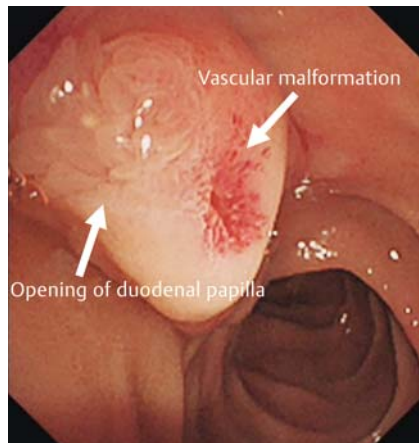


Combined ERCP and endoscopic ultrasonography: a new treatment for rare hemorrhage from a duodenal papillary vascular malformation

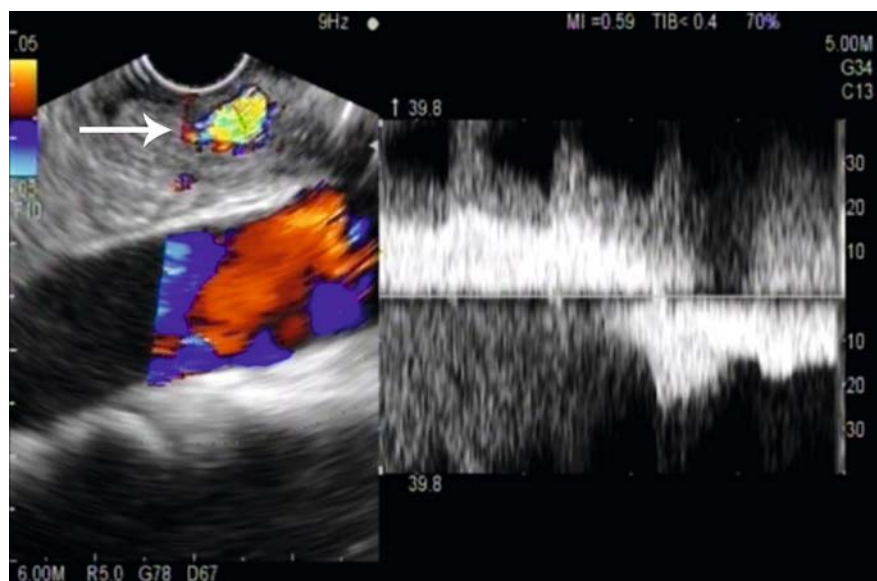


► **Fig. 1** Gastroscopy in a 28-year-old man revealed an enlarged duodenal papilla, a tear near the opening of the papilla, and active bleeding.



► **Fig. 2** Endoscopic (EUS) and Doppler ultrasonography showed a multicore mass with eddy currents.

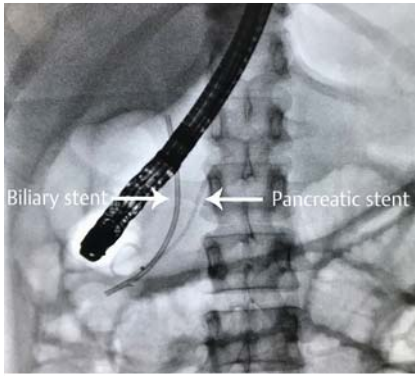
Vascular malformation is the main cause of gastrointestinal bleeding, especially in patients with hemorrhage of unknown origin, accounting for approximately 10%–40% of cases [1]. Endoscopic treatment is common; techniques include epinephrine injection [2], contact coagulation [3], and band ligation [4]. However, hemorrhage from a duodenal papillary vascular malformation is rare and challenging to treat; it has always been treated with papillectomy [5]. We present a new treatment using endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasonography (EUS) for cases of this kind. A 28-year-old man was admitted to our hospital with a 7-month history of black stool, dizziness, and fatigue. Laboratory data were normal except for hemoglobin (56 g/L). A thorough examination including computed tomography, magnetic resonance imaging, EUS, and Doppler ultrasonography led us to conclude that the anemia was being caused by hemorrhage from a duodenal papillary vascular malformation (► **Fig. 1**, ► **Fig. 2** and ► **Fig. 3**). As the patient's vascular malformation was close to the paths of the biliary and



