

Pyloric syndrome due to ingestion of caustics. A case report

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ABSTRACT

The ingestion of caustic substances causes about 5 % of domestic accidents producing caustic esophagitis that can evolve to esophageal stenosis and, more rarely, to pyloric stenosis. Although infrequent, the latter is a serious entity characterized by a narrowing of the pyloric canal that prevents gastric emptying, in such a way that a timely approach is required to preserve the life of the patient. The case of a 15-year-old patient was reported, who, after accidentally ingesting sulfuric acid, used to clean the house, referred gastroesophageal lesions that evolved into a pyloric syndrome due to an occlusive scar lesion of the antropyloric region and required a gastrojejunostomy as definitive treatment. The timely management of this type of injury should be conceived in both the acute and chronic phases, although the best approach is considered to be the prevention, especially in pediatric ages.

Keywords: Caustics; Pyloric stenosis; Chemical burns.

Worldwide, around 5 % of all domestic accidents are caused by the ingestion of caustic substances (IC). Children under 16 years of age, patients with psychiatric illnesses, and adults who regularly consume alcoholic drinks constitute the most vulnerable population^{1,2}.

Esophagogastric burns appear in 30 % of these patients, approximately half of them develop esophageal stenosis, and in some less common cases a pyloric syndrome may appear as a result of stenosis of the antropyloric region^{1,2}.

An incidence of accidents due to IC of 38,7 cases per 100 000 population is reported, with a mortality of 1 to 4 % in Western countries³. In Cuba, current data about its incidence, prevalence or mortality have not been published.

Accidents due to IC are a frequent cause of medical attention in the emergencies rooms, representing a serious global health problem due to the im-

portant of short and long-term consequences that they can generate. Precisely for this reason, it is important that health professionals, as well as medical students, know the severity of esophageal and gastric injuries caused by IC, and the importance of carrying out a detailed examination of the patient supported by endoscopic studies for their approach, as well as the need to develop health prevention activities around this problem.

CASE REPORT

A 15-year-old female patient, from an urban area, with a personal pathological history of bronchial asthma—for which she undergoes regular treatment—, was received in the Surgical Emergency Unit at “Dr. Eliseo Noel Caamaño” Provincial Pediatric Teaching Hospital from Matanzas due to the accidental ingestion of an industrial cleaner composed of sulfuric acid, in October 2018. The patient presented odynophagia, retrosternal pain, and scant, bloody vomits, preceded by nausea.

The physical examination revealed moist and slightly hypocoloured mucous membranes; soft palate and oropharynx with burn injuries; flat abdomen, soft, depressible, painful to superficial and deep palpation without other alteration.

An endoscopy was directed, observing the hypopharynx with normal-appearing mucosa, pearly white longitudinal lesions towards the distal third of the middle esophagus with areas of slight hemorrhage.



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Conflict of interests

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Abundant hematic fluid, folds mucosa and antrum with edema, erosions and areas of hyperemic mucosa with non-active bleeding were observed in the stomach. Pylorus permeable, bulboduodenal with erythematous mucosa, duodenal lumen with hematic fluid and mucosa with slight erythema. As a result of the examination, the diagnostic impression of grade II (G-II) esophagitis and erosive pangastritis secondary to caustic ingestion was issued.

With the data collected in the interrogation, the physical examination and the complementary test, a syndrome of upper digestive bleeding was established due to the ingestion of sulfuric acid. Given this clinical picture, it was decided to enter her in the Progressive Care Unit Section-B, with treatment with hydrogen ion pump inhibitors, suspended oral route and parenteral hydration.

In the initial clinical evolution, the nausea disappeared, she did not show signs of bleeding or respiratory distress, and the evolutionary blood gas was within normal parameters. She was transferred to the surgery room for follow-up where she was in good general condition and began to drink fluids, being discharged after 10 days.

After 21 days of evolution without specific treatment, the patient was readmitted to the pediatric service. She presented two febrile peaks of 38.5 and 39 °C, anorexia, postprandial pain in the epigastrium, and copious postprandial vomiting containing undigested food.

