Modified Balloon-Occluded Retrograde Transvenous Obliteration of Gastric Varices

BY MONI STEIN, MD, FSIR

Transjugular intrahepatic portosystemic shunt (TIPS) has been the main alternative to treating bleeding related to esophageal or gastric varices in the context of portal hypertension. Recently, as a less-invasive alternative, balloon-occluded retrograde transvenous obliteration (BRTO) of gastric varices has been introduced to treat bleeding gastric varices, which are less amenable to endoscopic sclerotherapy and banding. We describe a successful case of modified BRTO in the acute setting of gastric variceal bleeding.

CASE PRESENTATION

A 61-year-old woman presented to the emergency department at Adena Regional Medical Center in Chillicothe, Ohio, with upper gastrointestinal bleeding. She had established liver cirrhosis with portal hypertension. A CT scan obtained earlier showed gastric varices and a well-developed splenorenal shunt (Figures 1 and 2). Endoscopy was performed identifying mostly gastric varices with active bleeding. An attempt was made to place a clip across a bleeding varix, which achieved only temporary reprieve.

The patient was determined to be a good candidate for BRTO, which was performed in the angiographic suite via a femoral vein approach. After establishing access into the femoral vein with a 5-F (1.67-mm) Cobra C2 catheter, the left renal vein was selectively catheterized, and renal venography was performed. A 7-F (2.33-mm) vascular sheath was introduced and, using a 5-F (1.67-mm) Berenstein catheter and a stiff hydrophilic guidewire, the splenorenal shunt was catheterized, and venography was performed (Figure 3).

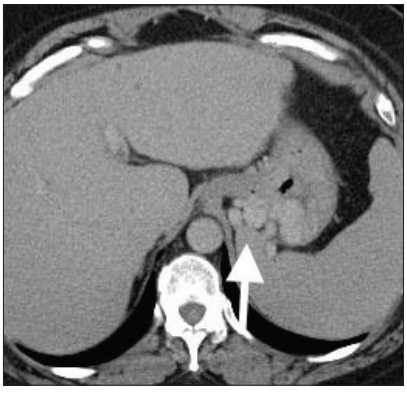

Figure 1. A CT scan of the abdomen with contrast showed gastric varices but no esophageal varices (white arrow).

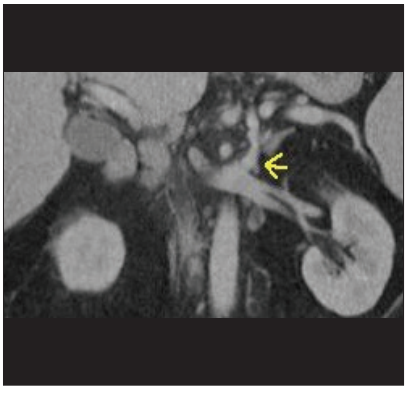

Figure 2. A CT scan of the abdomen with contrast showed the spontaneous splenorenal shunt (yellow arrow).

Figure 3. Catheter venography showed the splenorenal shunt (white arrow) with a flow from the gastric varices to the renal vein.

The catheter was advanced further into the portion of the shunt closest to the varices, and a Berenstein 8.5/11.5-mm occlusion balloon was introduced over an Amplatz wire and was inflated with a 0.55-mL mixture of saline and contrast at 50% strength. A 10-mL mixture of contrast material, gelfoam, and 1% sodium tetradecyl sulfate was processed as a slurry in a 10-mL syringe and injected through the lumen of the occlusion balloon and was left in place for 15 minutes (Figure 4).

