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Transhepatic antegrade embolization of the esophageal and gastric varices with Onyx®

To the Editor,

A 62-year-old woman with primary biliary cirrhosis was admitted with acute gastric bleeding. Upper endoscopy revealed large gastric varices with a central ulcer (Figure 1) and nonbleeding esophageal varices. Contrast-enhanced computed tomography also showed large esophageal varices and gastric varices, which were fed by an enlarged short gastric vein and drained via the left renal vein (Figure 2). She underwent endoscopic cyanoacrylate injection (1). One week after endoscopic treatment, she was re-admitted to hospital with recurrent bleeding and was referred to the Interventional Radiology department for embolization of gastric varices. After written informed consent was obtained from patient, percutaneous transhepatic embolization with antegrade transvenous access was planned instead of retrograde technique, as antegrade access would allow the embolization of the esophageal and gastric varices at the same session (2,3). Left portal vein branch was punctured with a 21-G needle, and a 5-F 45-cm vascular sheath (Terumo; Leuven, Belgium) was inserted into the portal vein. The left portal vein was chosen because the right portal vein branch was smaller due to the atrophy of the right hepatic lobe and because there was ascites at the access site for the right portal vein. Mean portal vein pressure was measured as 33 mmHg. Portography revealed portal intrahepatic branches and splenic vein patency and large gastric varices filling from short gastric veins (Figure 3), as well as esophageal varices filling from coronary vein. A 4-F vertebral catheter (Cordis; Florida, USA) was inserted into the splenic vein and advanced into the enlarged short gastric vein branch. Next, a 2.0-F Progreat microcatheter (Terumo; Leuven, Belgium) was advanced into the varices and total of 3.5-cc Onyx 18 (ev3; Irvine, California) injected rapidly under fluoroscopic control without an occlusion balloon (Figure 4). Contrast injection after embolization showed total occlusion of the gastric varices (Figure 5). Next, the coronary vein was selected with the same 4-F catheter (Figure 6), and esophageal varices were embolized via another 2.0-F Progreat microcatheter using 1.5-cc Onyx 18 (Figure 7). No complications were encountered dur-

Figure 1. Gastric varix with a central ulcer

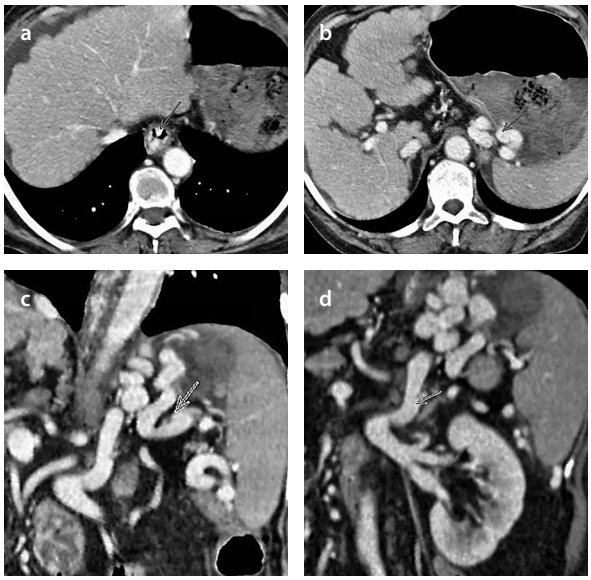

Figure 2. a-d. Contrast-enhanced computed tomographic scan axial images a and b show esophageal (arrow in a) and gastric (arrow in b) varices; coronal oblique images c and d show gastric varices fed from a short gastric vein (arrow in c) and draining via the left renal vein (arrow in d indicates drainage vein)

Figure 3. Selective short gastric venography shows gastric varices fed from an enlarged short gastric vein

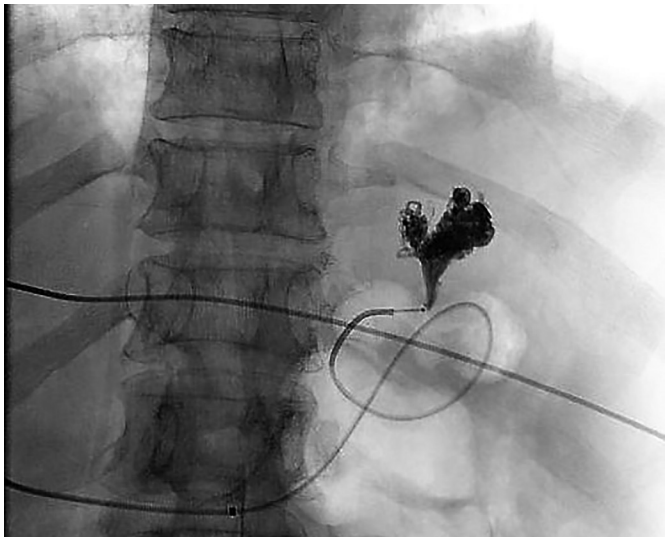

Figure 4. Fluoroscopic image shows Onyx injection into the gastric varix under fluoroscopic control

