EUS-guided Treatment of Varices when Endoscopically Not Visualized

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Background

- Variceal hemorrhage is a dreaded complication of portal hypertension.
- Contrary to esophageal variceal management, there are no consensus guidelines for the treatment of gastric or rectal varices.
- Endoscopic techniques such as glue, banding require direct endoscopic visualization of varices.
- Here we describe two cases of gastric fundal varices and a case of rectal varix which were not apparent in endoscopy but were identified and successfully treated with coil and gel foam under endoscopic ultrasound (EUS) guidance.

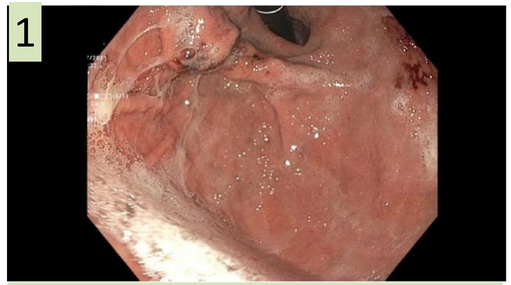
Case 1

- A 62-year-old female with decompensated liver cirrhosis due to alcoholic cirrhosis and NAFLD with prior gastric varices treated with glue injection presented with her second episode of upper gastrointestinal bleeding.
- Bedside EGD showed a glue cast ulcer without obvious gastric varices.
- EUS revealed varices of 6 mm diameter. Three 10mm embolization coils were deployed followed by injection of 8 ml gel foam-normal saline slurry into the varix.
- Doppler post treatment showed decrease in flow of varices.

Case 2

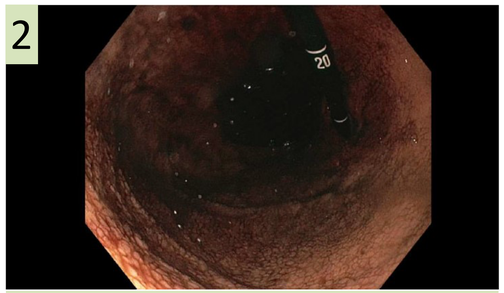
- A 60-year-old male with a history of metastatic colon cancer and non-cirrhotic portal hypertension presented for surveillance endoscopy after a recent gastric variceal hemorrhage requiring balloon tamponade.
- Treatment was not indicated in the index EGD after removing balloon tamponade as there was no detectable doppler flow in the nonbleeding gastric varices.
- Surveillance EGD did not show gastric varices or any signs of bleeding.
- EUS identified two large gastric fundus varices of 10 mm which were successfully treated with two 8 mm x 4 mm coils and 8 ml of gel foam.

Clinical Images



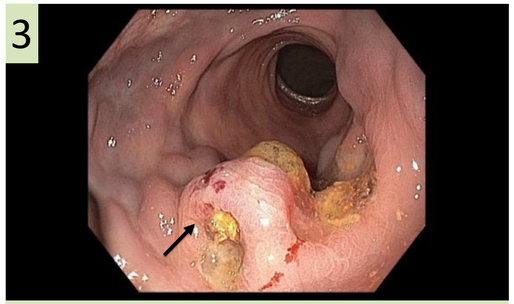
EGD: Glue cast ulcer, no varices

EUS: Fundal varices



EGD: Esophageal and gastric varices without doppler flow

EUS: Fundal varices



Flexible sigmoidoscopy: Non-bleeding glue cast ulcers without doppler flow

EUS: Decompression of rectal varix post treatment

Case 3

- 63-year-old male with history of decompensated alcohol related cirrhosis and known rectal varices treated with prior glue injection presented with recurrent rectal bleeding.
- Flexible sigmoidoscopy showed non-bleeding glue cast ulcers. No doppler flow was detected.
- EUS showed a varix of 5 x 15 mm with doppler flow. A 10 x 14 mm embolization coil followed by 4 ml gel foam slurry was injected.
- Surveillance endoscopy in 2 weeks showed decompression of rectal varices without doppler flow.

Advantage of EUS

- In all three cases, endoscopy did not show obvious varices to guide treatment.
- EUS was able to precisely localize the feeder vessels and treat varices in a targeted manner.
- Prior studies have shown that EUS can identify and treat significantly higher number of gastric varices with a lower bleeding rate compared to direct endoscopy.
- There was no recurrence of bleeding or adverse events in these cases.

Gel Foam Technique

- The target varix is the penetrating varix that feeds the surrounding varices. It was identified as a tubal anechoic structure in the submucosal (third) layer of gastric wall close to the lumen.
- A 19-gauge access needle was used to puncture the varix with return of blood confirming needle placement into the vessel.
- Coil size was selected such that it was 30% larger than the maximum diameter of the penetrating varix. This is to achieve adequate decompression and to avoid embolization.
- Following deployment of coils, absorbable gel foam mixed with normal saline slurry was injected.
- Color doppler confirmed the eradication of varices.
- Gel foam overcomes disadvantages of glue such as solidifying within injection needle, damage to endoscope, inadvertently unroofing varix if glue polymerizes on needle tip as well as systemic embolization.