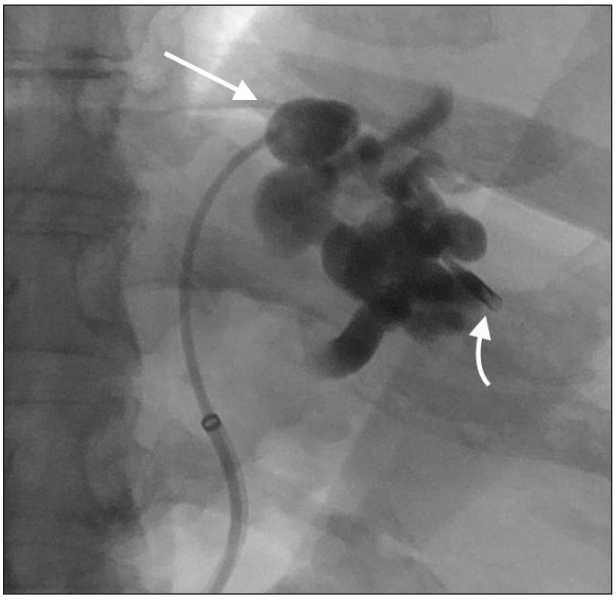

Figure 4. Catheter venography showed the inflated occlusion balloon (straight white arrow) and the stasis in the gastric varices distal to the balloon. Note the metallic clip placed during endoscopy (curved arrow).

Subsequently, coil embolization was performed through the same lumen while the balloon was still inflated. Two 8-mm X 40-cm (400-mm) and three 8-mm X 20-cm (200-mm) Interlock™-35 Coils were deployed (Figures 5 and 6) into the varices and splenorenal shunt to trap the sclerosing agent and prevent the possibility of migration into the systemic circulation and potentially the pulmonary arteries. The patient remained stable, and the access was removed safely. The patient was discharged from the hospital a day later.

DISCUSSION

This case exemplifies the value of a minimally invasive procedure such as BRTO, which takes advantage of the patient's anatomy in order to access and sclerose bleeding gastric varices without having to perform a TIPS with all its potential risks and complications. ■

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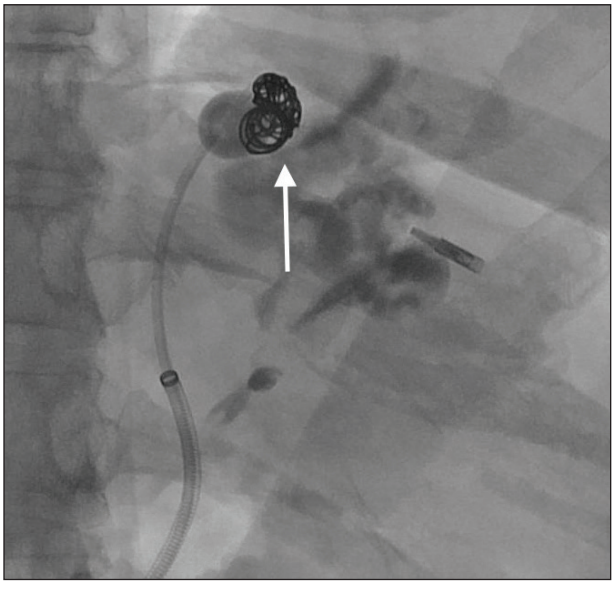

Figure 5. Following injection of the sclerosing agent, coils were deployed just distal to the balloon (white arrow).

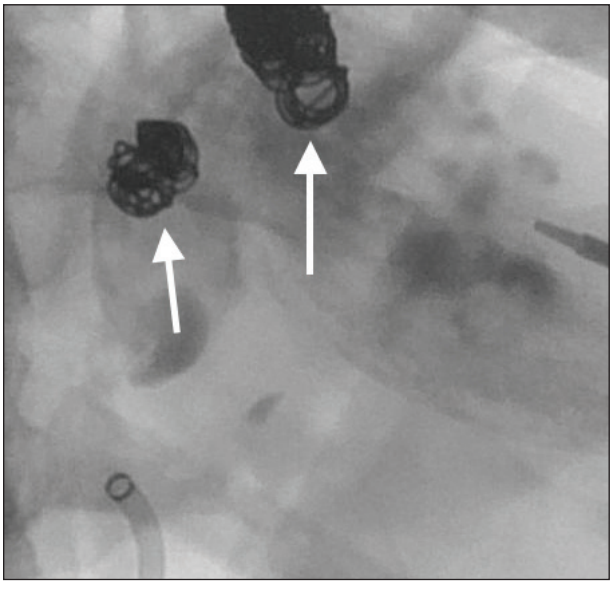

Figure 6. Final image showed the Interlock™ Coils (white arrows) blocking the outflow from the gastric varices after sclerotherapy. Contrast was still noted in the varices, indicating flow stasis.