

A Case of Asymptomatic Gastric Emphysema Incidentally Found by Initial Computed Tomography for the Evaluation of Trauma

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Abstract

Background: The presence of air within the wall of the stomach is called gastric pneumatosis or gastric emphysema (GE). However, GE is non-life-threatening and can be caused by a variety of iatrogenic and non-iatrogenic events.

Case presentation: A 19-year-old female was seriously injured when the car that she was driving in overturned while in the passenger seat while wearing a seat belt. She complained of neck pain. On arrival, her vital signs were stable with clear consciousness. A physical examination revealed isolated neck tenderness. The results of a biochemical analysis of the patient's blood were within normal limits. A traumatic pan scan by computed tomography (CT) showed air in the stomach wall. She was initially diagnosed with neck sprain and asymptomatic GE. On the second day, she began to complain of abdominal pain and nausea. After the complete recovery of her appetite and normal dietary intake, she was discharged on foot on the fifth hospital day.

Conclusion: With the recent increased use of CT for diagnosing trauma and the ease of detecting abnormal gas distribution in the internal organs by CT, the number of cases of the incidental diagnosis of GE, as in the present case, is expected to increase in the future.

Keywords: gastric emphysema, pneumothorax, CT

INTRODUCTION

The presence of air within the wall of the stomach is called gastric pneumatosis or gastric emphysema (GE). The radiographic findings of GE were historically thought to be associated with a high rate of mortality. [1-3] Although this imaging finding must be quickly correlated with the overall clinical picture between highly lethal emphysematous gastritis (EG) and the much more benign GE, each of which has drastically different management strategies.[1-3] Indeed, EG can occur by direct inoculation of gas-producing bacteria into the gastric mucosa or by hematogenous spread. [2] However, GE is essentially non-life-threatening and can be caused by a variety of iatrogenic and non-iatrogenic events.

We here in report a case of benign GE that was incidentally detected by computed tomography (CT) performed for the evaluation of trauma.

CASE PRESENTATION

A 19-year-old female was seriously injured when the car that she was driving in overturned while in the passenger seat while wearing a seat belt. She complained of neck pain. She had no remarkable personal or family history. On arrival, her vital signs were stable with clear consciousness. A physical examination revealed isolated neck tenderness. The results of a biochemical analysis of the patient's blood were within normal limits, except for an increased level of fibrin degradation products (9.7 µg/mL). A traumatic pan scan by computed tomography (CT)

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showed air in the stomach wall (**Figure 1**). The findings of cervical CT were negative. She was initially diagnosed with neck sprain and asymptomatic GE. On the second day, follow-up CT showed improvement of the GE, but she began to complain of abdominal pain and nausea. On the third hospital day, her abdominal pain decreased, and she passed gas, so *per os* intake was restarted. After the complete recovery of her appetite and normal dietary intake, she was discharged on foot on the fifth hospital day.

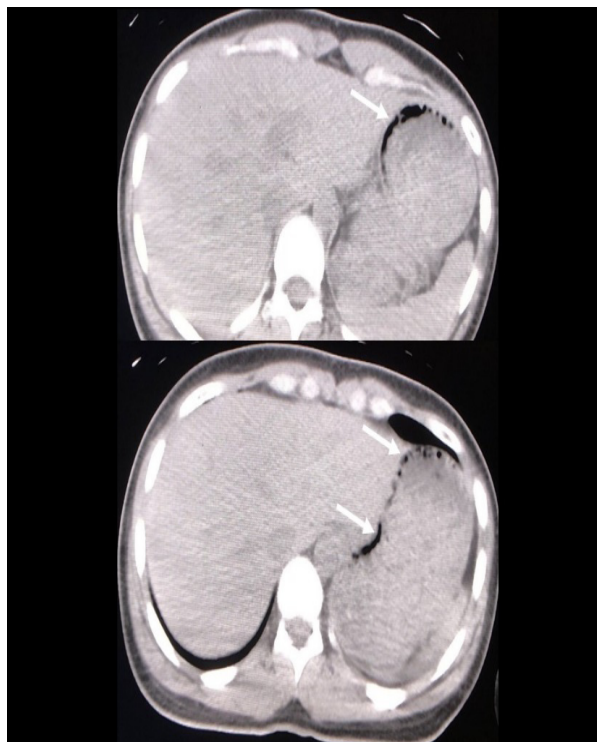


Figure 1. Truncal computed tomography (CT) scan on arrival. CT shows gastric emphysema (arrow).

DISCUSSION

Unlike the EG, GE is non-infectious in origin and occurs primarily due to the entry of intraluminal air into the wall of the stomach. It may be divided into three etiological categories: traumatic, obstructive, and pulmonary.[2] Traumatic GE is caused by the transmural diffusion of air after a mucosal injury, which can occur during esophagogastroduodenoscopy, severe vomiting, cardiopulmonary resuscitation (CPR), or acute gastric dilatation caused by eating disorders.[2] Obstructive GE is induced by gastric outlet obstruction due to a variety of conditions, such as gastric carcinoma, gastric volvulus, duodenal

obstruction, and hypertrophic pyloric stenosis. Pulmonary GE is caused by alveolar rupture and air leaks, which then track through the mediastinum and dissect downwards to reach the stomach wall. As the present case showed no signs of inflammation, EG was denied. In addition, she showed no signs of gastric outlet obstruction after improvement of her abdominal pain and pneumothorax or pneumomediastinum on CT, so obstructive and pulmonary GE were also denied. Gas in the stomach wall was identified just after the car accident in the present case, so abrupt compression of the abdomen by the seat belt was the most likely mechanism of the GE.

Many physicians at trauma centers routinely perform whole-body CT to evaluate traumatized patients based on the premise that this test will reduce the mortality.[4,5] CT has high spatial resolution for evaluating anatomical abnormalities and high sensitivity for detecting gas in the human body compared with autopsy.[6,7] With the recent increased use of CT for diagnosing trauma and the ease of detecting abnormal gas distribution in the internal organs by CT, the number of cases of the incidental diagnosis of GE, as in the present case, is expected to increase in the future. As the etiology and epidemiology of benign GE in the trauma setting are still unknown, this clinical question will need to be investigated in the future.

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