

# Calcified Splenic Artery Aneurysm in Chronic Liver Cirrhosis

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**Abstract** Calcified splenic artery aneurysms are usually asymptomatic findings on CT scans that can look puzzling to the inexperienced eye. Familiarity with this entity makes the encounter easier. Treatment is only needed in a small subset of patients.

**Keywords:** Splenic artery aneurysm, Calcification of aneurysm

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## 1. Case

A 46-year-old female with known alcoholic liver cirrhosis, esophageal varices, and chronic obstructive lung disease presents to our emergency department with two days of nausea and hematemesis. She was binge-drinking tequila for two days prior to admission. Her blood pressure was 92/62 mmHg, and her pulse rate was 98 bpm. She had dark brown skin, a thin habitus, and a distended abdomen with a positive fluid wave and shifting dullness. Both lower abdominal quadrants were mildly tender. There was jaundice present.

Initial lab results showed hemoglobin of 6.9 gm/dl, platelets 320,000/ $\mu$ L, prothrombin time 14.5 s, international normalized ratio 1.4, fibrinogen 168 mg/dl, blood urea nitrogen/creatinine ratio of 28, total bilirubin 4.7 mg/dl, gamma-glutamyl transpeptidase 141 IU/L, Lactic acid 2.1 mmol/L. A computed tomography (CT) scan of the abdomen/pelvis without contrast showed a cirrhotic liver, splenomegaly, excess fecal material, and a calcified splenic artery aneurysm (SAA) (images).

Hypotension improved with fluid resuscitation and octreotide. She received fresh frozen plasma, packed red blood cells, and platelets. Endoscopy showed moderate-sized esophageal varices status post ligation with adequate decompression post banding, diffuse moderate portal hypertensive gastropathy, and a few flecks of blood without active oozing. She underwent trans-jugular intrahepatic portosystemic shunt (TIPS) with successful embolization of the left gastric vein varices during the procedure. The patient remained hemodynamically stable during her hospital stay, had two slightly formed bowel movements daily, and was eventually cleared for discharge with close follow-up.

## 2. Splenic Artery Aneurysm

SAAs are characterized by focal dilation of the splenic artery that increases by more than 50% in diameter compared with a normal splenic artery [1]. The incidence of SAAs in the general population is not well defined, with estimates ranging from 0.1-10.4% [2]. Risk factors associated with splenic artery aneurysms include female sex, cirrhosis, as well as portal hypertension [2,3,4]. Mortality due to splenic artery aneurysm ruptures ranges from 40% in non-pregnant patients to 75% in pregnant patients [5,6].

Patients with SAA are commonly asymptomatic. Some patients, however, may present with chronic, vague, epigastric, and left hypochondriac pain. Acute left upper quadrant pain may indicate an SAA rupture [7]. A study found that 97.5% of patients with non-ruptured aneurysms had no symptoms [8]. The rupture rate for patients with SAA is 2-10%; however, in symptomatic patients, the rupture rate increases to 76-83%, and it is even higher in pregnant patients at 95% [1,9].

Multi-slice CT with contrast is the imaging modality of choice for SAA; however, in patients with CT contraindications, magnetic resonance imaging is a commonly used alternative [1,10]. Contrast angiography is the most specific test for SAA and is often used to confirm it [2].

Treatment of SAA is indicated in symptomatic patients, women of childbearing age, pregnant women with aneurysms that are > 1 cm, or asymptomatic patients with aneurysms that are >2 cm. Patients with aneurysms between 1 and 2 cm should be monitored every three years for growth [11,12].

If treatment is indicated, several surgical techniques are available. Endovascular surgery is the current gold-

standard treatment; however, it may not be suitable for certain aneurysms. Other methods used include open surgical and laparoscopic ligations. If the aneurysm is in splenic parenchyma, splenectomy is often necessary [1,2,12].



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