

Accidental Ingestion of Hydrochloric Acid Causing Acute Gastric Perforation In A Child

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ABSTRACT

In children, accidental ingestion of acid produces gastric outlet obstruction in most instances. Rarely, gastric perforation may occur. A 3-year-old boy presented immediately after accidental ingestion of hydrochloric acid (HCl) with abdominal distension, lethargy, and acidotic breathing. Abdominal radiograph revealed massive air under diaphragm. Laparotomy was performed after initial resuscitation. Stomach was found sloughed off at the greater curvature. The necrosed gastric part was resected and the remaining stomach repaired transversely. The patient is in follow up.

Key words Acid ingestion, Gastric perforation, Corrosive ingestion, Children.

INTRODUCTION:

Accidental ingestion of acids usually affect lower esophagus and gastric antrum. Gastric outlet obstruction is a usual sequel of the ingestion. Gastric perforation as a complication of acid ingestion is not uncommon in adults; however, less than 10 cases have been reported in children.^{1,2} Herein we report one such case in a child.

CASE REPORT:

A 3-year-old boy presented within an hour of accidental ingestion of HCl. The patient had respiratory difficulty, abdominal distension, and swelling of lips and oral mucosa. The temperature was 97°F, pulse 150/min, respiratory rate 30/min (shallow). The patient was initially managed with establishing intravenous line, administration of saline, prophylactic antibiotics, H2 blockers, and a stat dose of dexamethasone. His arterial blood gases showed metabolic acidosis which was corrected by infusing NaHCO₃. Hemoglobin was 10.5 g/dl, and serum electrolytes were normal. Abdominal radiograph showed massive pneumoperitoneum.

After resuscitation, exploratory laparotomy was performed that revealed a large perforation of the

stomach at greater curvature with sloughed margins. The sloughed off portion was resected and rest of the stomach repaired in a transverse fashion. The immediate postoperative recovery was uneventful. The patient was started orally on 8th postoperative day and discharged on 10th day.

Patient presented 2 months after the operation with infrequent non-bilious vomiting on two occasions. The contrast meal was then performed which showed less capacious stomach but no obstruction or stricture found (Fig I, II). The patient was put on domperidone and oral antacids that worked well. The patient is doing well at one year follow up.

DISCUSSION:

Corrosive injuries of upper alimentary tract in children are usually accidental in nature as compared to adult population where suicidal attempts are frequently reported. Alkalis usually affects oropharynx and esophagus, whereas, acids produce injuries in the stomach. However, both can affect esophagus and stomach. HCl is used in various cleansing agents used in washrooms. In our part of world, many people buy and store concentrated HCl for toilet cleaning in homes. Their presence in home may result in accidental ingestion by children.^{1,2}

Gastric outlet obstruction is a delayed complication/sequel of acid ingestion resulting from antral stricture due to post-acid burn-fibrosis. Acute gastric perforations are very rare in children, though, not infrequent in adults. Before 2010, only 4

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Fig I and II showing upper GI contrast study. The stomach is of small size but there is no obstruction to flow of the contrast.

paediatric cases were documented. Nine cases of gastric perforation due to acid ingestion have been documented in children. Majority of patients present acutely, however, delayed gastric perforation has also been reported. The gastric perforations may be associated with complete or partial necrosis/sloughing of the remaining stomach. In some patients the gastric perforations may have concomitant corrosive injuries of esophagus and duodenum.¹⁻⁴

Ceylan et al, reported world's biggest series of gastric perforations due to acid ingestion.¹ They encountered 5 cases with an incidence of 6.6%. Two of their patients expired which indicates mortal nature of the injury. Most of the times, these injuries were dealt by gastrectomy and esophagojejunostomy.^{1,2,5} In case presented resection of the sloughed part of the stomach done and rest of it was repaired transversly. Though the patient had infrequent episodes of non bilious

vomiting due to small capacity but, he is doing well.

To conclude, acute gastric perforation after acid ingestion is quite uncommon in children. It has high morbidity and mortality that can be reduced by early interventions. Moreover, partial gastrectomy is a better option in cases where most of the stomach is spared.

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