

## A toddler with severe vomiting

### History:

A 3-year-old child presented with severe vomiting for 1 day. One day prior to admission, the patient developed severe vomiting, in which there was blood-stained vomitus noted later on. The parents reported 1 episode of loose stool and gave a history of suspected toxic substances ingestion, in which a shampoo and dish detergent solution containers were found emptying at home during the incident. Past medical history is normal.

### Physical examination:

General appearance- active crying, on dyspnea and no cyanosis  
Body weight 12.4 kg, height 90 cm, W/A 112.7%, H/A 109%  
Vital signs: T 37.2 C, PR 130/min, RR 30/min, BP 100/40 mmHg  
HEENT: normal head contour, normal buccal mucosa, no drooling, pharynx and tonsils not injected, uvula not swelling  
Lungs: clear, normal breathing, no stridor  
Heart: regular rhythm, no murmur  
Abdomen: soft, no distention, active bowel sound, no hepatosplenomegaly  
Ext: no rash  
CNS: alert and responded to verbal command, sensory-grossly intact, motor grade 5 all, DTR +2 all

### Basic investigations:

**CBC** : Hb 8.5 g/dl, Hct 28.3%, MCV 52.4, WBC 14,400/cumm, N60, L34, Mono3, Band 1%, platelet 500,000/cumm HCMC with anisopoikilocytosis

**Reticulocyte count**: 2.4%

**Inclusion body and Heinz body** : negative

**UA** : normal

**Stool examination** : loose, no wbc, no rbc

**Na** 139 mEq/L, **K** 3.7 mEq/L, **Cl** 103 mEq/L, **CO2CP** 10.3 mEq/L

### Clinical course :

The patient was not allowed to eat until the next day when feeding was resumed. After feeding, vomiting recurred, as a result the EGD was performed on the 3rd day after admission. Due to persistent vomiting with coffee ground content, H2 antagonist, plasil, motilium and partial parenteral nutrition was prescribed to the patient. By the end of the second week, an upper GI series was carried out with normal esophageal mucosa and motility. The transit time from stomach to the large bowel was also normal, although there was evidence of increase peristaltic movement of the duodenal bulb with poor distensibility. During this period, H2 antagonist was replaced by intravenous proton pump inhibitor. Because of unexplained vomiting as well as additional history of pica and bezoar, investigations of lead poisoning including blood lead level, CT brain, and lumbar puncture were performed with normal results.

On the 23rd day of hospitalization, the patient had fever, diarrhea, and still had vomiting.

An ultrasound abdomen was unremarkable. Empiric antibiotic treatment with cefotaxime and amikacin were started. The clinical seemed to improve between the 3rd and 5th weeks of hospitalization; however, the vomiting and hematemesis recurred after the 5th week of admission. At that point, gastric emptying study revealed few episodes of gastroesophageal reflux with normal gastric emptying time. A repeat endoscopy with biopsy showed chronic gastritis with focal mucosal hemorrhage. The rapid urease test and Hp on pathology were negative. Serum amylase and lipase were 30 and 177 U/L, respectively. Serum transaminases were also normal (AST/ALT 46/41 U/L). Consequently, the patient was then treated with proton pump inhibitor and cisapride with clinical improvement.

### Caustic esophageal injury

#### Clinical manifestation:

- early signs/symptoms may not correlate with severity and extent of tissue injury
- most frequent symptom is dysphagia
- Loss of motility and delayed transit of esophagus can be seen in acute phase of injury/
- Presence/absence of any clinical features does not predict ingestion, presence or severity of esophageal or gastric burn.

#### Diagnostic evaluation:

- **Upper GI endoscopy**- to determine the extent of injury and predict prognosis. The procedure should be performed within 24-48 hours, but not early than 6-12 hours. Contraindications include hemodynamic instability, perforation, oropharyngeal or glottic edema and necrosis.
- Barium contrast study - to detect stricture formation.

#### Asymptomatic ingestion:

- Some authors suggest endoscopy in all children with any hint of caustic ingestion.
- Household bleaches rarely cause significant tissue injury, therefore endoscopy might not be compulsory.
- However, patients with a definite history or strongly suspected lye ingestion and patients with symptoms of oral burn should be evaluated with upper endoscopy.

#### Esophageal function and caustic ingestion:

- In acute and subacute stages- clinical, anatomical, and functional parameters are significantly impaired.
- In chronic stage- esophageal transit and manometric findings are well correlated with clinical symptoms, in contrast to dysphagia which is correlated well to degree of esophageal stricture.
- Motility disturbance and GER are very frequent complications of caustic burn. They should be taken into the account when evaluation symptoms and deciding on therapeutic strategies.
- Nonperistaltic contraction of low amplitude is commonly found.

#### Is chronic detergent ingestion harmful to the gut?

Based on an animal study, most striking abnormalities are subtotal villous atrophy of the small bowel mucosa and glandular atrophy in the colon.

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