The endoscopic study carried out showed the normal esophagus, the body and the fundus of the stomach without alterations, but upon reaching the antrum and prepyloric region, the endoscope did not progress because the region was edematous and without the possibility of visualizing the pylorus. It was decided to carry out a contrasted radiological study of the esophagus, stomach and duodenum (Figure 1).

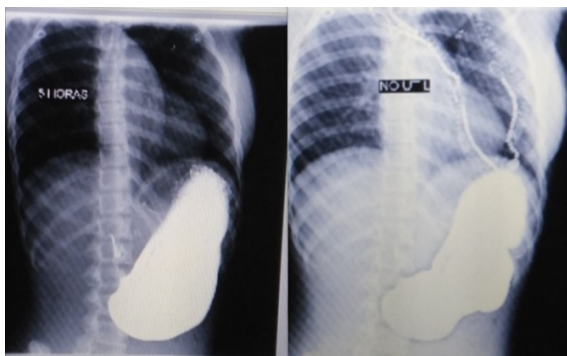


Figure 1. Contrast radiological study of the esophagus, stomach and duodenum. It is observed the pyloric canal, filiform, elongated and erectile, the stomach dilated with a delay in gastric emptying (observed by fluoroscopy study for five hours) and the contrast remains in the stomach.

It was jointly evaluated by the progressive care, gastroenterology, radiology and surgery personnel, establishing a pyloric syndrome as a late complication to the ingestion of caustic substances and it was decided to suspend the oral route, place a nasogastric tube for gastric decompression and start parenteral nutrition.

After a week of evolution without clinical improvement and with the need for adequate feeding of the patient, a group discussion was carried out and the patient was considered with criteria for surgical treatment. A gastrojejunostomy in Y the Roux was then performed, with a side-to-side gastroenteric anastomosis and an end-to-side enteroenteric anastomosis.

During the postoperative period, she remained without complications, with tolerance of the oral route 72 hours after the intervention, without vomiting, good nutritional recovery, with a favorable prognosis and evolution.

DISCUSSION

The goal of treating a patient after ingestion of caustic substances is to prevent perforation, as well as to prevent progression to fibrosis and stenosis of the esophagus or stomach. There is currently a consensus on therapeutic action during initial stabilization, which includes ensuring the airway and hemodynamic stability, effectively managing pain, and ensuring optimal nutritional support^{1,4}.

Patients who ingest caustic substances can present from minimal oropharyngeal discomfort to shock and early perforation. Caustics usually cause immediate local pain and odynophagia. Frequently there are periodic episodes of vomiting in the form of a projectile or nausea immediately after ingestion, associated with the injury of the epiglottis, hypopharynx and pharynx, either directly or by aspiration^{1,5,6}.

Important aspects still under discussion are the urgent upper gastrointestinal endoscopy and the use of antibiotics therapy and corticosteroids¹.

Some studies conclude that children with severe caustic injuries do not always present symptoms, such is the case carried out by Lamireau *et al*⁶ with 85 children between 11 months and 14 years of age with accidental IC mainly at home (94% of cases), where 57% of the patients in the sample were asymptomatic. This author adds that endoscopy is not recommended for asymptomatic children living in developed countries, however it is recommended for minors in developing countries where caustic substances may be available to them and severe injuries occur more frequently.

The authors join the criterion that digestive endoscopy (EVD) has a diagnostic and prognostic value in the short and long term. It is the only method that provides early information on the extent and depth of

the involvement, makes it possible to know if you are facing isolated caustic esophagitis, a gastric lesion, or a mixed form, which allows you to follow a correct therapeutic attitude^{5,7}.

The intensity of symptoms does not accurately predict the presence of a lesion or the development of stenosis. This depends on the quantity, physical properties and concentration of the ingested product, as well as the time that the chemical agent remains in contact with the mucosal surface⁵.

Digestive endoscopy should be performed before the first 48 hours of evolution, regardless of the symptoms; It allows caustic lesions to be grouped into three grades according to the ZARGAR classification and in turn makes it possible to offer a prognosis^{2,7,8}.

