

Giant left gastric artery aneurysm with intrathoracic extension

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ABSTRACT

في حين أن تمدد الأوعية الدموية في الشريان الحشوي، وخاصة تلك التي تنطوي على الشريان المعدي الأيسر، هي حالات نادرة وغالبًا ما تفتقر إلى أعراض ملحوظة، فإن تمزقها يحمل خطرًا كبيرًا للوفاة. نقدم دراسة حالة تنطوي على تمدد الأوعية الدموية في الشريان المعدي الأيسر (LGAA) الذي امتد إلى نصف الصدر الأيمن. ضمن تقرير الحالة هذا، لا نقوم فقط بتوضيح التصنيف والمظاهر السريرية والتحديات التشخيصية المرتبطة بتمددات الأوعية الدموية هذه، ولكننا نقترح أيضًا أن النتائج التي توصلنا إليها يمكن أن تقدم رؤى قيمة للأطباء وأخصائيي الأشعة عند اعتماد نهج منهجي للكشف المبكر عن LGAA وإدارته. من الجدير بالذكر أنه لم يتم توثيق أي حالات مماثلة في الأدبيات الموجودة.

Splanchnic artery aneurysms, particularly those involving the left gastric artery, are infrequent occurrences and often lack noticeable symptoms, but their rupture involves a significant risk of mortality. We present a case involving an unruptured left gastric artery aneurysm (LGAA) that extended into the right hemithorax. This case report outlines the categorization, clinical manifestations, and diagnostic challenges associated with such aneurysms. Our findings could offer valuable insights for clinicians and radiologists when adopting a systematic approach for the early detection and management of LGAA.

Keywords: left gastric artery, anatomical variation, giant aneurysm

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The first branch of the abdominal aorta is the celiac artery or celiac trunk.¹ It stems from the anterior direction of the aorta immediately after its passage through the diaphragmatic hiatus at the level of the 12th thoracic and first lumbar vertebrae. The celiac trunk provide vital organs for example the distal esophagus, stomach, part of the duodenum, spleen, pancreas, and liver.² Aneurysms impacting visceral arteries are rare with reported prevalence of 2% among the general population. In the majority of cases, left gastric artery aneurysms (LGAAs) initially present with symptoms of aneurysm rupture, contain acute abdominal distress, and hypovolemic shock.^{3,4}

Case Report. A 40-year-old female patient was accepted our medical facility because of a sudden onset of chest and upper-abdominal pain accompanied by vomiting.

Clinical findings. Physical examination clarified a soft yet tender and distended abdomen with a systolic blood pressure measuring 110/70 mmHg and a hemoglobin level of 116 g/l. The results of all other biochemical tests were within normal ranges.

Diagnostic assessment. Abdominal ultrasound examinations demonstrated no abnormalities. Non-contrast and contrast-enhanced computed tomography (CT) scans clarified a sizable aneurysm (9 cm × 12 cm) stems from the left gastric artery and extending into the right hemithorax with a thrombus forming within its wall. The imaging also identified atelectasis, pneumonia impacting the right lung parenchyma, and pleural fluid collection in the right hemithorax (Figure 1).

Therapeutic intervention. The LGAA extending to the right hemithorax was completely abolished with video-assisted thoracoscopic surgery (VATs) under elective conditions. The right hemithorax was entered through a posterolateral thoracotomy incision

