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Case Report

GASTRIC GANGRENE WITH INVOLVEMENT OF ILEUM DUE TO NECROTIZING GASTRITIS

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ABSTRACT
Gangrene of the stomach is a rare and fulminating event that is often fatal. A 45 years old male presented with history of pain abdomen and vomiting with signs of peritonitis. Patient underwent total gastrectomy with excision of terminal ileum, caecum and appendix which grossly showed gangrene of stomach with patchy areas on ileum. Histological examination revealed necrotizing gastritis with same changes in ileum. Necrotizing gastritis may be due to vascular, chemical, mechanical or infectious aetiologies. We report a case of gangrene stomach with involvement of ileum.

Key Words: *Stomach & Ileum, Gangrene, Necrotizing Gastritis.*

INTRODUCTION
Gangrene of the stomach is a rare and fulminating catastrophic event that is often fatal. Its cause has been attributed to embolization of atherosclerotic plaque, thrombosis of major arterial supply, occlusion of gastric vessels by therapeutically injected foreign bodies, psychogenic polyphagia resulting in massive gastric dilatation, ingestion of corrosive materials, intrathoracic herniation of the stomach through the diaphragm, gastric volvulus, and necrotizing gastritis caused by organisms.
We report on a man with stomach gangrene with involvement of ileum that appeared to be caused by a severe necrotizing infection with no known portal of entry.

CASES
A 45 year old man was admitted to the general surgery emergency with chief complaint of abdominal pain for one day. The pain was severe, continuous, associated with nausea. There was no history of hematemesis or vomiting. The past medical history was not significant. On examination, the patient was afebrile with pulse 98/min, respiratory rate 26/min and BP 110/70 mmHg. His abdomen was distended, rigid with diffuse tenderness and absent bowel sounds. The Ryle's tube showed haemorrhagic foul smelling aspirate. Upright chest x-ray showed no free gas under the diaphragm. Ultrasonography revealed mildly dilated bowel loops with minimal peritonitis. Minimal fluid was seen in left paracolic region. White blood cell count was 5.14 x 10^3 cells/µl. Blood sugar level and serum urea, creatinine levels were within normal limits.
On exploration, the peritoneal cavity was filled with haemorrhagic fluid. There was gangrene of stomach involving body and fundus with pylorus uptogastroeosophageal junction. On opening the stomach, it was filled with foul smelling haemorrhagic fluid. There was normal pulsation of gastric vessels. Also there was patchy gangrene of terminal ileum. The oesophagus, colon and rectum were pink and viable. Total gastrectomy was done with resection of terminal ileum, caecum and appendix. Roux-en-y esophagojejunostomy with ilio ascending anastomosis was done. Duodenum and ileum were closed in single layer. The patient died of septic shock and cardiopulmonary arrest on the third postoperative day.
Gross examination of the specimen revealed gangrenous, black discoloration, thinning and absent rugal foldsin the entire stomach and terminal ileum. Caecum showed normal mucosal folds with unremarkable appendix. Microscopic examination of the stomach showed destruction of the wall by a diffuse necrotic process extending through all layers. An extensive purulent process had completely destroyed the mucosa and had invaded the submucosa, with massive accumulation of inflammatory cells and necrosis of

underlying muscularis. The ileum also revealed sloughing of mucosa with areas of necrosis, haemorrhage and infiltration by acute inflammatory cells. Caecum showed infiltration by acute and chronic inflammatory cells.

DISCUSSION

Gangrene of the stomach is a rare and fatal condition. Etiology includes thromboembolism and occlusion of major arterial supply, ingestion of corrosive agents and volvulus of the stomach and herniation of the stomach through the diaphragm, bulimia nervosa, iatrogenic gelfoam embolism, endoscopic haemostatic injections and infectious gastritis (HamadHisham, 2003; Richieri *et al.*, 1998). Other causes which have been associated with acute necrotizing gastritis and gangrene are recent large intake of alcohol, 'gastritis' and upper respiratory tract infections (Madhumita Mukhopadhyay *et al.*). The infectious gastritis is subclassified into three forms including the suppurative, necrotizing and the emphysematous subtypes (RUEY-AN CHIANG *et al.* 2006). The acute necrotizing gastritis is the rarest cause of gastric gangrene. It begins as phlegmonous (suppurative) gastritis and then it progresses to the lethal severe form: acute necrotizing gastritis. Organisms isolated from the gastric wall include hemolytic streptococci, proteus, E.coli and clostridium welchii (Madhumita Mukhopadhyay *et al.*, Ruey-An Chiang *et al.*, 2006).

