

Gastric Emphysema Following Blunt Trauma Abdomen-A Rare Entity

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Abstract: Gastric emphysema denotes the presence of air in the wall of the stomach. It may be classified into traumatic, pulmonary or obstructive types depending upon the mechanism and pathogenesis. Blunt trauma to the abdomen is one of the causes of traumatic gastric emphysema. Here we present a case of gastric emphysema following blunt trauma abdomen in a 18 years old male patient, who was managed conservatively. The patient was having grade II liver injury that was managed without any surgical intervention. The rarity of this condition encourages us to report the condition and contribute to the appropriate literature.

Keywords: Gastric emphysema; Air; Gastric; Blunt Trauma; Liver trauma

INTRODUCTION:

Gastric emphysema denotes the presence of air in the wall of the stomach. It may be classified into traumatic, pulmonary or obstructive types depending upon the mechanism and pathogenesis[1]. Paul Brouardel, a French pathologist in 1895, had first described gastric emphysema[2]. It is the presence of air in between the layers of the gastric wall. It is caused by disruption in gastric mucosa leading to air dissecting into the wall from the hollow viscus itself. The disruption of the gastric mucosa may be caused by trauma (most common being Upper GI Endoscopy); obstructive (most common being Gastric Outlet obstruction with increased intraluminal pressure); and Pulmonary causes. The difference between gastric emphysema and emphysematous gastritis is that gastric emphysema is non-infective, has a benign clinical course, fatality is rare. Whereas emphysematous gastritis is infective and highly fatal. We report a case who had grade II liver injury (AAST) along with gastric emphysema following blunt trauma abdomen and was managed conservatively in one of the Medical Colleges of West Bengal, India.

CASE REPORT:

An 18 years old average built male patient presented to us in the emergency room 6 hrs after accidental fall from height (15 feet) over a wooden log causing trauma to upper abdomen and lower chest. At presentation he was alert, conscious and cooperative.

His pulse was 88 bpm and B.P. was 124/80 mmHg. He had the only complaint of pain over the right upper quadrant of abdomen. He had no respiratory distress. There was no obvious external injuries except a few small abrasions over right elbow. After admission in the ward, FAST was done which showed mild free fluid in hepato-renal pouch of Morrison and pelvis. Visceral injury, particularly solid organ injury was suspected. On Chest X-ray [Fig-1], there was no free air below the both domes of diaphragm. Thus hollow viscus perforation was almost ruled out. As solid visceral injury was suspected from the FAST, a contrast enhanced computed tomography (CECT) of whole abdomen was done which showed a grade II hepatic laceration in segment VII, according to the AAST Grading and multiple air pockets were seen within the gastric wall near the fundus and proximal part of the body with disruption of the mucosa [Fig-2], suggestive of gastric emphysema.

The patient was put on strict bed rest and careful monitoring with conservative management with nil per mouth, naso-gastric suction, IV fluids, IV antibiotics and analgesics were instituted. The patient remained hemodynamically stable throughout the hospital stay without any alteration of blood parameters. Oral intake was allowed at 6th day of hospital admission and the patient was discharged on 8th day after admission in stable condition.

