ($186.000/\mu\text{L}$), white blood cell count ($12.180/\mu\text{L}$), blood urea nitrogen/BUN (15.99 mg/dL), creatinine (1.08 mg/dL), serum glutamic oxaloacetic transaminase/SGOT (45 U/L), serum glutamic pyruvic transaminase/SGPT (28 U/L), albumin (3.1 g/dL), random blood glucose of 111 mg/dL, potassium (4.28 mmol/L), sodium (138 mmol/L), and chloride (101 mmol/L). Blood gas analysis was pH (7.4), pCO_2 (36 mm Hg), pO_2 (90 mm Hg), blood excess (1.9 mmol/L), SO_2 (98%), and HCO_3 (22.7 mmol/L). X-rays of the thorax and abdomen were normal (Fig. 1). Endoscopy revealed a Grade-IV Zargar gastric wound (Fig. 2) [4]. The patient was consulted in the digestive surgery section. Since the patient was

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Fig. 1. X-ray of the abdomen revealed no damage.

clinically stable, he was monitored for signs of perforation. He was given an adequate infusion, antibiotic injection of Ceftriaxone 1 g/12 h intravenously, and Lansoprazole 6 mg/h intravenously.

On the 2nd day, the patient complained of pain in swallowing and heartburn. No cough or shortness of breath, no brown active fluid was found in the NGT. An abdominal X-ray performed 6 h post endoscopy showed no sign of perforation. On the 3rd day, the patient was given clean water gradually through the NG tube starting at 10 cm³/6 h. On the 13th day, the patient had no complaints of difficulty swallowing and abdominal pain and was able to consume soft foods orally. The patient went home and was given Omeprazole 2 × 20 mg. The patient was advised to go to the gastro polyclinic to evaluate for further complications.

3. Discussion

Management of caustic injury is to recognize acute complications and perform immediate resuscitation and evaluation of the damage level. In addition to hemodynamic stabilization, airway control is very important because laryngeal edema is common due to corrosive injury [4]. Intravenous administration of proton pump inhibitors can accelerate gastric mucosal healing [8,9]. The use of broad-spectrum antibiotics is recommended to reduce the incidence of sepsis, considering that one of the complications is perforation of the gastrointestinal tract which facilitates the occurrence of infection [4,10]. Insertion of nasogastric tube is not recommended before endoscopy, as it can cause more extensive tissue damage. Insertion of nasogastric tube is performed concurrently with endoscopy to provide a patent route of enteral nutrition, and it can function as a stent to maintain luminal integrity and reduce the formation of strictures in the gastrointestinal tract [11].

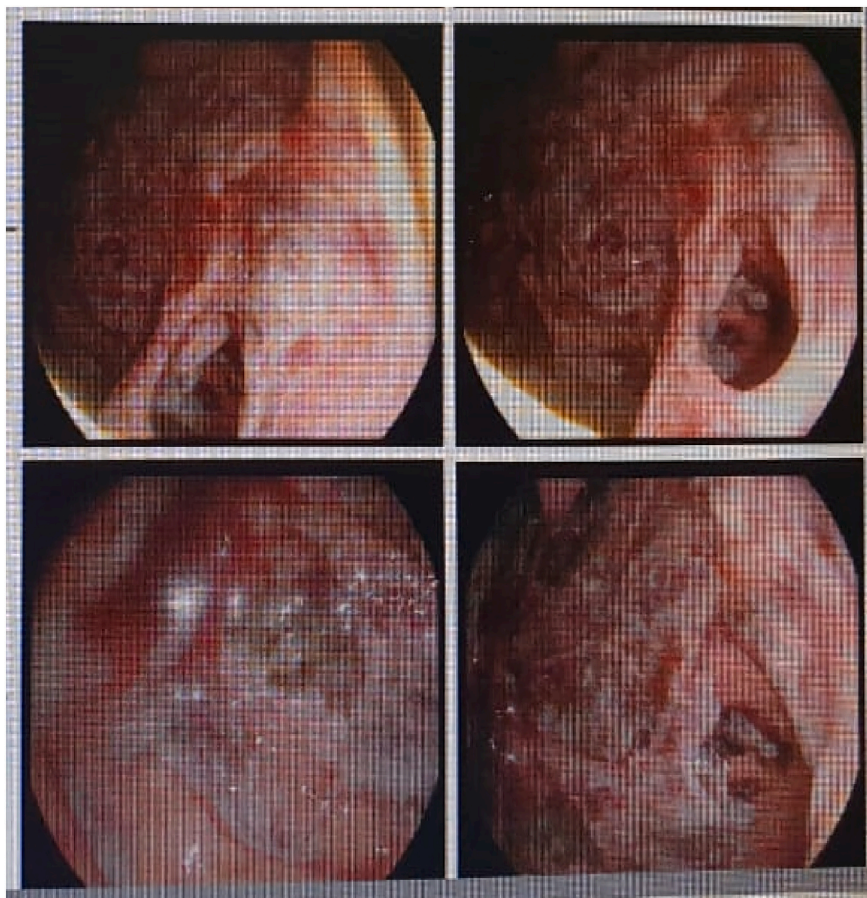


Fig. 2. Endoscopy of the upper gastrointestinal tract showing Grade-IV Zargar scale.

Neutralizing agents (weak acids or bases) are not currently given due to concerns that additional thermal injury may occur due to reactions of unknown substances. Gastric lavage and emesis are contraindicated after ingestion of corrosive substances, as they cause further injury to the upper gastrointestinal tract. Oral fluids should be avoided after ingestion of corrosive materials as they may pose a risk of gastrointestinal perforation [4,12].

Endoscopy is the main choice in determining the diagnosis, prognosis, and guidance in the management of caustic ingestion. Endoscopy is important to be performed within 12–48 h of the initial corrosive injury and it is recommended to avoid endoscopy at 5–15 days of injury. Suspicion of perforation, unstable hemodynamics, and respiratory failure are contraindications to endoscopic procedures [12,13]. The severity of burns due to corrosive substances can be assessed according to the Zargar classification seen through endoscopic examination. Acute complications and the risk of death mainly occur in patients with injuries above grade III. Patients with 0, 1, and IIA degree burns recovered without sequelae. The majority of patients with grades IIB and III injuries who survive have complications in the form of esophageal and gastric cicatricial [8,14].

In patients with stage IIB and III with damage from corrosive substance injury, a nasogastric tube for feeding should be placed within the first 24 h, and enteral fluids can be started within the first 48 h, especially if the patient can swallow his or her saliva [12,15]. Emergency surgery is indicated primarily on the clinical condition of the patient as compared to the radiological results. In addition to perforation, other complications can include metabolic disorders such as acidosis, severe dehydration, sepsis, and disseminated intravascular coagulation (DIC) which indicate the need for surgical management [12,16].

4. Conclusion

A 58-year-old man has been reported with caustic ingestion. The patient had acute complications in the form of hematemesis caused by gastric burns. The patient underwent immediate endoscopy, and a Grade-IV Zargar gastric injury was noted. The patient was treated conservatively. He was given nutrition, proton pump inhibitors, antibiotics, and other supportive therapy during treatment. The patient was in stable condition and was discharged on the 13th day of treatment.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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All authors contributed toward data analysis, drafting, and revising the paper, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Declaration of competing interest

Sisilia Dewanti and Ulfa Kholili declare that they have no conflict of interest.

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