The assessment of the state of the pylorus is decisive for the choice of the nutritional route^{5,7}. In this sense, two stages are conceived: the acute one, characterized by the inability to feed orally as a result of the immediate lesions of the oral cavity, esophagus and stomach, as well as its complications (mediastinitis and / or peritonitis); and the chronic stage, dependent on the stenotic sequelae of the esophagus and / or stomach¹.

For patients with grade II and grade III lesions where exudate ulcers are described, hemorrhages and erosions of the mucosa of different severity, treatment with antibiotics and hydrogen ion pump inhibitors is recommended and an absolute diet is established during the first week with food parenteral. After the first week, if they tolerate water, oral intake increases. Whenever the patient's condition allows it and after the first week, enteral feeding will be used, either orally or by gastrostomy. Parenteral nutrition is also essential to achieve adequate nutritional status, if the patient is to undergo surgery^{1,2}.

Among the late complications of the ingestion of corrosives, the most frequent is the development of stenosis. Sequelae in the stomach are seen in 44% of patients and are related to the development of antral stenosis after ingestion of acidic substances, since they are powerful dissectants that produce necrosis due to coagulation and dehydration of the tissues^{9,10,11}.

Gastric obstruction symptoms start around the fifth and sixth week, but can appear after years. Anthro-pyloric stenosis, if they are short, may be subject to balloon or candle dilation, although they will mostly require surgery (pyloroplasty, gastroenterostomies or distal gastric resection)^{9,12}.

Regarding this aspect, the existing literature describes the various complications that derive from IC, be they alkalis or acids, but there are still few published studies that address the need to consider the pyloric syndrome in the differential diagnosis of these patients, being this as complex to treat as the different degrees of esophageal injuries.

For this kind of obstruction, management must always be surgical, hence the need for a systematic search for possible stenosis in the event of caustic ingestion, since these tend to present later than caustic esophagitis.

In pediatric ages, the prevention of these accidents is essential, taking into account that these tend to lead to sequelae that damage the child's physical integrity for life and on unfortunate occasions ruin it.

CONCLUSIONS

Early hospitalization associated with rapid clinical-endoscopic evaluation and surgery reduce morbidity and mortality in patients with lesions caused by caustic agents. Its management should be conceived in both the acute and chronic phases, although it is considered that the best approach is prevention, especially that directed at pediatric age

AUTHORSHIP

LRS: conceptualization, methodology, resources, writing - original draft, writing - review and editing.

MCRT and JLDO: conceptualization, methodology, resources, supervision, writing - review and editing.

JASS: writing - original draft, writing - review and editing.

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BIBLIOGRAPHIC REFERENCES

1. Losada M, Rubio MC, Blanca JA, Pérez C. Ingestión de cáusticos en niños, experiencia de 3 años. *Rev. chil. Pediatr.* [Internet]. 2015 [cited 06/20/2020]; 86(3):189-193. Available from: <https://doi.org/10.1016/j.rchipe.2015.06.004>
2. Rodríguez Vargas BO, Monge Salgado E, Montes Teves P, Salazar Ventura S, Guzmán Calderón E. Lesiones por cáusticos del tracto digestivo superior: características clínicas y endoscópicas. *Rev. gastroenterol. Perú* [Internet]. 2016 Abr [cited 06/20/2020]; 36(2):135-142. Available from: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1022-51292016000200006&lng=es
3. Pierre R, Neri S, Contreras M, Vázquez R, Ramírez LC, Riveros JP. Guía de práctica clínica Ibero-Latinoamericana sobre la esofagitis cáustica en Pediatría: Fisiopatología y diagnóstico clínico-endoscópico (1ª Parte). *Rev chil Pediatr.* [Internet]. 2020 [cited 06/20/2020]; 91(1):149-157. Available from: <https://doi.org/10.32641/rchped.v91i1.1288>
4. Zurita Camacho PS. Determinación de factores de riesgo en in-

toxicaciones presentadas en niños menores de 5 años atendidos en el servicio de Emergencia del Hospital General San Francisco en los meses de enero a diciembre del año 2015. [Thesis]. Ecuador: Pontificia Universidad Católica del Ecuador [Internet]. 2019 [cited 06/20/2020]. Available from: <http://repositorio.puce.edu.ec/bitstream/handle/22000/17237/TESIS%20FINAL.pdf?sequence=1&isAllowed=y>

5. Elías Pollina J. Patología quirúrgica digestiva prevalente: aspectos prácticos para el pediatra. Madrid: Ediciones 3.0; 2017, p. 79-87.

