

Case Report

Endoscopic ultrasound coil placement of gastric varices: Emerging modality for recurrent bleeding gastric varices

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Abstract

Gastric varices are the probable source of bleeding in 10-36% of patients, with acute variceal bleeding and carry high mortality and rebleeding rates. Till date, cyanoacrylate glue injection is considered as the standard of care but has high complication rate. Endoscopic ultrasound (EUS) guided coil placement is a new emerging technique of management of gastric varices. In this case report, we detail the EUS guided coil placement for management of gastric varices after failed glue injections.

Key words

Endoscopic ultrasound guided coil placement, gastric varices, variceal bleeding

Introduction

Gastric varices (GVs) are seen in 18-70% of the patients with portal hypertension and are the probable source of bleeding in 10-36% of patients with acute variceal bleeding.^[1-3] Bleeding from GV is often massive and often difficult to manage. Bleeding GV has a mortality of 10-30% and a chance of re-bleeding with glue technique is 22-37%. Emerging use of endoscopic ultrasound (EUS) not only provides a tool for confirming eradication of GV but can also serve as an innovative management strategy. We report a case of about 45 year male with cryptogenic cirrhosis of liver who presented to us with recurrent bleeding GV in spite of repeated glue injection therapy and was managed by EUS guided coil placement.

Case Report

A 45-year male presented with upper gastrointestinal bleeding

(UGIB) with history suggestive of cryptogenic liver cirrhosis and repeated glue injection for bleeding gastric varices (GVs). On admission his Hb 9.5 gm/dL, total lymphocyte count 3500 cells/cu.mm, platelet count 1,50,000/cu.mm, his liver and renal function test were normal, upper gastrointestinal endoscopy was suggestive of large gastroesophageal varix type II [Figure 1], and small esophageal varices. Patient was treated with conventional modalities that is, injection intravenous terlipressin 2 mg bolus dose followed by 1 mg 4 times a day and was adequately resuscitated. As patient had recurrent UGIB in spite of repeated glue (N butyl 2 cyanoacrylate) injections, we considered alternative therapy which included surgery, transjugular intrahepatic portosystemic shunt, and endoscopic coil placement. It was decided after discussion to perform EUS guided coil placement.

Endoscopic ultrasound was performed by linear array echoendoscope (Olympus), GV was identified as round and oval anechoic structures within submucosa confirmed by demonstration of flow at Doppler. Perigastric collaterals were also visualized [Figure 2]. Vascular anatomy was displayed particularly the afferent feeding veins at muscularis propria of the fundus. Prophylactic intravenous amoxicillin-clavulanic acid 1.2 G was administered before the procedure, followed by 625 mg oral thrice a day for 3 consecutive days. Nineteen gauge EUS needles (Cook Endoscopy, Salem, USA) and standard coils for intravascular use (MREYE, Cook Endoscopy;

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stainless steel synthetic fibered, 0.035 inches in diameter; straight lengths of 80 mm; coiled diameter of 8 mm) were used. Under EUS guidance, needle was forwarded into target vessel and placed in the center of GV [Figure 3]. Coil was pushed by stylet of 19 G EUS needle, and two coils were deployed

sequentially. Placing the needle tip at the opposite wall was avoided to permit adequate space for coils to curl. Contrast was injected to confirm thrombosis of varix. Propranolol 40 mg/day was reintroduced for secondary prophylaxis.

Patient is on regular follow-up for last 5 months, and there has been no episode of further bleed.

Discussion

Hemorrhage from GV is associated with high mortality and re-bleeding rates. Endoscopy guided cyanoacrylate injection is standard modality of treatment for bleeding GVs with a hemostasis rate of 98.4% and high re-bleeding rate of 22-37%.^[4-6] Although glue injection is preferred over endoscopic variceal ligation and sclerotherapy, it has technical difficulties such as para-variceal injection, needle sticking in the varix, intra-peritoneal injection causing peritonitis, and adherence of glue to the scope. Complications such as fever, mucosal necrosis, and embolization into the renal vein, IVC, pulmonary, systemic veins, as well as retro-gastric abscesses, are also reported.^[7-10]

Emerging use of EUS provides optimism of better diagnosis, improved classification, new management modalities, and confirmatory tool for eradication of GVs. EUS has an important role in visualization of esophago-GVs and other venous collaterals, dilatation of the azygos vein, splenic vein, and portal vein, increased diameter of the thoracic duct. It also helps to measure the size of varices (diameter) and variceal wall thickness, the latter which is a better predictor of bleeding than varices diameter alone. GVs are identified as anechoic oval or round structures within submucosa.

Endoscopic ultrasound coil placement of GVs recently has been used to treat GV with an aim to have lesser sessions for endotherapy events when compared to glue injection, reduces number of endoscopies has fewer adverse events when compared to cyanoacrylate (CYA) injection, coil before glue injection may decrease the amount of glue and it acts as a scaffold to retain CYA at the injection site to prevent embolization. A study by Romero-Castro *et al.* comparing EUS guided coil placement with EUS CYA injection revealed less complications, reduced hospital stay, decrease endoscopic sessions with coil placement compared to CYA injection.^[11] Binmoeller *et al.* reported coil deployment prior to glue injection appears to reduce the amount of glue to achieve varix obliteration and may prevent embolization.^[12]

Though EUS guided coil placement for GVs is a promising technique, it has technical challenges including the need to place the needle in the center of vessel to allow coils to curl sufficiently. Use of 19 G needle which is stiff and has somewhat blunt tip may occasionally tear the vessel wall and increase amount of coils may impair visualization of the needle tip making the procedure difficult.



Figure 1: Large gastroesophageal varices type 2



Figure 2: Endoscopic ultrasound image of gastric varix appearing as oval anechoic structure within submucosa



Figure 3: Gastric varix postcoil deployment

Conclusion

Endoscopic ultrasound coil placement of GVs is a newer modality which can be implemented in recurrent UGIB secondary to GV not responding to repeated glue injections and also can prevent complications associated with glue injection.

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