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CASE REPORT | STOMACH

Accessory Splenic Artery Causing Massive Gastrointestinal Bleed

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ABSTRACT

The presentation of an upper gastrointestinal bleed secondary to an accessory splenic artery is a rare circumstance described only in 2 previous case reports. This report is the first to describe an upper gastrointestinal bleed consequent of a submucosal accessory splenic artery arising from the left phrenic artery, requiring multiple endoscopies and endovascular embolization. Vascular anatomic variants can pose a challenge to treatment, especially when they are unknown. This case adds to the limited number of case reports involving accessory splenic arteries.

INTRODUCTION

Upper gastrointestinal (GI) bleeds are defined as intraluminal bleeding originating above the ligament of Treitz. There can be significant variation in the presentation of the bleed depending on the etiology. Upper GI bleeding has been reported to have an incidence of approximately 0.08%–0.16% and is a potentially life-threatening condition with a mortality rate of approximately 10%.[1,2] Endoscopy and multiphase computed tomography (CT) are the 2 most common modalities initially used to identify the source of GI bleeding. Arterial phase CT can help identify arterial bleeds, while portal-venous phase CT is more beneficial to identify venous or variceal bleeds. Accessory splenic arteries are an uncommon anatomic variant described in few previous reports. There are many theories on the origin of the accessory arteries, including failure of regression or fusion of primitive vitelline arteries during embryological development.[3] The presentation of an upper GI bleed secondary to an accessory splenic artery is a rare circumstance, described in only 2 previous case reports.[4,5] Our report is the first to describe a massive upper GI bleed consequent of a submucosal accessory splenic artery arising from the left phrenic artery.

CASE REPORT

A 69-year-old man with a medical history significant for chronic neck pain requiring daily ibuprofen use along with the addition of aspirin and methylprednisolone for 1 week before admission presented with a complaint of black tarry stool. On arrival, he was slightly tachycardic and had a hemoglobin of 12 g/dL. However, he subsequently had an episode of large-volume hematemesis and a drop in hemoglobin to 8.6 g/dL. Urgent esophagogastroduodenoscopy (EGD) demonstrated old blood and clots in the gastric fundus without active bleeding. Attempts to clear the clots with suction and Roth Net were unsuccessful.

A repeat EGD the following morning allowed for better visualization of the gastric fundus. A prominent tortuous vessel was identified within the submucosa of the gastric fundus initially believed to be a varix, but no active bleed or stigmata of recent bleeding was identified. Abdominal computed tomography was reviewed, and a prominent artery was identified arising from the left phrenic artery and coursing through the gastric fundus (Figure 1). No gastric varices were identified.

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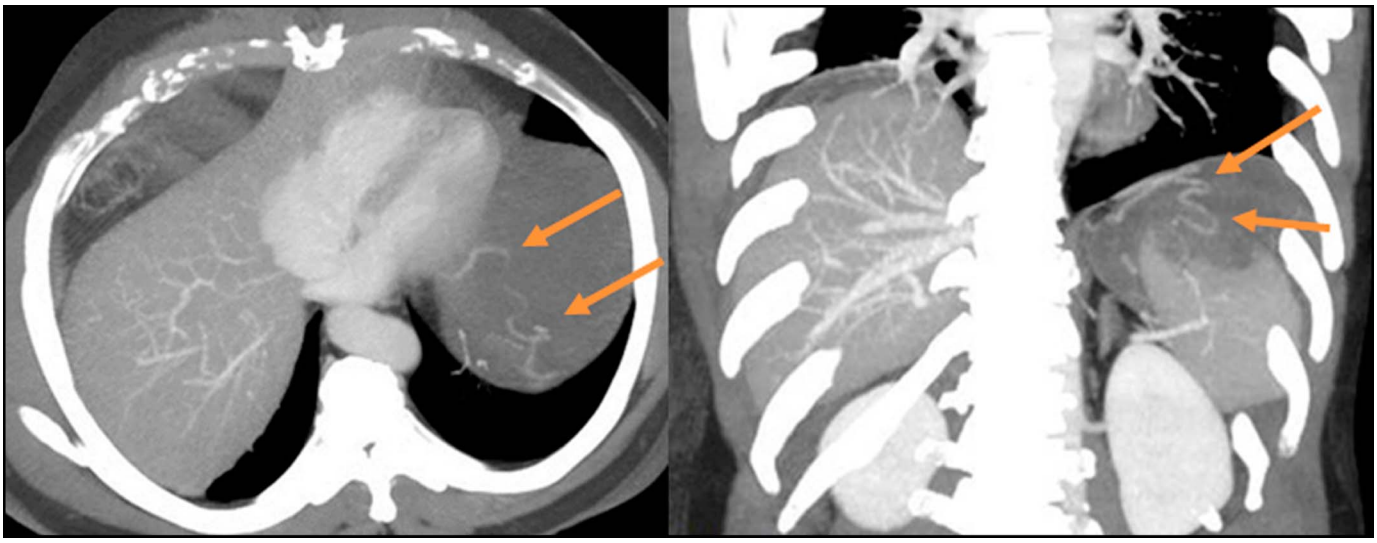