6. Lamireau T, Rebouissoux L, Denis D, Lancelin F, Vergnes P, Fayon M. Accidental caustic ingestion in children: is endoscopy always mandatory? J Pediatr Gastroenterol Nutr. [Internet]. 2001 Jul [cited 07/03/2020]; 33(1):81-4. Available from: <https://doi.org/10.1097/00005176-200107000-00014>

7. Soria López E, Moreno García AM, García Gavilán MC. Lesiones por ingesta de cáusticos. RAPD [Internet]. 2016 [cited 07/05/2020]; 39(6):482-487. Available from: <https://www.sapd.es/revista/2016/39/6/01>

8. Barrón Balderas A, Robledo Aceves M, Coello Ramírez P, García Rodríguez E, Barriga Martín JA. Hallazgos endoscópicos en el tubo digestivo secundarios a la ingesta de cáusticos en niños atendidos en el Departamento de Urgencias. Arch Argent Pediatr [Internet]. 2018 [cited 07/03/2020]; 116(6):409-414. Available from: <http://dx.doi.org/10.5546/aap.2018.409>

9. Kukuc G, Gollu G, Ates U, Cakmak Z, Kologlu M, Yagmurlu A, et al. Evaluación de lesiones esofágicas secundarias a la ingesta de sustancias cáusticas no rotuladas: Serie de casos pediátricos. Arch Argent Pediatr [Internet]. 2017 [cited 06/20/2020]; 115(2):e85-e88. Available from: <https://dx.doi.org/10.5546/aap.2017.e85>

10. Garrido Márquez I, García Pérez PV, Olmedo Sánchez E. Esofagitis, gastritis y duodenitis tras ingestión de cáusticos. A propósito de un caso. RAPD [Internet]. 2020 [cited 06/20/2020]; 43(4):168-169. Available from: <https://www.sapd.es/revista/2020/43/4/09>

11. Navarro Aponte D, Figueroa F. Pautas para la esofagitis cáustica. Revista GEN [Internet]. 2019 [cited 08/30/2020]; 73(3): 81-89. Available from: http://190.169.30.98/ojs/index.php/rev_gen/article/view/17213

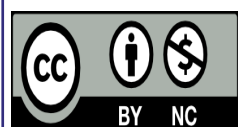
12. Obando Lazo FJ. Intoxicaciones accidentales en pacientes atendidos en el servicio de pediatría en Hospital Escuela Carlos Roberto Huembés, del 01 de Agosto 2018-01 de Agosto 2019. [Thesis]. Nicaragua: Universidad Nacional Autónoma de Nicaragua [Internet]. 2020 [cited 06/20/2020]. Available from: <https://repositorio.unan.edu.ni/14855/8/14855.pdf>

Síndrome pilórico por ingestión de cáusticos. Informe de un caso

RESUMEN

La ingestión de sustancias cáusticas causa alrededor del 5 % de los accidentes domésticos ocasionando esofagitis cáustica que puede evolucionar a una estenosis esofágica y más raramente a una estenosis pilórica. Aunque infrecuente esta última es una entidad grave caracterizada por un estrechamiento del canal pilórico que impide el vaciamiento gástrico, de tal manera que se requiere de un abordaje oportuno para preservar la vida del paciente. Se reportó el caso de una paciente de 15 años de edad que tras la ingesta accidental de ácido sulfúrico, utilizado para la limpieza del hogar, refirió lesiones gastroesofágicas que evolucionaron a un síndrome pilórico por lesión cicatrizal oclusiva de la región antro-pilórica y requirió gastroyeyunostomía como tratamiento definitivo. El manejo oportuno de este tipo de lesiones debe concebirse tanto en fase aguda como crónica, aunque se considera que el mejor abordaje lo constituye la prevención sobre todo en las edades pediátricas.

Palabras clave: Cáusticos; Estenosis pilórica; Quemaduras químicas.



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