Incidental finding of a gastric diverticulum: the role of oral contrast enhanced CT in the differential diagnosis

Clinical History:

A 28-year-old man was admitted to our department to undergo a total-body CT after a high-energy blunt abdominal trauma. Before the trauma the patient was apparently healthy and had never referred any gastrointestinal symptoms.

Imaging Findings:

The CT performed with intravenous contrast demonstrated a left sub-diaphragmatic lesion measuring 37 mm in diameter, located among the upper pole of the spleen, the posterior wall of the fundus and cardia regions of the stomach, apparently poorly dissociable from the organ, and the lateral lip of the adrenal gland. It appeared to have a low-density content surrounded by a high-density wall, with poor contrast enhancement, and the presence of air inside. The examination was completed performing CT scans with oral contrast administration which demonstrated the enhancement of the lesion, confirming that it belongs to the stomach. The lesion was therefore diagnosed as a gastric diverticulum. After some weeks the patient underwent an oral contrast radiograph examination, requested for new onset dyspeptic symptoms, that ulteriorly demonstrated the diverticulum of the fundus of the stomach with quite a wide neck.

Discussion:

Gastric diverticulum (GD) is an uncommon condition, with a prevalence of 0.04% in contrast study radiographs [1, 3], and an incidence equally distributed between males and females [1, 2].

GDs are usually less than 4 cm in size, and can be congenital or acquired [1].

The highest percentage are congenital GDs, usually located in the posterior wall of the fundus of the stomach [1]. These are true diverticula and the formation may be explained by embryogenesis as a result of splitting of the longitudinal muscular fibers at the cardia level; the presence of only circular muscle fibers and the absence of peritoneum creates a weakening in the gastric wall that allows a diverticulum to form [4].

Acquired GDs are pseudodiverticula, usually located in the antrum. The formation can be due to increased
intraluminal pressure (pulsation diverticula) for example in chronic coughing, obesity and pregnancy, or to perigastric adhesions (traction diverticula) which can be the results of concurrent diseases, such as peptic ulcer disease, pancreatitis, malignancy, or surgical procedures on the stomach, including Roux-en-Y gastric bypass [4].

Most GDs are asymptomatic, especially wide-neck diverticula perhaps because food and digestive juices are less likely to become trapped [4]. The pathophysiology of symptoms, most commonly upper abdominal pain, nausea and emesis, is thought to be related to a combination of stasis, obstruction, and bacterial overgrowth. Complications are rare but can include bleeding, perforation, diverticulitis, and malignancy [2].

Accurate diagnosis is essential given the risk for severe complications [1]. In the past, upper gastrointestinal contrast studies and endoscopies were considered the most reliable diagnostic procedures in symptomatic patients to demonstrate a GD, but the lesion could be missed because of a narrow neck that precluding the entry of the contrast or scope, gave false negative results [4]. Nowadays, GDs are often incidentally detected on CT, as in this case [2], and our experience, according to data collected from the literature, suggests that CT imaging enhanced by oral contrast can be reliable in the differentiation of a GD from other lesions [3] without the need of further investigations.

Appropriate management of GDs depends mainly on the symptoms as well as on the diverticulum size. Diverticula exceeding 4 cm are more prone to produce complications and tend to respond less favorably to medications. There is no specific therapeutic strategy for an asymptomatic diverticulum. Surgical resection is the mainstay of treatment when the diverticulum is large, symptomatic or complicated [2, 4].

**Differential Diagnosis List:** Gastric diverticulum, Adrenal lesion, Gastric tumour

**Final Diagnosis:** Gastric diverticulum

**References:**


Description: The oral contrast radiograph of the stomach demonstrates a saccular contrast filled extrusion of the posterior wall of the fundus of the stomach, of about 4 cm in maximum distention, with a wide neck. Origin: Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy
Description: The oral contrast radiograph of the stomach demonstrates a saccular contrast filled extroflexion of the posterior wall of the fundus of the stomach, of about 4 cm in maximum distention, with a wide neck. Origin: Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy.
**Description:** Axial view of intravenous contrast enhanced CT shows a rounded lesion located in the adrenal gland area, apparently poorly dissociable from the posterior wall of cardia, with a low density-air content with a high-density wall **Origin:** Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy
Description: Sagittal view of intravenous contrast enhanced CT demonstrates the presence of a clear cleavage plane between the lesion, the spleen and the adrenal gland, but not from the stomach. Origin: Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy.
Figure 5

Description: Coronal view of intravenous contrast enhanced CT demonstrate the connection between the air-containing lesion and the stomach, suggesting the diagnosis of a gastric diverticulum. Origin: Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy
Figure 6

Description: Oral contrast enhanced CT clearly demonstrates the passage of the contrast medium from the gastric cavity into the lesion confirming the belonging of it to the organ, and consequently the diagnosis of a gastric diverticulum. Origin: Presidio Osp. S.Paolo, Departement of Radiology, Bari, Italy.
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