

A Rare Case of Hemorrhagic Shock: Perisplenic Varices with Large Splenorenal Shunt Treated by Balloon-Occluded Retrograde Transvenous Obliteration

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CASE REPORT

An 87-year-old man with a medical history of decompensated cirrhosis secondary to hemochromatosis presented to the hospital with an episode of near syncope. On arrival, his blood pressure was 98/45 mm Hg, and his heart rate was 105/bpm. Abdominal examination revealed mild left upper quadrant tenderness and shifting dullness. Laboratory findings showed hemoglobin 8.1 g/dL, platelet $112 \times 10^3/\text{mm}^3$, international normalized ratio 1.23, and lactic acid 3.6 mmol/L. Within the next few hours, his blood pressure dropped to 67/52 mm Hg with a further drop in hemoglobin to 6.6 gm/dL. An emergent thoracic, abdominal, and pelvic computed tomography (CT) was obtained, which showed perisplenic varices associated with splenorenal shunt (Figure 1). A moderate amount of hemorrhagic ascites as denoted by the area of increased attenuation in the left upper quadrant was also noted. The interventional radiology team performed contrast injection, which confirmed a perisplenic venous varix that was draining from the splenic vein to the left renal vein and inferior vena cava via gonadal vein (Figure 2). The hemodynamic measurements of the right hepatic wedge pressure to the right atrium and right portal vein were noted to be less than 12 mm Hg, demonstrating that the patient had insufficient pressures for a transjugular intrahepatic portosystemic shunt (TIPS) procedure. Therefore, a transportal balloon occlusion-assisted sclerosis and embolization of the perisplenic varix was successfully attempted (Figure 3).

Splenic varices usually transverse the splenocolic ligament and are present as dilated veins in the anteroinferior aspect of the spleen. A spontaneous splenorenal shunt can develop, which is represented on imaging by large, tortuous veins in the region of

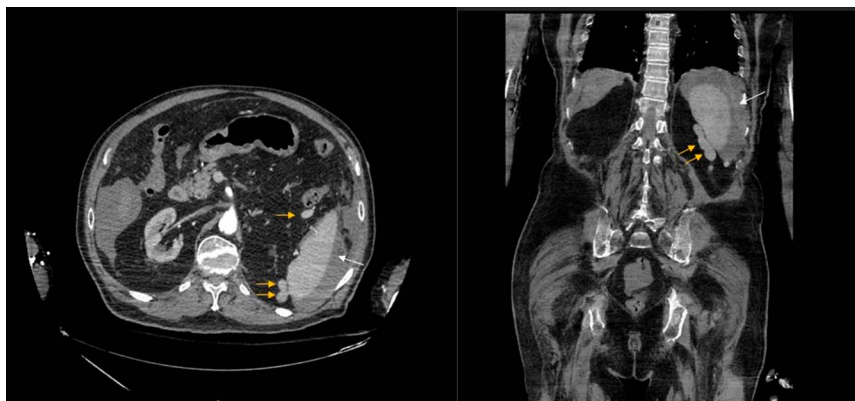


Figure 1. Perisplenic varices (yellow arrows) associated with splenorenal shunt. A moderate amount of hemorrhagic ascites (areas of increased attenuation in the left upper quadrant) (white arrow) was also noted.



Figure 2. Contrast injection showed the perisplenic venous varix which was draining from the splenic vein to left renal vein and inferior vena cava via gonadal vein.

the splenic and left renal hilum that drain into left renal vein.¹ In rare instances, as in our case, the large veins may be seen extending from the inferior aspect of the spleen and draining into the inferior vena cava via the left internal iliac vein or gonadal vein. Abdominal CT is the best diagnostic choice for demonstrating perisplenic varices and spleno-renal shunts.¹



Figure 3. Transportal balloon occlusion-assisted sclerotherapy and embolization of the perisplenic varix.

Bleeding from the splenic varices is extremely rare in cirrhosis. Perisplenic varices should be suspected in patients with portal hypertension who present with sudden abdominal distension, abdominal pain, hypotension, and drop in hemoglobin. Abdominal CT often demonstrates hemoperitoneum. Treatment options include TIPS with or without collateral embolization, balloon-occluded retrograde transvenous obliteration (BRTO), and cyanoacrylate injection.¹ BRTO is a procedure that uses a balloon catheter and a sclerosing agent to occlude blood flow through a spontaneous portosystemic shunt.² The outflow is coil-embolized 30–50 minutes later, before deflating the balloon and withdrawing the catheter. BRTO is suitable for patients with appropriate anatomy (usually requires a gastrorenal shunt) and has been shown to be very effective for treating gastric varices.³ It is generally indicated for patients who are not candidates for TIPS because of a high Model for End-Stage Liver Disease score or hepatic encephalopathy. Contraindications for BRTO include portal vein occlusion, refractory ascites, and the presence of high-risk esophageal varices; BRTO is not appropriate for esophageal or gastroesophageal varices. In addition, the sclerosing agents have some potentially serious side effects, including pulmonary edema, disseminated intravascular coagulopathy, renal dysfunction, and anaphylaxis. For patients with bleeding from splenic varices, treatment with a nonselective β -blocker can be tried to prevent rebleeding, although there is no current evidence to support this approach.

DISCLOSURES

Author contributions: S. Mohapatra wrote, revised the manuscript for intellectual content and is the article guarantor. V. Gidwani wrote the manuscript. A. Broder edited, revised the manuscript for intellectual content and approved the final version.

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Informed consent was obtained for this case report.

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