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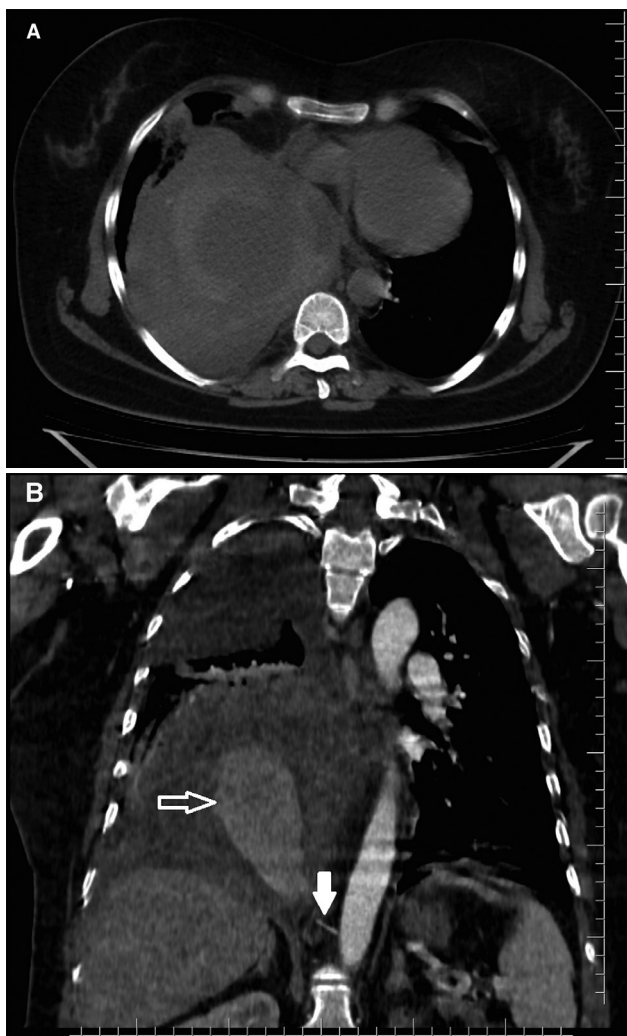


Figure 1 - Non-contrast CT axial slice demonstrates a large hypodense lesion with a smooth contour in the lower region of the right lung and a ring of hyperdense thrombus peripherally A) Non-contrast computed tomography (CT) axial slice showing a large hypodense lesion with a smooth contour in the lower region of the right lung and a ring of hyperdense thrombus in the periphery of the lesion. B) Contrast-enhanced CT section of the coronal plane showing an aberrant left gastric artery (filled white arrow) arising from the right lateral wall of the aorta and a giant aneurysm (hollow white arrow) in the right inferior lung.

at the level of the fifth intercostal space, using VATs. On exploration, a mass approximately 13 cm in size invading the diaphragm was found in the right lung. The branch of the left gastric artery supplying the aneurysm in the right lower lobe was identified and ligated. Partial diaphragmatic resection with right lower lobectomy was carried out. Diaphragm was closed with polypropylene sutures (Figure 2).

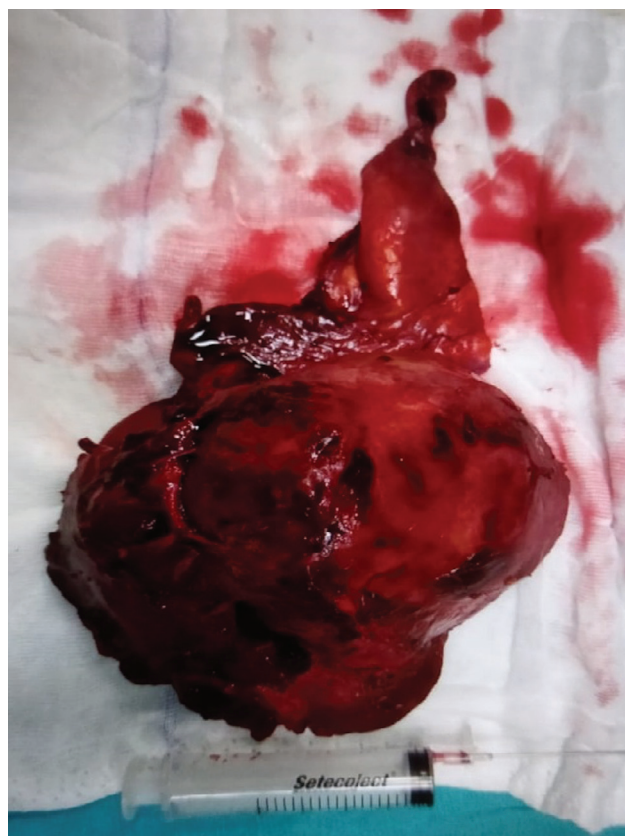


Figure 2 - Macroscopic specimen of a giant aneurysmal sac completely removed from the right hemithorax using the video-assisted thoracoscopic surgery.

Follow-up and outcomes. The patient is progressing well without any complications or additional health conditions. Timeline from the patient's initial clinical presentation to follow-up appointments is demonstrate in Figure 3.

