

# A Novel Approach to Upper Gastrointestinal Bleeding in Congenital Absence of the Splenic Vein

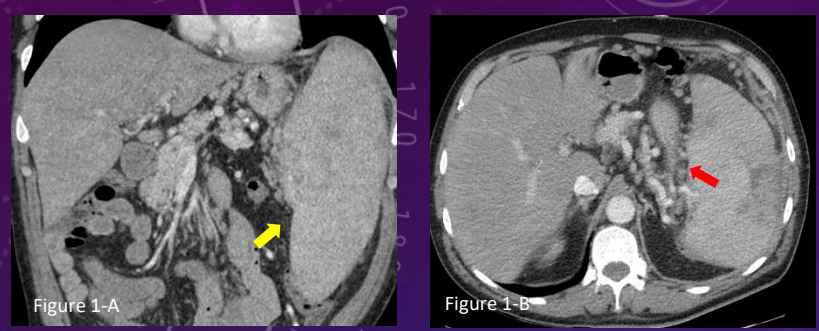
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**Purpose:**  
Congenital absence of the splenic vein is a rare condition that can present with gastric bleeding due to isolated gastric varices, similar to left sided portal hypertension caused by complete obstruction of the splenic vein. This exhibit demonstrates a novel and effective approach to treatment of a rare condition that can present with life threatening upper GI bleeding.

**Background:**  
Congenital absence of the splenic vein, a rare condition not well described in the literature, can present with significant upper gastrointestinal bleeding (UGIB) due to presence of isolated gastric varices in a patient without liver disease. This condition may present similarly to left sided portal hypertension caused by complete obstruction of the splenic vein, which can result in splenomegaly. This entity is also referred to as splenoportal hypertension or regional hypertension. Splenic venous outflow can occur by fundal gastric varices with drainage to the portal system, which can result in significant hematemesis. Sinistral portal hypertension is usually the result of isolated splenic vein occlusion or stenosis, similar to our case. Patients present with typical signs of portal hypertension such as gastroesophageal varices, ascites and splenomegaly which cannot be attributed to hepatic disease.

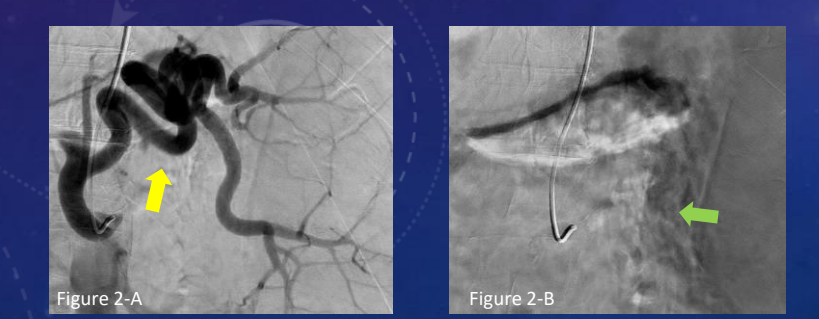
**Treatment Algorithm:**  
Endoscopy remains the first step in management in acute upper gastrointestinal bleeding (UGIB). Gastroenterology performed an Esophagogastroduodenoscopy (EGD) which found bleeding originating from hypertrophied gastric varices. Interventional radiology was consulted when the bleeding could not be controlled from the EGD. Embolization of the varices through Balloon-occluded Retrograde/Anterograde Transvenous Obliteration (BRTO/BATO) was considered however was deemed inappropriate for this patient as variceal embolization would likely worsen the UGIB without proper splenic outflow. The decision to decrease the splenic inflow with splenic artery embolization was therefore made.

**Clinical History & Imaging Findings:**  
A 62-year-old male with no significant past medical history and no history of alcohol use presented to the emergency department with hematemesis and three episodes of black tarry loose stools. Endoscopy demonstrated bleeding originating from hypertrophied gastric varices which were not amenable to endoscopic intervention.