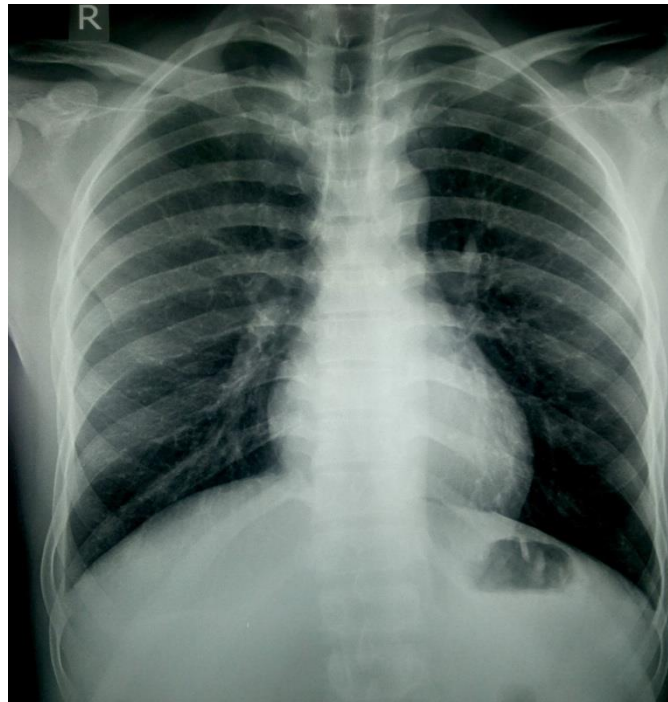


Fig-1: Chest X-Ray PA View showing no free gas under both domes of diaphragm

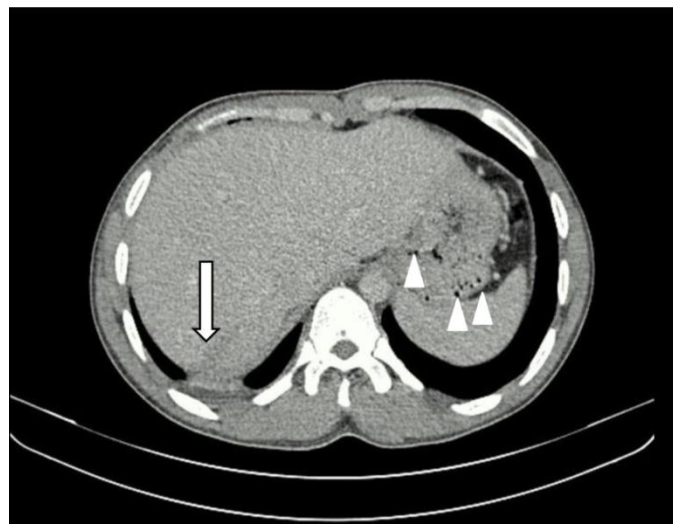


Fig-2: CECT of whole abdomen showing a grade II hepatic laceration in segment VII, and multiple air pockets were seen within the gastric wall near the fundus and proximal part of the body with disruption of the mucosa, suggestive of gastric emphysema

DISCUSSION:

Gastric emphysema (intramural, interstitial or non-infective) and emphysematous gastritis(infective) are the two conditions in which air can be found within the stomach wall but they both vary in their etiology as well as the clinical course.

The non-infective gastric emphysema has a benign course. The cause of this condition varies with age. pyloric stenosis, malrotation of gut, incorrect positioning of the feeding tubes are few of the common causes in children. In adults, instrumentation e.g. upper GI endoscopy, blunt trauma abdomen, gastric outlet

obstruction, malignancy, bowel ischemia, drug induced gastritis etc are the few causes of gastric emphysema[3]. The clinician must be able to differentiate between gastric emphysema and emphysematous gastritis as the prognosis varies significantly. Blunt trauma to the abdomen as a cause of gastric emphysema had been reported previously[4]. Although previously gastric pneumatosis following trauma were managed aggressively by gastric resection, now with the advent of newer imaging modalities, the condition can be managed conservatively with repeated scans and endoscopies[5,6].

In comparison, Emphysematous gastritis or Phlegmonous gastritis is a relatively grave condition, which is caused by gas forming organisms and has a mortality rate reaching upto 70% [7,8]. The organisms responsible are *Clostridium welchii*, *Escherichia coli*, *Streptococcus* etc that invade the mucosa and produce intramural gas. Sometimes Gastric micropneumatosis is seen in *H. Pylori* infected cases.

There are two possibilities by which gastric emphysema was resulted in our patient which are:-

- a. The air which was already present in the stomach might got suddenly compressed in a functionally closed hollow viscus resulting in gastric mucosal tear.
- b. It might be a possibility that the anterior and posterior wall got compressed against each other due to sudden heavy pressure on the anterior abdominal wall resulting in gastric mucosal breach.

Our patient had a benign course and was managed conservatively by nasogastric decompression, hemodynamic support, intravenous antibiotics and regular monitoring of the vitals. Early surgical intervention is needed in those patients who have haemodynamic instability or have developed emphysematous gastritis in due course [9]. However the decision of a surgical intervention should be taken carefully as it causes additional hemodynamic stress to the patient [9].

CONSENT:

A detailed and informed consent has been taken from the patient regarding the reproduction of the images and clinical reports in literature.

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FINANCIAL DISCLOSURE:

The authors have no financial interest in publishing this work.

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