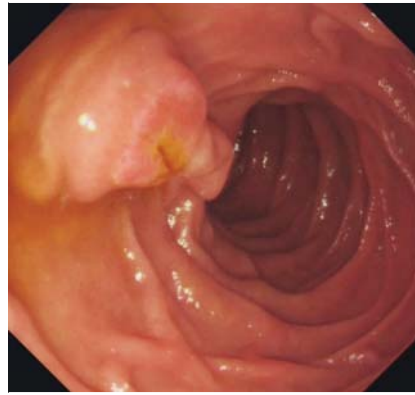
► **Fig. 3** EUS and Doppler spectral analysis revealed venous blood flow.

pancreatic ducts, a plastic biliary stent (7Fr/7cm; Boston Scientific, Marlborough, Massachusetts, USA) and a plastic pancreatic stent (5Fr/7cm; Cook Medical, Bloomington, Indiana) were first

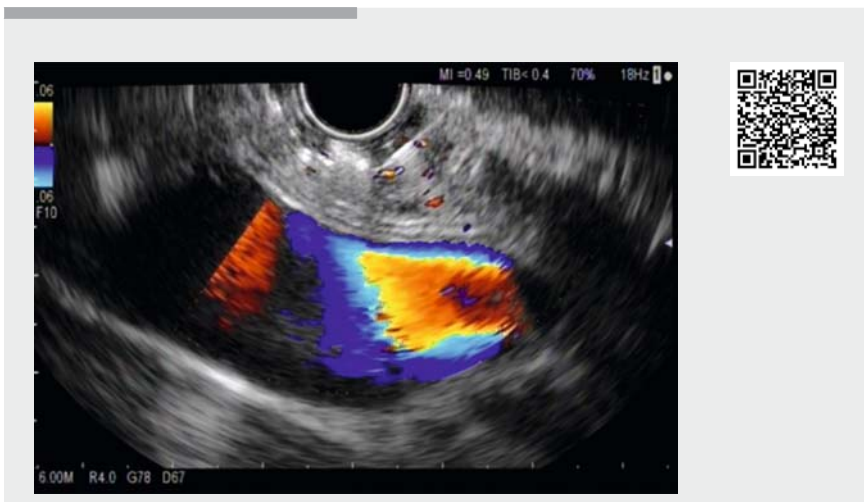
placed with the help of ERCP to protect these ducts from possible damage by lauromacrogol (► **Fig. 4**). After successful stent placement, 1 ml lauromacrogol was injected into the culprit vessel under



► **Fig. 4** Both a plastic biliary duct stent and a plastic pancreatic duct stent were placed under ERCP guidance.



► **Fig. 5** The shape of the duodenal papilla had returned to normal after 3 months.



► **Video 1** Combined ERCP and endoscopic ultrasonography (EUS), a new treatment for rare hemorrhage from a duodenal papillary vascular malformation. After EUS-guided treatment, the blood flow in the lesion stopped almost completely.



EUS guidance (Expect EUS-FNA, 25G, 0.52mm; Boston Scientific). Doppler ultrasonography confirmed that after EUS-guided treatment the blood flow in the lesion had stopped almost completely (► **Video 1**), and the patient's general condition remained very good. One month later, gastroscopy revealed that the duodenal papilla surface mucosa was well recovered, and the biliary and pancreatic stents were removed. Three months later, the patient's duodenal papilla had completely returned to normal (► **Fig. 5**), and the laboratory data

showed a hemoglobin concentration of 145g/L. Our treatment has successfully protected the function of the duodenal papilla and cured the hemorrhage from the vascular malformation.

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Competing interests

The authors declare that they have no conflict of interest.

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Bibliography

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