Massive gastric necrosis from hydrochloric acid ingestion

A. Díaz-Sánchez, G. Carrión, A. Barreiro, C. Ortiz¹, M. L. De Fuenmayor¹, M. Gimeno², A. Ponferrada, S. Martín and M. Aldeguer

Services of Digestive Diseases, ¹General Surgery, and ²Pathology. Hospital Infanta Leonor. Madrid, Spain

CASE REPORT

Severe gastrointestinal-tract injury due to ingestion of caustic substances is not an infrequent problem in the emergency department. We report the case of a 57-year-old male who developed massive hemorrhagic, caustic gastric necrosis due to the ingestion of a non-diluted solution containing hydrochloric acid, which propitiated an urgent surgical procedure. The esophago-gastrectomy specimen showed extensive hemorrhagic gastric necrosis with important damage to the gastric wall in the histopathological evaluation.

The ingestion of caustic substances is a medical problem that is still frequent in emergency departments, either by mistake or with suicidal purposes. The extent and the severity of tissue damage vary according to different factors related to substance type, amount and concentration, as well as other personal factors. We report the case of a 57-year-old male who ingested 20 cc of a non-diluted solution containing hydrochloric acid as a suicide attempt three hours before he was admitted to our hospital. After that he had experienced vomiting with emission of black sloughs. He was clinically and hemodynamically stable with only intense epigastric pain. An ORL exploration and chest and abdominal radiographs showed no complication signs. An urgent gastroscopy revealed that the esophageal mucosa was not necrotic but ulcerated in some areas. In the esophago-gastric junction a transition to an ulcerated gastric mucosa could be seen, with severe diffuse hemorrhagic necrosis and sloughs that easily fell off with endoscope maneuvers (Fig. 1) compatible with grade-3 caustic gastritis according to Zargar's classification (1). The duodenum was not explored because of perforation risks.

An urgent surgical intervention was performed due to the high risk of perforation. The esophagus was ulcerated and the stomach had extensive areas of necrosis, so partial esophagectomy and total gastrectomy were performed to avoid the risk of future complications, doing an esophagostomy and terminal ileostomy. The histopathological analysis of the surgery specimen showed extensive hemorrhagic gastric

Fig. 1. Ulcerated gastric mucosa with extensive hemorrhagic necrosis during urgent gastroscopy.
Mucosa gástrica ulcerada y con necrosis hemorrágica extensa en la gastroscopia urgente.

Fig. 2. Microscopic image of the stomach with hemorrhagic necrosis, inflammation, and interstitial hemorrhage.
Visión microscópica a nivel gástrico con necrosis hemorrágica de la mucosa, inflamación y hemorragia intersticial.

necrosis with involvement from the cardia to the gastric antrum, necrotic phenomena reaching the muscular and occasionally the serous wall layer, and important myocytolysis, all consistent with necrotic-hemorrhagic pangastritis stage 2-3 (Fig. 2). The esophagus showed mucosal necrosis with congested vessels. The outcome was favorable.

DISCUSSION

Severe gastric injury after the ingestion of a caustic substance, defined by a Zargar's classification stage 2b-3, is frequent in emergency departments. In a recently published retrospective series the frequency of these lesions was 14.6% in the esophagus and 8.2% in the stomach (2). Acid substances, as in our case, cause injury mainly in the stomach due to coagulative necrosis (3). The identification of predictive factors of severe gastrointestinal lesions during urgent endoscopy can improve the indication and timing. In this sense, as in previous reports (2), the willfulness of ingestion and the acute abdominal pain were related to the presence of gastric necrosis. In these cases an urgent surgical procedure can avoid gastrointestinal perforation, although the best timing to perform it has not been elucidated (4).

REFERENCES

1. Zargar SA, Kochhar R, Nagi B, Mehta S, Mehta SK. Ingestion of corrosive acids. Spectrum of injury to upper gastrointestinal tract and natural history. *Gastroenterology* 1989; 97: 702-7.
2. Núñez O, González-Asanza C, De la Cruz G, Clemente G, Bañares R, Cos E, et al. Estudio de los factores predictivos de lesiones digestivas graves tras la ingesta de cáusticos. *Med Clin (Barc)* 2004; 123(16): 611-4.
3. Montoro MA. Lesiones esofagogástricas por cáusticos. *Gastroenterol Hepatol* 2000; 23: 436-47.
4. Estrera A, Taylor W, Mills LJ, Platt MR. Corrosive burns of the esophagus and the stomach: A recommendation for an aggressive surgical approach. *Ann Thorac Surg* 1986; 41: 276-83.