

# Endoscopic ultrasound-guided treatment of bleeding duodenal varix

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**Abstract** A 35-year-old man presented with recurrence of upper gastrointestinal bleed after eradication of esophageal varices. Upper gastrointestinal endoscopy revealed submucosal lesion in the duodenum and endoscopic ultrasound (EUS) demonstrated it to be a duodenal varix. Cyanoacrylate glue was injected into the duodenal varix and successful obliteration of the duodenal varix was demonstrated on a follow up EUS.

**Keywords** Extrahepatic portal venous obstruction · Portal hypertension

## Introduction

Duodenal varices are a rare complication of portal hypertension; the most common site is the duodenal bulb, followed by the second part of duodenum [1–3]. Bleeding from the duodenal varices usually occurs as a result of erosion on the varix, and is usually severe because of rapid blood flow [4]. Management options include endoscopic band ligation, injection sclerotherapy, transjugular intrahepatic portosystemic shunt (TIPS), balloon-occluded retrograde transvenous obliteration (B-RTO), and surgery [1–3]. Endoscopic glue injection is an effective treatment modality for bleeding duodenal varices [5]. However, there is no consensus on the choice of investigation for determining the adequacy of glue injection. In this report,

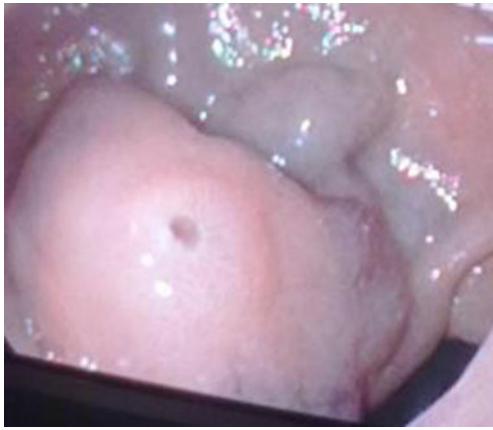
we describe the feasibility of EUS-guided treatment of bleeding duodenal varix.

## Technique

A 35-year-old man presented with painless hematemesis and melena. Clinical examination revealed splenomegaly with pallor. The patient was a known case of extrahepatic portal venous obstruction (EHPVO), and had bleeding esophageal varices previously eradicated by endoscopic variceal ligation (EVL). Upper gastrointestinal endoscopy (UGIE) done 3 months earlier had revealed no esophageal varices. The patient was receiving beta blockers for secondary prophylaxis [Propranolol 40 mg twice daily (Ciplar; Cipla Pharmaceuticals Limited)]. Laboratory studies revealed anemia with normal liver function tests. Ultrasound of the abdomen demonstrated features of EHPVO with portal cavernoma and intra-abdominal venous collaterals.

UGIE revealed an elevated submucosal lesion in the first part of the duodenum, with a tiny ulcer at its top (Fig. 1). There were no esophageal or gastric varices. Endoscopic ultrasound (EUS) performed with a radial echoendoscope (EG 3670URK, Pentax Medical, Japan) demonstrated this submucosal lesion to be an anechoic lesion in the submucosa of the duodenum, measuring 1.1 cm×1.3 cm in diameter. On color Doppler imaging, this lesion demonstrated vascularity and on pulsed mode it had a venous flow pattern. On careful inspection, a communicating vessel from large periduodenal collateral feeding this duodenal varix (Fig. 2) could be demonstrated. After an informed consent, a total of 1.5 mL of cyanoacrylate glue was injected into the duodenal varix. Post injection there was no bleeding. EUS repeated 4 days after injection of

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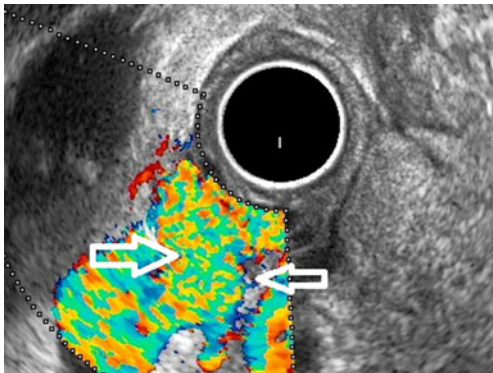


**Fig. 1** Submucosal lesion with central ulceration in first part of duodenum

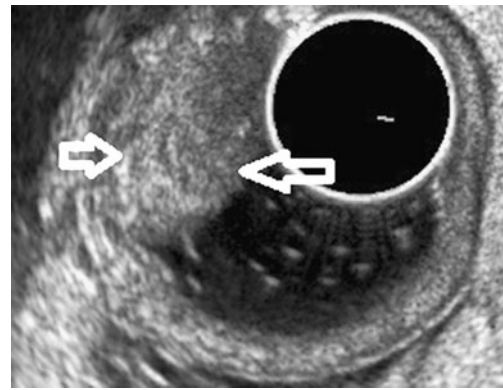
glue demonstrated complete obliteration of the duodenal varix with absence of flow on color Doppler (Fig. 3). There has been no recurrence of bleed at 6 months follow up.

### Discussion

Duodenal varices present as a submucosal bleeding lesion and EUS can help in differentiating them from other submucosal lesions. Injection of cyanoacrylate glue into a duodenal varix is an effective modality for achieving hemostasis [5]. However, there is no consensus on the investigation that can effectively demonstrate adequacy of glue injection. The finding of varices being firm on probing



**Fig. 2** Color Doppler demonstrating communication between a large collateral and the duodenal varix (arrows)



**Fig 3** EUS showing obliteration of the duodenal varix (arrows)

during follow up endoscopy has been suggested as a marker of effective injection. However, this may not completely exclude the presence of blood flow in the duodenal varix. EUS helps in management of duodenal varices by:

1. Achieving correct diagnosis of duodenal varix. On EUS the lesion is seen as anechoic, and having vascularity on color Doppler.
2. Aiding in application of sclerosant or glue or coils into the duodenal varix. This is helpful when adequate visualization of the varix is not possible with conventional endoscopy.
3. Judging the adequacy of endoscopic therapy by demonstrating absence of blood flow in the varix.

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### References

1. Hashizume M, Tanoue K, Ohta M, et al. Vascular anatomy of duodenal varices: angiographic and histopathological assessments. *Am J Gastroenterol.* 1993;88:1942–5.
2. Wang CS, Jeng LB, Chen MF. Duodenal variceal bleeding successfully treated by mesocaval shunt after failure of sclerotherapy. *Hepatogastroenterology.* 1995;42:59–61.
3. Rana SS, Bhasin DK, Singh K. Duodenal varix diagnosed by endoscopic ultrasound. *Clin Gastroenterol Hepatol.* 2010;8:A24.
4. Kouqeer F, Morrow C, Jordan P. Duodenal varices as a cause of massive upper gastrointestinal bleeding. *Surgery.* 1987;102:548–52.
5. Paterlini A, Rolfi F, Buffoli F, et al. Endoscopic treatment of a bleeding duodenal varix using N-butyl-2-cyanoacrylate. *Endoscopy.* 1993;25:434.