Endoscopic ultrasound-guided angiotherapy in refractory gastrointestinal bleeding from large isolated gastric varices: a same-session combined approach

A 36-year-old Asian man with severe portal hypertension due to hepatitis B virus-related cirrhosis had been previously treated for acute gastrointestinal bleeding from a large isolated gastric varix (IGV-1) by injection of endoscopic cyanoacrylate glue at a local hospital (▶ Fig. 1). Following an episode of massive recurrent hematemesis, the patient was hemodynamically stabilized and referred to our institute. Radiological evaluation revealed the presence of numerous collaterals in the gastric fundus with a large-caliber splenorenal shunt.

With the patient under general anesthesia, it was found that the portal gradient did not decrease significantly with a transjugular intrahepatic portosystemic shunt (TIPS) positioned across the left hepatic and left intrahepatic veins [1], confirming that blood outflow was predominantly diverted towards the shunt (▶ Fig. 2a). We then decided to use a same-session combined technique involving balloon-occluded retrograde transvenous obliteration (B-RTO) of the left renal vein [2] and selective endoscopic ultrasound (EUS)-guided variceal embolization [3, 4] by coils and n-butyl-2-cyanoacrylate (CYA) injection.

A B-RTO was performed to obliterate the left renal vein before EUS-guided selective treatment in order to protect the pulmonary circulation from systemic embolization (▶ Fig. 2b). Gastric varices (IGV-1) were then visualized from the stomach with a linear-array echoendoscope. Selective EUS-guided intravascular puncture was performed with a 22-gauge fine needle aspiration (FNA) needle (EZ Shot 3 Plus; Olympus Europe) and three 0.018-inch coils (MReye Embolization Coil; Cook Medical) were released through the needle under EUS and fluoroscopic control (▶ Video1), the endovascular coils being advanced into the targeted vessel using the pushing ac-
tion of the stylet. Following the complete
deployment of each coil, 1 mL of CYA, 3
mL of Lipiodol, and 10 mL of 5 % glucose
solution were injected through the nee-
dle into the varix creating a full thrombo-
sis. We released a total of three coils
(▶ Fig. 2c) with complete variceal embo-
lization as confirmed by a negative color
Doppler scan. No adverse events or re-
bleeding had been reported at 12 months
of follow-up.

EUS-guided coil placement with CYA
injection is a feasible and effective addi-
tional procedure following TIPS place-
ment in selected patients with severe
portal hypertension and refractory
bleeding from large IGV-1 varices.

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Competing interests

None

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Video1 Refractory bleeding from isolated gastric varices is successfully treated in a
same-session combined approach using transjugal intrahepatic shunt (TIPS) placement,
balloon-occluded retrograde transvenous obliteration (B-RTO), and endoscopic ultrasound
(EUS)-guided variceal embolization by coils and cyanoacrylate glue injection.