CASE REPORT

Successful endoscopic cyanoacrylate injection therapy for ruptured duodenal varices immediately after balloon-occluded retrograde transvenous obliteration

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Key words
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Introduction
Duodenal varices are one of the complications of portal hypertension secondary to liver cirrhosis. Although the frequency of duodenal varices is lower than that of esophageal and gastric varices,1 duodenal varices bleeding is a life-threatening complication with a mortality of up to 40% for the initial bleeding episode.2 Treatment options include endoscopic therapy, interventional radiological therapy, and surgery1–3 but, there is currently no consensus with regards to optimal treatment for duodenal varices. Hence, we report a case of duodenal variceal rupture immediately after balloon-occluded retrograde transvenous obliteration (B-RTO), which was successfully treated with endoscopic cyanoacrylate (CA) injection therapy.

Case presentation
A 74-year-old Japanese woman with progressive general malaise and hematemesis was admitted to a local hospital. She did not have a history of liver disease, but computed tomography (CT) revealed diffuse fatty infiltration of the liver suggestive of cirrhosis. Gastro-duodenoscopy (GDS) showed duodenal varices without active bleeding in the second portion of duodenum. Balloon-occluded retrograde transvenous obliteration (B-RTO) was carried out to prevent duodenal variceal rebleeding. Good pooling of ethanolamine olate with iopamidol (EOI) was observed in duodenal varices using balloon catheters. However, massive melena was observed immediately after B-RTO. Emergent GDS revealed a white plug on the treated varix, thus endoscopic cyanoacrylate (CA) injection therapy was performed. We speculated that the injection of EOI increased the pressure in the duodenal varices which resulted in rupture of duodenal varices. B-RTO was effective therapy to prevent duodenal variceal rebleeding, but postprocedural monitoring is required as illustrated by this case. We suggest that careful monitoring and backup system for endoscopy are required during or after B-RTO.

Abstract
We present a rare case of acute duodenal variceal rupture after B-RTO that was successfully treated with endoscopic CA injection therapy. A 74-year-old Japanese woman was transferred to our hospital due to progressive general malaise and hematemesis. Gastro-duodenoscopy (GDS) showed duodenal varices without active bleeding in the second portion of duodenum. Balloon-occluded retrograde transvenous obliteration (B-RTO) was carried out to prevent duodenal variceal rebleeding. Good pooling of ethanolamine olate with iopamidol (EOI) was observed in duodenal varices using balloon catheters. However, massive melena was observed immediately after B-RTO. Emergent GDS revealed a white plug on the treated varix, thus endoscopic cyanoacrylate (CA) injection therapy was performed. We speculated that the injection of EOI increased the pressure in the duodenal varices which resulted in rupture of duodenal varices. B-RTO was effective therapy to prevent duodenal variceal rebleeding, but postprocedural monitoring is required as illustrated by this case. We suggest that careful monitoring and backup system for endoscopy are required during or after B-RTO.

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therapy for the lesion. A total of 1.5 mL of 66.6% CA was injected carefully into the duodenal varices resulting in complete hemostasis (Fig. 1e). In the present case, the procedure was successfully completed without any complications. Subsequently, she was given 6 units of red blood cells, 6 units of fresh frozen plasma, and 20 units of platelets.

During the observation closely for 6 days after treatment, she had no further episodes of melena, maintained hemodynamic state, and remained her hemoglobin consistently. Contrast-enhanced CT revealed complete thrombosis of duodenal varices with CA precipitation. She was finally discharged from our hospital.

Discussion

There are no randomized controlled trials (RCT) relating to duodenal varices. Endoscopic CA injection therapy has been reported to achieve hemostasis for duodenal variceal bleeding.4,5 However, some studies suggested that endoscopic sclerotherapy may be less effective in duodenal varices management.4 Therapy with CA has significant adverse events, including glue embolism and uncontrollable rebleeding.6 With regard to gastric varices, B-RTO is more effective than endoscopic CA injection therapy in order to prevent rebleeding, with similar frequencies of complications in a RCT.7 B-RTO or transjugular intrahepatic portosystemic shunt (TIPS) have been used as a first-line therapy as recommended by the American Association for the Study of Liver Disease.8

B-RTO have been demonstrated the clinical efficacy and safety. However, complications of B-RTO may occur, such as rebleeding, pulmonary edema, disseminated intravascular coagulation, portal thrombosis, renal dysfunction, and allergic reaction.9 Indeed, we experienced a case of duodenal variceal rebleeding immediately after B-RTO. We set up a backup endoscopy, and successfully achieved complete hemostasis by endoscopic CA injection therapy. While endoscopists continuously pay attention to glue embolism, CA is injected as needed to ensure hemostasis. We suggest that careful monitoring and backup system for endoscopy are required during or after B-RTO as illustrated by this case.

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