Figure 1. Axial (left) and coronal (right) abdominal computed tomography (CT) showing a prominent artery arising from the left phrenic artery and coursing through the gastric fundus (arrows).

Overnight the patient began to display evidence of a recurrent bleed and underwent visceral angiography, which demonstrated an accessory splenic artery arising from the left phrenic artery and supplying the superior third of the spleen (Figure 2). A conventional splenic artery was also demonstrated in the expected position, supplying the inferior two-thirds of the spleen. Angiography of the remaining mesenteric vessels did not show any active bleeding, and therefore, no intervention was performed.

A few days later, the patient had recurrent bleeding with a drop in hemoglobin level to 5.9 g/dL. The patient was transfused and underwent a third EGD which revealed a serpiginous vessel with a fibrin plug in the gastric fundus. This abnormal artery was believed to be the source of the patient's melena, and 3 hemoclips were placed on the vessel (Figure 3). Although the bleeding initially stopped, the patient had another episode of bleeding the following day. The patient was brought to interventional radiology, and a second angiogram was performed which demonstrated the accessory splenic artery as the clipped culprit vessel (Figure 4). Although no active extravasation was identified, glue embolization of the accessory splenic artery was performed, given it was the likely source of the recurrent bleed.

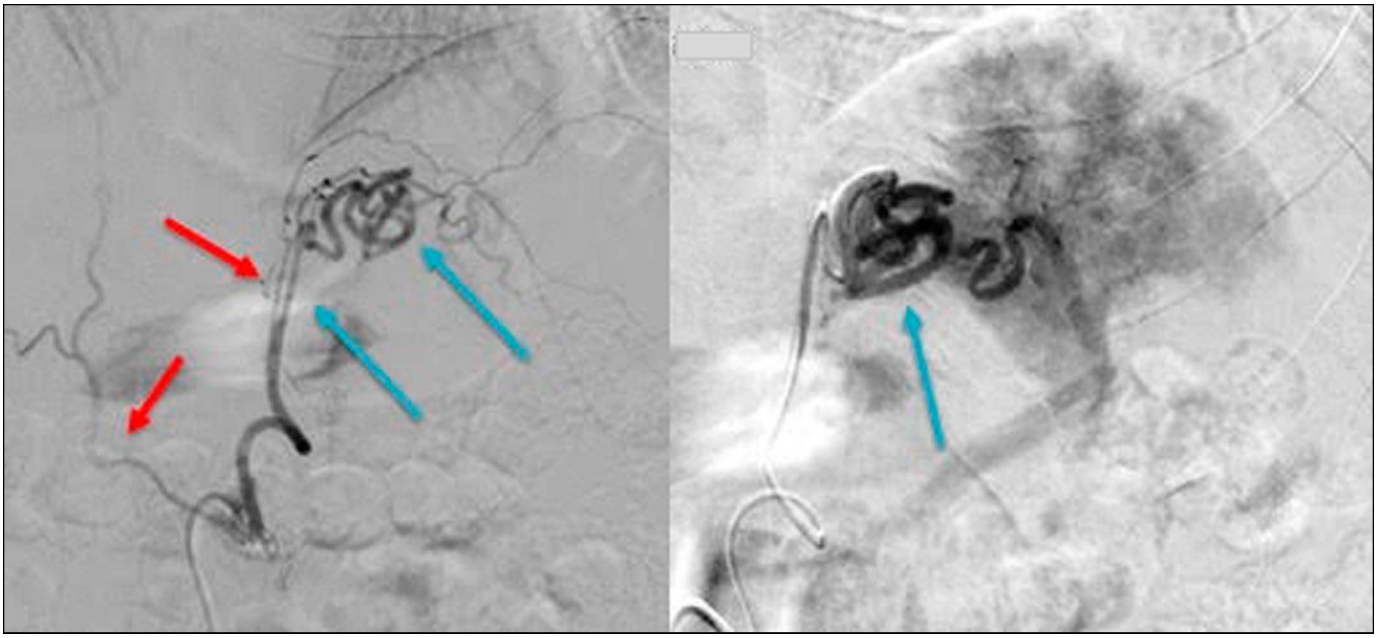

Figure 2. Digital subtraction angiography image (left) demonstrates the right and left (red arrows) phrenic arteries. The accessory splenic artery is identified (blue arrows), branching off of the left phrenic. Delayed digital subtraction angiography image (right) demonstrates accessory splenic artery supplying the upper third of the spleen.

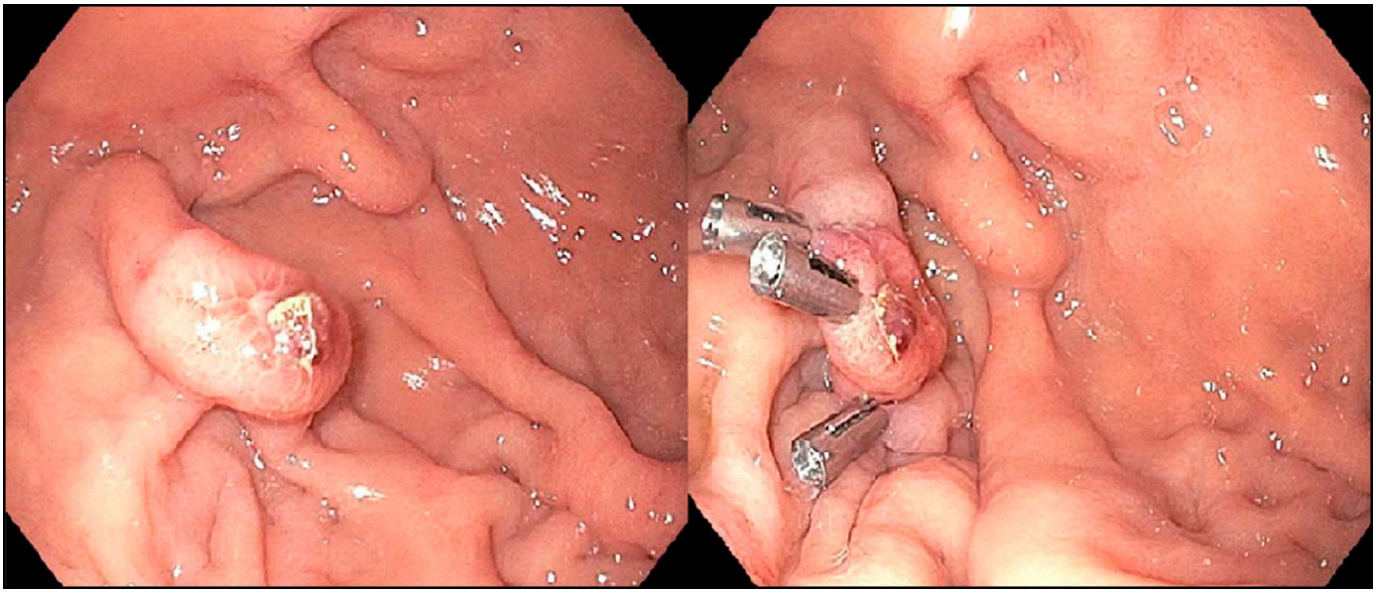

Figure 3. The third esophagogastroduodenoscopy demonstrating the tortuous submucosal vessel with fibrin clot (left). Endoscopic clipping of the suspected source of bleed (right).

After the procedure, the patient did well clinically with no further bleeding. Considering the lack of data, the risk of recurrent bleeding with this anomaly remains largely unknown. As such, he was advised permanent cessation of nonsteroidal anti-inflammatory drugs and steroids. The patient continues to do well, without evidence of recurrent GI bleed.

DISCUSSION

Multiple variants in the origin and course of the splenic artery have been described in the literature, including aberrant origin from the aorta, common hepatic, left gastric, and superior mesenteric arteries. An intrahepatic and intrapancreatic courses, as well as congenital absence or total duplication of the splenic artery, have also been described.[5–7] There is, however, a paucity of data regarding accessory splenic arteries.