In the present case there was no history suggestive ofatherosclerosis. Neither volvulus nor herniation of the stomach was observed intraoperatively. The main vessels were intact, ruling out a thromboembolic event. There was no history of ingestion of caustic substances. There was generalized peritonitis that might have been caused by transmigration of organisms from the stomach to the peritoneal cavity (Dharap *et al.* 2003). Thus the possible cause of gangrene could be due to some necrotizing infection.

Diagnosis of gastric ischaemia is often delayed because of its rarity (Malhotra *et al.* 2008). Initially, patients may have symptoms of mild epigastric tenderness, vomiting or diarrhoea that rapidlyprogresses to acute peritonitis, septic shock and death. All radiological tests are non-specific. Gastroscopy may show purplish or blackish mucosa covered by exudates (Richieri *et al.* 1998). Absolute diagnosis is made, most frequently, at laparotomy (GBAmmori *et al.* 2007; Harvey *et al.* 1972).If a diagnosis of ischaemia is being considered, resuscitation and intravenous antibiotics should be initiated immediately, followed by an emergency exploratory laparotomy. Resection of a necrotic stomach is required, with total gastrectomy if necessary. One stage resection with esophago-jejunostomy has been reported (Malhotra *et al.* 2008). Alternative includes resection with cervical esophagostomy for proximal diversion or resection and placement of an esophageal drain. A jejunal feeding tube should always be placed (Malhotra e*t al.* 2008). Diagnosis and treatment must be expeditious, because mortality rates for gastrectomy due to acute ischaemia are high.

Figure 1: Gross appearance of stomach. Cut section

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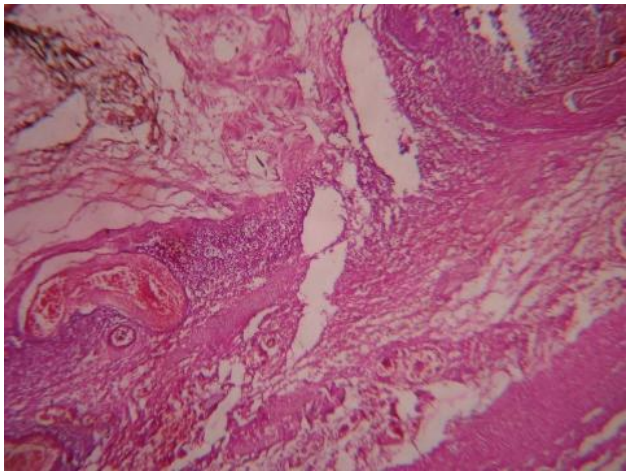

Figure 2: HE stain x100 section from stomach showing gangrenous areas of wall of stomach

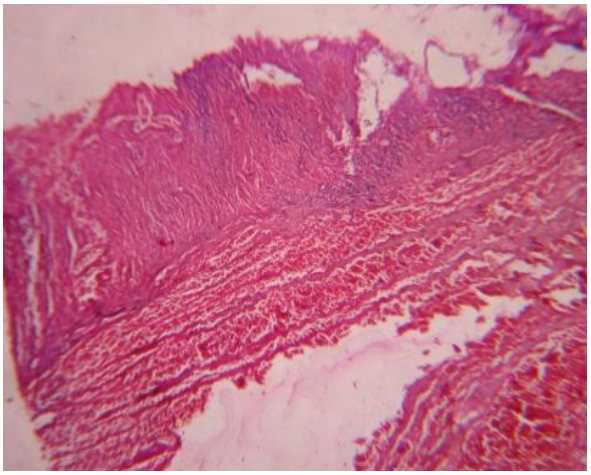

Figure 3: HE stain x100 section from ileum shows areas of necrosis and haemorrhage

Conclusion

Gastric gangrene due to necrotizing gastritis is a rare and fatal disease. The diagnosis is usually made at laparotomy. Treatment consists of resection and feeding tube placement followed by intravenous antibiotics. Increased awareness of this rare entity may lead to more prompt diagnosis and an increased chance for patient survival (Malhotra *et al.* 2008).

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