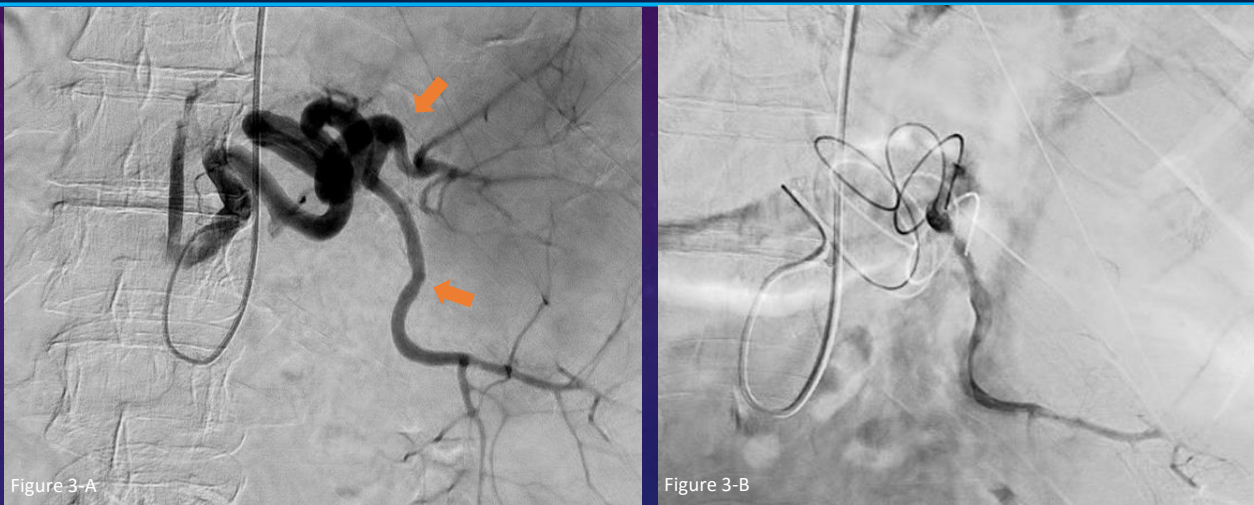


**Figure 1A & 1B** – Computed tomography (CT) coronal (Image 1A) and axial (Image 1B) images demonstrated splenomegaly (yellow arrow) with significant isolated gastric varices (red arrow) in the setting of non-visualization of the normal splenic vein.

**Procedure:**  
Local anesthesia was administered and the left radial artery was sonographically evaluated and judged to be patent. Real time ultrasound was used to visualize the needle entry into the vessel followed by an 0.018 wire exchanged for a 0.035 wire and a 4/5 Fr slender sheath was placed. The celiac arterial system was catheterized using the Terumo (Somerset, NJ) Sarah radial catheter and Terumo (Somerset, NJ) .035 Stiff angled Glidewire. Angiography of the Celiac and splenic artery demonstrated hypertrophy of the splenic artery and delayed angiogram showed the enlarged gastric varices at the splenic outflow. Lower pole and mid pole branches of the splenic artery were sub-selected and embolized with particles (contrast seen for at least 5 heartbeats but not static). Post embolization angiography showed approximately 66.7% reduction in splenic arterial flow. A TR band radial compression device was used for closure and patient was sent to recovery.



**Figure 2A** - Angiography of the Celiac and splenic artery demonstrated hypertrophy of the splenic artery (yellow arrow).  
**Figure 2B** - A delayed angiogram demonstrated enlarged gastric varices at the splenic outflow (green arrow).



**Figure 3A** - Lower pole and mid pole branches of the splenic artery were sub selected (orange arrows). It is important to note that the upper pole branches were excluded at this time due to increased risk of reactive pleural effusion.  
**Figure 3B** - Terumo (Somerset, NJ) Hydropearl 600 um particles (1.5mL) and Hydropearl 800 um particles (2mL) were used to achieve complete stasis (contrast visible for at least 5 heartbeats but not static). Post embolization angiography showed approximately 66.7% reduction in splenic arterial flow.



**Figure 4A & B** - Post-procedure axial CT of the abdomen and pelvis redemonstrates splenomegaly with a preservation of the upper spleen.  
**Figure 4B** - Post-procedure axial CT of the abdomen and pelvis redemonstrates splenomegaly with mostly infarcted mid/lower spleen.  
**Figure 4C** - Post-procedure coronal CT of the abdomen pelvis redemonstrates splenomegaly with new splenic infarcts in the mid and lower poles. (green arrow).

**Conclusion:**  
Patient's UGIB symptoms resolved, and he was discharged without complications with plan to return for repeat splenic embolization. Congenital absence of the splenic vein is a rare entity that can result in life threatening gastric variceal bleeding. Our case shows that partial splenic embolization is a safe and novel method to resolve UGIB in a patient with this condition.

**References:**  
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