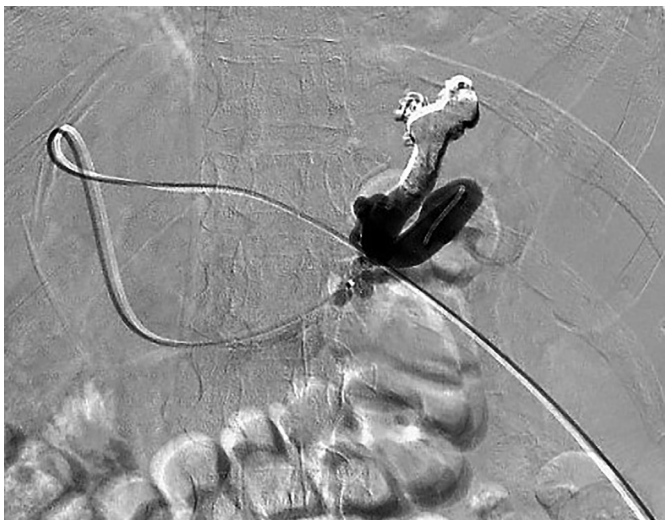

Figure 5. Portography after the Onyx embolization shows total occlusion of gastric varices

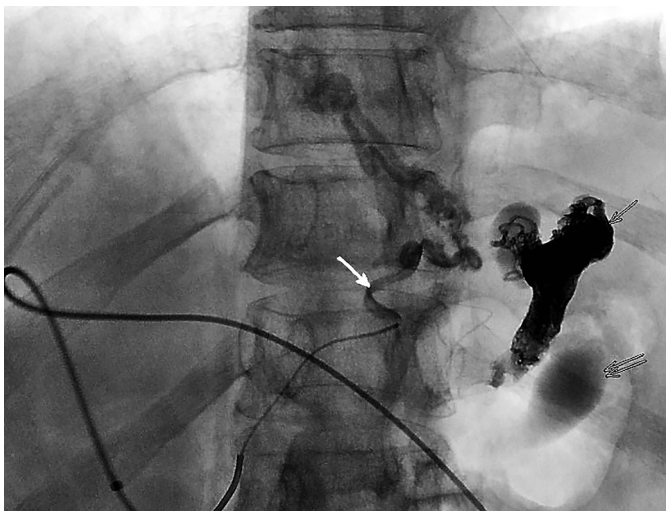

Figure 6. Fluoroscopic image shows the coronary vein, which is feeding the esophageal varices (white arrow), Onyx into gastric varices (arrow), and stagnated contrast material (double arrow)

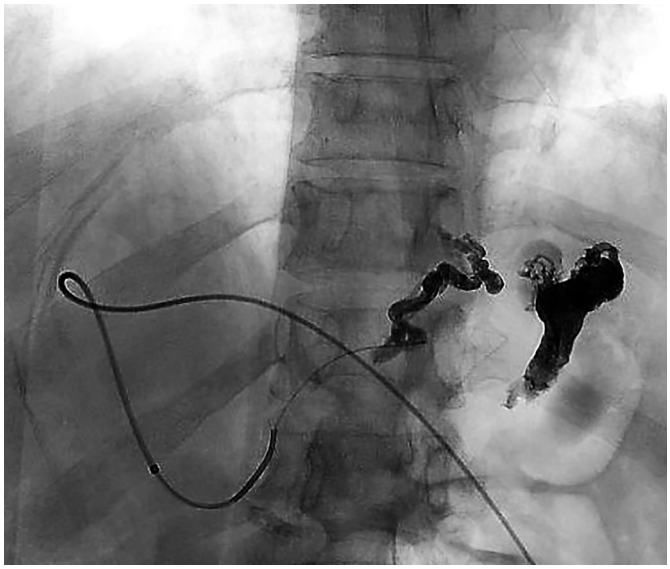

Figure 7. Fluoroscopic image shows Onyx injection into the coronary vein

ing the procedure. Follow-up endoscopic examination performed 4 days after embolization showed marked reduction of the varices. To the best of our knowledge, this is the first case report in English literature reporting use of Onyx as an embolic agent for transhepatic antegrade transvenous embolization of gastric varices.

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