The presence of an accessory splenic artery is rare, and its presentation as an upper GI bleed has only been described twice previously in the literature. Our case describes a GI bleed consequent of a submucosal accessory splenic artery arising as a branch of the left phrenic artery. This large caliber artery does not meet the criteria to be classified as a Dieulafoy lesion, which

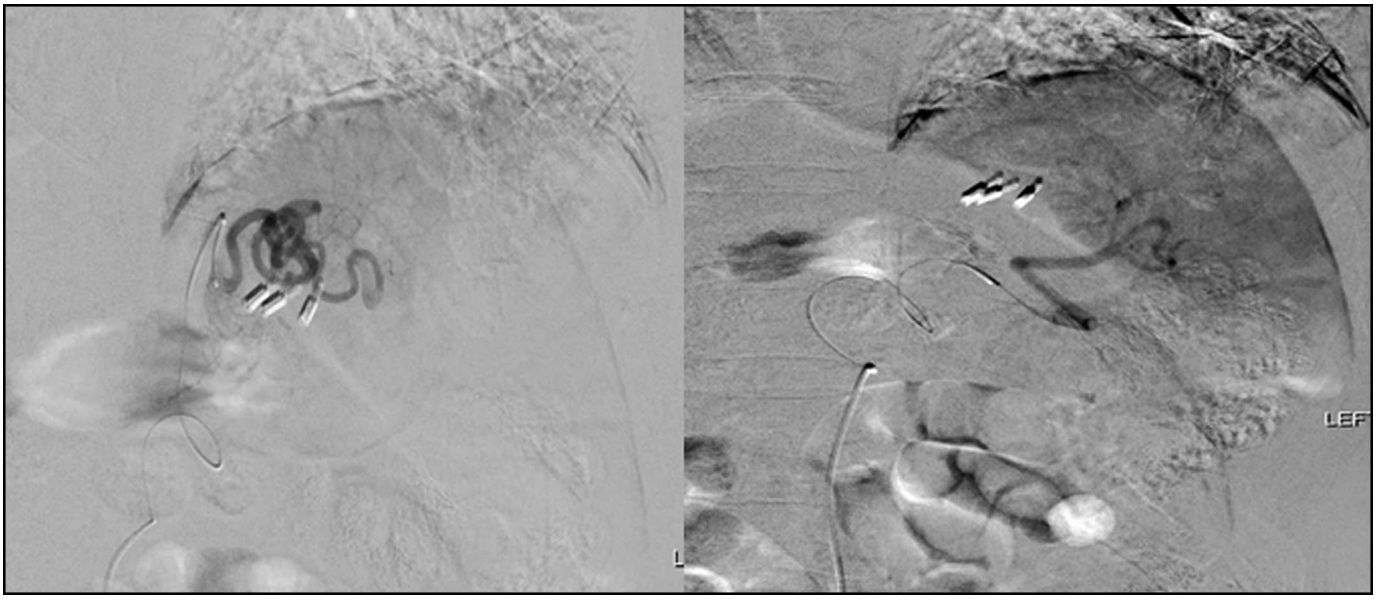

Figure 4. Accessory splenic artery (left) demonstrated coursing adjacent to the endoscopic clips. Digitally subtracted angiogram of the conventional splenic artery (right) confirming course.

is defined as a prominent arteriole measuring 1-3 mm, without tapering and coursing through the submucosa.[8] Previous case reports by Kervancioglu et al and Patel and Lowe have both described an accessory splenic artery arising from the left gastric artery and presenting as a gastric bleed.[4,5] Cadaveric dissections have also demonstrated the presence of accessory splenic arteries. Padmalath et al reported an accessory splenic artery in a cadaver, arising from the left gastroepiploic artery.[9] From our literature review, accessory splenic arteries have not been described as part of congenital syndromes or known to exist specifically with other anomalies.

Our patient ultimately underwent angiographic embolization of the accessory splenic artery due to recurrent bleeding. The available surgical option was more complicated and cumbersome because it involves splenectomy with partial gastrectomy. As such, the lesser invasive option, endovascular embolization, was the preferred modality. After the procedure, the patient was discharged on day 3. The patient continues to do well and remains asymptomatic. Vascular anatomic variants can pose a challenge to treatment, especially when they are unknown. This case adds to the currently limited number of case reports involving accessory splenic arteries.

DISCLOSURES

Author contributions: P. Patel and P. Chadalavada wrote this manuscript. A. Singh provided the endoscopy images. RK Gurajala approved the final manuscript. J-P Achkar revised the manuscript for intellectual content. P. Patel is the article guarantor.

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