Discussion. The reported prevalence of visceral artery aneurysms (VAAs) is 0.1-2%.^{5,6} Nevertheless, the actual number of undetected VAAs could be considerably higher. Gastric artery aneurysms commonly remain asymptomatic. Clinical presentations are often nonspecific, and the identification of VAA is frequently incidental. There is consensus that immediate intervention is warranted for symptomatic VAAs given the increased mortality associated with ruptures.^{7,8}

Most LGAA cases initially manifest with signs of rupture (notably acute abdominal symptoms and hypovolemic shock).⁹ In rarer instances, patients might present with epigastric discomfort or concurrent chest pain. In cases of asymptomatic VAA, deciding whether to pursue treatment poses a dilemma in elective

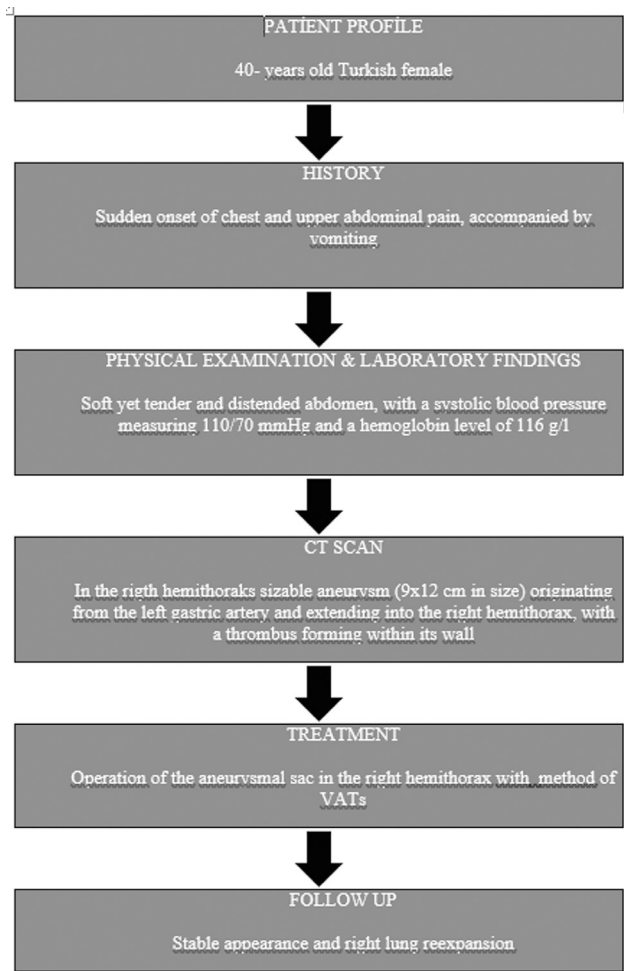


Figure 3 - The timeline summarizes the patient's initial presentation, physical examination and laboratory findings, computed tomography scan, diagnosis, and treatment and follow-up.

scenarios. Treatment modalities depend on factors for example location, clinical symptoms, and co-existing medical conditions.⁹ Lack of evidence-based guidelines necessitates individualized treatment decisions and drawing from the expertise of clinicians and the technical capabilities of interventional radiologists or surgeons.

In the context of diagnostic considerations for solitary lung lesions, it is mandatory to contain aneurysmatic enlargement of branches stems from the celiac trunk. We suggest that the utilization of CT and magnetic resonance imaging adequate for thorough etiological investigations of coin lesions within lung parenchyma. Nonetheless, given the contemporary developments interventional therapeutic techniques, digital subtraction angiography has appeared as a viable option during such interventions. The management

of ruptured VAAs can be approached through either open surgical procedures or endovascular methodologies. Notably, in emergency situations, the merits of immediate open exploration encompass the direct evaluation of the gastric wall and other visceral components, alongside the facilitation of hematoma evacuation.

In conclusion, this report has summarized the categorization, clinical manifestations, and diagnostic difficulties related to LGAAs. Our findings could offer valuable insights for clinicians and radiologists when adopting a systematic approach for the early detection and management of such aneurysms. In the context of diagnostic evaluations for solitary lung lesions, it should be mandatory to contain aneurysmatic expansion of branches stems from the celiac truncus.

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