



Visual Case Discussion

Nothing to lye about: Crystal lye ingestion in a 14-month-old female

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A 14 month old female presented to the hospital after ingestion of “Lye Crystals” salt solution containing sodium hydroxide, an alkaline cleaning material used for cleaning concrete floors, walls, drains and toilet bowls (Fig. 1). Patient went into cabinet under kitchen sink, opened crystal lye bottle and had ingested some. On clinical presentation, had some drooling and irritability. No cough or stridor. Two episodes of non-bilious, non-bloody vomiting.

Initial vital signs included a temperature of 97.0 °F, heart rate 145 bpm, respiratory rate 32 bpm, blood pressure 107/71 mmHg and

oxygen saturation 98% on room air. On examination, the patient had mucosal irritation and redness to the inner right lower lip and mild drooling (Fig. 2). Due to continued drooling and possibility of alkaline burns after ingestion of sodium hydroxide, the patient was admitted for observation and planned EGD with GI the following morning. The patient’s airway remained patent while hospitalized and she never experienced nausea or vomiting. Her EGD was found to be normal.^{1–3}

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Fig. 1. Lye Crystals.



Fig. 2. Mucosal injury of the mouth.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2018.10.006.

References

1. Fishman DS. Caustic Esophageal Injury in Children. In: Post TW, Jensen C, Hoppin AG, eds. 2018; 2018:UptoDate.
2. Stapczynski JStephan, Tintinalli JudithE. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*. 8th ed New York, N.Y.: McGraw-Hill Education LLC.; 2016.
3. De Lusong MAA, Timbol ABG, Tuazon DJS. Management of: esophageal caustic injury. *World J Gastrointest Pharmacol Therapeutics*. 2017;8(2):90–98. <https://doi.org/10.4292/wjgpt.v8.i2.90>.

Questions

1. After a caustic ingestion, what is the recommended time window to perform EGD?
 - a. 2–6 hours
 - b. 6–12 hours
 - c. 12–24 hours
 - d. 24–48 hours
2. The majority of patients with grade 2B or grade 3 caustic burns develop what complication?
 - a. Esophageal perforation
 - b. Achalasia
 - c. Esophageal carcinoma
 - d. Stricture formation

3. Patients with severe caustic injuries to the esophagus are at an increased lifetime risk for which type of cancer?
 - a. Adenocarcinoma of the esophagus
 - b. Squamous cell carcinoma of the esophagus
 - c. Gastric adenocarcinoma
 - d. Gastrointestinal stromal tumor

Answers

1. 12–24 hours. Explanation: An EGD < 6 hours post-ingestion risks underestimating the full extent of damage. However, waiting > 48 hours increases the risk of perforation due to progressive wall weakening. The optimal window is 12–24 hours post-ingestion. Reference: Fishman, D.S. (2018). Caustic esophageal injury in children. In T.W. Post, C. Jensen, & A.G. Hoppin (Eds.), UptoDate.
2. Stricture formation. Explanation: 70% of patients with grade 2B and 90% with grade 3 burns (Zargar classification) develop stricture formation. Reference: De Lusong MAA, Timbol ABG, Tuazon DJS. Management of: esophageal caustic injury. *World Journal of Gastrointestinal Pharmacology and Therapeutics*. 2017;8(2):90-98, <https://doi.org/10.4292/wjgpt.v8.i2.90>.
3. Squamous cell carcinoma of the esophagus. Explanation: Patients with grade 3 burn and esophageal stricture have 1000x increased risk for the development of squamous cell carcinoma of the esophagus. Reference: Stapczynski, J. Stephan, and Judith E. Tintinalli. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*. 8th ed. New York, N.Y.: McGraw-Hill Education LLC., 2016.