SAGE Open Medical Case Reports
Volume 12: 1–3

DOI: 10.1177/2050313X241245285
journals.sagepub.com/home/sco
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# Gastric diverticulum mimicking a left renal mass: A case report

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**Abstract**

Gastric diverticula are a rare condition; they are divided into true diverticula, which are congenital, and pseudodiverticula, which are acquired. True diverticula are usually located in the posterior fundus wall, below the esophagogastric junction, and appear on abdominal computed tomography as a cystic mass that is commonly taken for an extra digestive mass, especially adrenal mass. We report the case of an asymptomatic 24-year-old female patient with gastric diverticulum who was mistakenly diagnosed in ultrasound with a renal mass.

**Keywords**

Gastric diverticula, renal mass, CT

Date received: 1 November 2023; accepted: 18 March 2024

## Introduction

Gastric diverticula (GD) are a rare condition characterized by the presence of a herniated pouch of the gastric wall. They are the least common location of the gastrointestinal diverticula.[1]

Although most individuals with GD are asymptomatic, others can present with variable abdominal symptoms, including epigastric pain, nausea, vomiting and dyspepsia.[2]

Most GD are incidentally discovered during routine diagnostic imaging procedures and are frequently misidentified as extra digestive masses, particularly adrenal gland masses.

We report the case of a 24-year-old female patient with gastric diverticulum mimicking a left renal mass.

## Case report

A 24-year-old female patient, with a history of vesicoureteral reflux, presented to our department for suspicion of left upper pole renal mass, discovered in a routine ultrasound for her vesicoureteral reflux.

Clinically, the patient was in a good physical condition, and she reported no abdominal pain, haematuria or weight loss.

Abdominal computed tomography (CT) with and without intra venous contrast enhancement was initially done in arterial, venous and excretory phases, showing a left supra renal oval cystic mass, with a well precise wall that seemed to be continuing with the posterior wall of the stomach, and heterogenous content with an air-fluid level, measuring $16 \times 21 \times 40$ mm. This formation seemed clearly isolated from the upper renal pole (Figure 1). We completed the exam with oral iodinated contrast media (Gastrografin) that confirmed the communication of the gastric lumen with the described mass, through a 15-mm neck (Figure 2). We then concluded to a gastric diverticulum with absence of any renal mass. The interrogation afterwards reported no history of epigastric discomfort, nausea, dyspepsia or any gastro-oesophageal symptom. The patient was referred to gastrology department for a consultation, which neither required any further investigation nor recommended any treatment since the patient was asymptomatic. Regular clinical control was preconized to detect any new symptom or complication.

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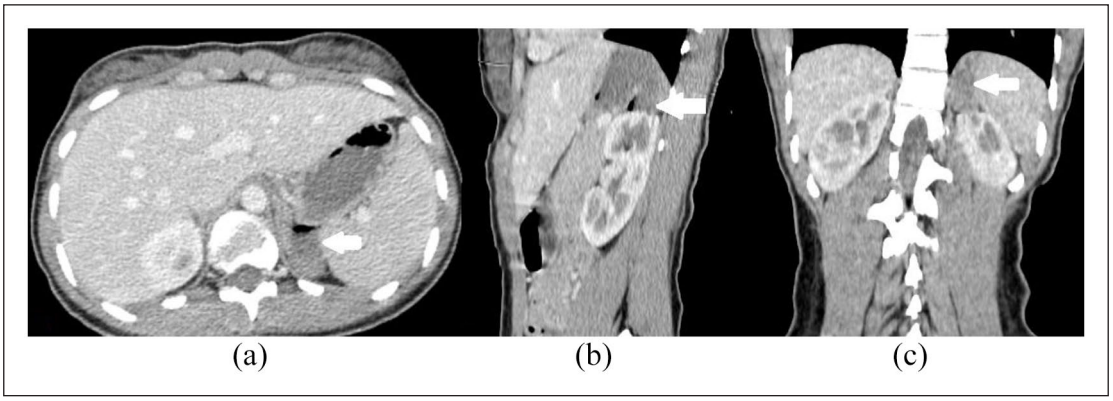


**Figure 1.** Contrast-enhanced abdominal computed tomography in venous phase showing a gastric diverticulum above the upper renal pole (arrow) in axial (a), sagittal (b) and coronal views (c).

