Endoscopic Management of Gastric Variceal Bleeding

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KEYWORDS

• Gastric varices • Endoscopic ultrasound • Cyanoacrylate • Coil embolization

KEY POINTS

- Gastric varices occur in 20% of patients with portal hypertension, but have a 65% risk of bleeding with high mortality due to high intravariceal pressure.
- Endoscopic treatment with cyanoacrylate injection is recommended as first-line therapy (Baveno IV, American Association for the Study of Liver Disease guidelines).
- Systemic embolization of cyanoacrylate injection is a major, potentially fatal complication.
- Endoscopic ultrasound (EUS) guidance enables direct intravascular delivery of therapy and selective targeting of feeder vessels.
- EUS-guided delivery of a coil followed by glue is a novel approach that may reduce the risk of glue embolization and improve treatment outcomes.

INTRODUCTION

Gastric varices (GVs) are less common than esophageal varices, but may be present in up to 20% of patients with portal hypertension. As many as 65% of GVs will bleed over 2 years.[1] The cumulative risk of bleeding of incidentally detected GVs at 1, 3, and 5 years has been reported to be 16%, 36%, and 44%, respectively.[2] The estimated incidence of bleeding from GVs in the United States is approximately 7000 cases per year.[3] The mortality from the first variceal bleed has remained high, at 20% within 6 weeks of the index bleed.[4] There is also a high risk of rebleeding, ranging from 3% to 89%, following initial intervention.[5,6] More effective primary and secondary treatment modalities are needed. This article discusses the evolving role of endoscopic treatment of GVs.

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Endoscopic Classification of Gastric Varices

GVs differ in morphology, pathophysiology, natural history, and response to endoscopic treatment. The vascular anatomy of GVs is classified into 2 types: type 1 (localized type) consists of a single varicose vessel with almost the same diameter as the inflow/outflow vein, and type 2 (diffuse type) consists of multiple varicose vessels with complex vascular connections.[1] Gastric varices may exist as extensions of esophageal varices as 2 types: gastroesophageal varices type 1 (GOV1) are found along the lesser curvature, and gastroesophageal varices type 2 (GOV2) are found at the cardia. Isolated GVs (IGVs) exist as 2 types: IGV1s are located in the fundus, and IGV2s are sporadic. These distinctions are important in predicting the frequency of bleeding and the response to treatment.[7] IGVs have the highest flow rates, are larger in size, and have deeper feeding vessels, resulting in more severe bleeding episodes.[8,9]

Endoscopic Treatment of Gastric Varices

Endoscopic therapy of variceal bleeding has become established as first-line therapy as recommended by the Baveno IV consensus[10] and American Association for the Study of Liver Disease guidelines.[11] Variceal ligation has performed well in the treatment of esophageal varices; however, results with GVs have not been favorable.[5] Sclerosants have had less success in the treatment of GVs, because they are associated with a high incidence of complications, including gastric ulcerations and perforation, and recurrent bleeding rates of 37% to 89%.[5,6,8]

Direct endoscopic cyanoacrylate (CYA) injection of bleeding GVs (**Fig. 1**), first described by Soehendra and colleagues[12] in 1986, is widely considered first-line endoscopic therapy.[10] N-butyl-2-cyanoacrylate (Histoacryl) has been used in a number of sizable case series with hemostasis rates of greater than 90%, variceal obliteration rates of 70% to 90%, and rebleeding rates less than 30%.[7,13] As secondary prophylaxis, cyanoacrylate injection has been shown to reduce rebleeding rates as

Fig. 1. Endoscopic injection of gastric fundal varices with CYA glue.