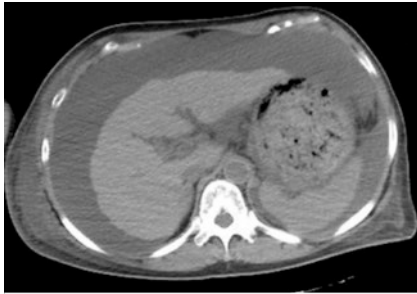
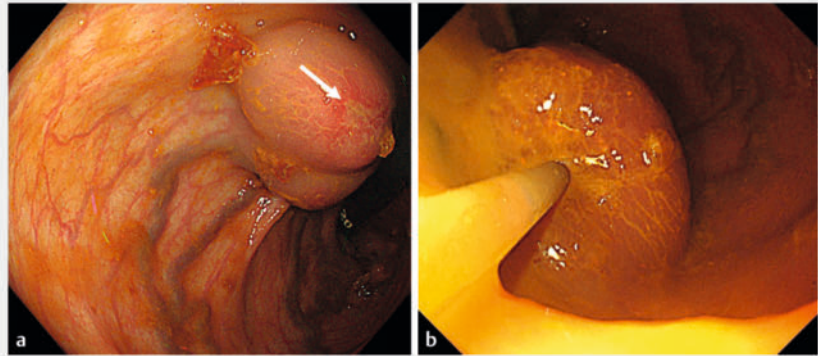


Endoscopic glue injection therapy with N-butyl-2-cyanoacrylate for bleeding from isolated large rectal varices



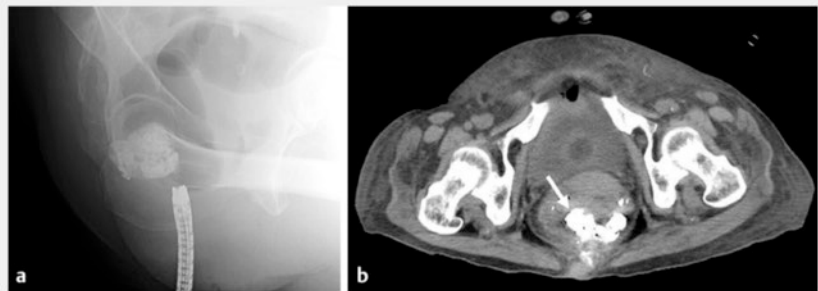
► **Fig. 1** Plain abdominal computed tomography scan showing liver cirrhosis with massive ascites.



► **Fig. 2** Endoscopic images showing: **a** bleeding isolated large rectal varices with erosion (arrow); **b** endoscopic glue injection being performed at the rectal varices.



► **Video 1** Successful treatment for bleeding from isolated large rectal varices using endoscopic glue injection therapy with N-butyl-2-cyanoacrylate.



► **Fig. 3** The injected cyanoacrylate is seen to be occupying the rectal varices after glue injection on: **a** fluoroscopic imaging; **b** computed tomography scanning (arrow).

A 64-year-old woman with history of hepatitis C cirrhosis (Child-Pugh class C) was admitted to our institution with hematochezia. Her esophagogastric varices had been treated at our hospital 6 and 3 years previously by balloon-occluded retrograde transvenous obliteration (B-RTO) and endoscopic injection sclerotherapy (EIS), respectively, and she was being treated for refractory ascites with concentrated ascites reinfusion therapy (CART). She was found to be anemic (hemoglobin 6.0 g/dL) and renal dysfunction was also noted, with a blood urea nitrogen level of 117 mg/dL and creati-

nine level of 2.87 mg/dL. Plain abdominal computed tomography (CT) revealed liver cirrhosis with massive ascites (► **Fig. 1**).

Colonoscopy revealed isolated large rectal varices with erosion, which were identified as the source of her bleeding (► **Fig. 2a**). To decrease the blood flow in the rectal varices, we first injected 50% glucose solution into the varices before performing endoscopic glue injection. We then immediately performed glue injection via three punctures into the rectal varices using a mixture of 1.5 mL N-butyl-2-cyanoacrylate (NBCA) and 0.5 mL Lipiodol (► **Fig. 2b**; ► **Video 1**). A computed tomography scan after the

endoscopic glue injection therapy showed the injected NBCA occupying the rectal varices (► **Fig. 3**). There were no complications after endoscopic glue injection, but the patient died 5 months later of liver failure having had no further episodes of hematochezia.

Management of rectal varices can be achieved by endoscopic band ligation (EBL), EIS, interventional radiology (IVR) such as B-RTO and transjugular intrahepatic portosystemic shunt (TIPS), and surgical management [1]. EBL carries a high risk of rebleeding for large isolated rectal varices, and IVR was not indicated in this case owing to the presence of chronic renal failure. Endoscopic glue

injection therapy is the standard treatment for gastric varices [2], it is also useful for rectal varices. In conclusion, endoscopic glue injection with NBCA is recommended for initial hemostasis of bleeding rectal varices, being quick, safe, and minimally invasive, in the presence of severe liver dysfunction and chronic renal failure.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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