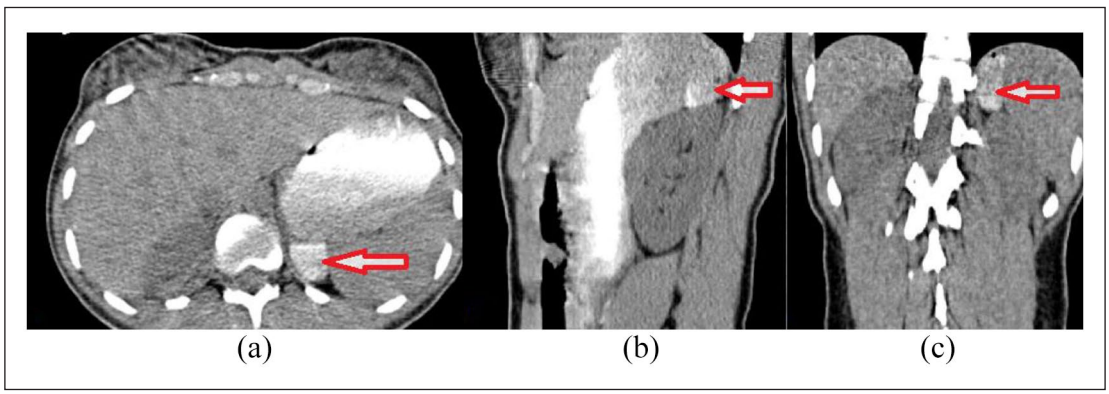


**Figure 2.** Abdominal computed tomography with ionized oral contrast medium showing the contrast-filled gastric diverticulum (arrow) in axial (a), sagittal (b) and coronal (c) views.

## Discussion

Gastric diverticulum is defined as an outpouching of the gastric wall. It is a very rare condition: indeed, Schramm only found 0.12% cases of GD in his series,[1] whereas Morris highlighted an average age of diagnosis at 49.2 years, with both males and females being equally affected by the condition.[2]

There are two types of GD: congenital gastric diverticulum, also called true diverticulum, contains all the stomach wall layers and is typically located in the posterior gastric wall right below the cardio-oesophageal junction, as in our patient. They represent the most common type of GD (70%).[3] However, the acquired gastric diverticulum, also called false diverticulum or pseudodiverticulum, is defined by a herniation of the gastric wall through areas of weakness caused by an interruption of the longitudinal muscle fibres, which is more likely located in the antrum or in the pars pylorica.[4]

True GD are mostly asymptomatic. However, some patients can manifest nonspecific abdominal symptoms, such as epigastric pain, nausea, vomiting, dyspepsia and halitosis. Rare complications may occur, such as infection, ulceration, perforation and malignant transformation[5]; indeed, based on the findings of the study by Muhtaroğlu et al.,[6] there was a significant increase in metaplasia positivity among patients with gastric diverticulum compared to those without gastric diverticulum, which is correlated with increased risk of neoplastic transformation.

Since they are mostly asymptomatic, GD are usually incidentally discovered in imaging investigation for other pathologies.

Abdominal contrast-enhanced CT shows a cystic lesion in the posterior wall of fundus below the esophagogastric junction of 1–3 cm diameter, which is the most common location.[7,8] The presence of an air bubble or air-fluid level makes suspicion of a communication between the lesion and the gastrointestinal tract; therefore, a multiplanar reconstruction may help defining the strait. If not, CT scan in prone position of the patient may help forcing air in the diverticulum leading to the creation of an air-fluid level.[5] CT investigation with oral ionized contrast medium confirms the communication between the lesion and the gastric lumen, by showing the retention of contrast medium in the diverticula. The diverticular neck can be measured to differentiate between large neck diverticula and narrow neck diverticula, that are

more able to retain food and gastric fluids, and thus get more complications.[1]

According to literature, MRI can also be used for the diagnosis. Indeed, it can show a fluid retaining image.[1] Upper gastrointestinal barium radiographies and oesophagogastroduodenoscopy are the most reliable diagnostic methods for GD, but literature has shown that they can give false-negative results, especially for narrow-necked diverticula.[3]

It is often taken for an extra-digestive mass, such as left adrenal cystic or solid mass, and pancreatic pseudocyst. The presence of air within a cystic mass may suggest infection or necrosis, although these conditions typically exhibit a thicker wall.[7] Differential diagnosis also includes gastric duplication cysts, which are circular, non-communicating well-defined cystic lesions, commonly located in the distal greater curvature and surrounded by a smooth muscular coat.[9]

Asymptomatic GD require no treatment. Medical therapy using antiacids and Proton Pump Inhibitors is in the first line of managing mild symptoms. However, a surgical resection is the key treatment in case of non-tolerated symptoms, acute complications or in case of a large diverticulum (more than 4 cm diameter).[10]

## Conclusion

The gastric diverticulum is an uncommon entity with distinctive CT characteristics. It manifests as a cystic abnormality located in the left paravertebral area, retaining oral ionized contrast medium. Radiologists must be well-acquainted with this diagnosis to prevent any misdiagnosis and to recognize potential complications associated with it.

### Acknowledgements

The authors would like to express their gratitude to the professors and all the colleagues who participated in the completion of this work.

### Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

### Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

### Informed consent

Written informed consent was obtained from the patients for the anonymized information to be published in this article.

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