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ABOUT COVER

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AIMS AND SCOPE

The primary aim of World Journal of Gastrointestinal Endoscopy (WJGE, World J Gastrointest Endosc) is to provide scholars and readers from various fields of gastrointestinal endoscopy with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJGE mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal endoscopy and covering a wide range of topics including capsule endoscopy, colonoscopy, double-balloon enteroscopy, duodenoscopy, endoscopic retrograde cholangiopancreatography, endosonography, esophagoscopy, gastrointestinal endoscopy, gastroscopy, laparoscopy, natural orifice endoscopic surgery, proctoscopy, and sigmoidoscopy.

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CASE REPORT

Endoscopic ultrasound-guided treatment of isolated gastric varices entwined with arteries: A case report

Hong-Ying Zhang, Chen-Cong He, Ding-Fu Zhong

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Abstract

BACKGROUND

Interventional endoscopic ultrasound is clinically used for the treatment of isolated gastric varices (IGVs) owing to its precise visualization.

CASE SUMMARY

A 39-year-old man was diagnosed with a large IGV during a routine physical examination. Endoscopic ultrasonography showed gastric varices entwined with an artery, which greatly increased the difficulty of treatment. We successfully treated the patient with endoscopic ultrasonography-guided coil embolization combined with cyanoacrylate injection.

CONCLUSION

Endoscopic ultrasonography-guided coil embolization combined with cyanoacrylate injection was safe and effective for the treatment of an IGV entwined with an artery.

Key Words: Interventional endoscopic ultrasound; Isolated gastric varices; Cyanoacrylate; Coil embolization; Case report

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Core Tip: Isolated gastric varices (IGVs) are potentially fatal, and endoscopic treatment is the main treatment. Endoscopic ultrasound (EUS)-guided therapy is more precise than conventional endoscopic therapy. In this case, we successfully treated an IGV entwined with an artery by EUS-guided coil embolization combined with cyanoacrylate injection. This was an effective treatment of an IGV entwined with an artery.

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INTRODUCTION

Gastric varices (GVs) have a 65% risk of bleeding within 2 years and a mortality rate of up to 20%[1]. Endoscopic ultrasound (EUS)-guided therapy has recently become a cutting-edge treatment for GVs[2]. A relevant meta-analysis revealed an effectiveness rate of 93.7%, an occlusion rate of 84.4%, a recurrence rate of 9.1%, and a rebleeding rate of 18.6% for EUS-guided therapy of GVs, which were superior to direct injection during gastroscopy[3]. Ultrasound enables real-time visualization of the injection of cyanoacrylate into varicose veins, thus achieving a precision that is not possible with conventional endoscopic therapy. In addition, coil embolization combined with endoscopic cyanoacrylate injection reduces the risk of ectopic embolism. In this study, we report, for the first time, a case of an isolated GV (IGV) entwined with an artery that was successfully treated by EUS-guided coil embolization combined with cyanoacrylate injection.

CASE PRESENTATION

Chief complaints

This case involved a 39-year-old man who was admitted to the hospital with an IGV.

History of present illness

The patient was admitted to the hospital for endoscopic treatment of a large submucosal bulge in the gastric fundus that was approximately 4 cm × 5 cm in size and found during routine gastroscopy 2 wk previously. EUS examination revealed that the mucosal bulge was a varicose vein. There was no abdominal discomfort or gastrointestinal bleeding.

History of past illness

The patient had a history of hyperthyroidism, had been taking methimazole for a long time, and was a hepatitis B virus carrier.

Personal and family history

The patient was allergic to the iodine contrast agent.

Physical examination

Physical examination was unremarkable.

Laboratory examinations

Blood biochemistry test results, coagulation function, and immunoglobulin level were normal. Antinuclear antibody was weakly positive at a 1:80 dilution.

Imaging examinations

Colour ultrasound of the portal vein system showed no obvious abnormalities. Magnetic resonance imaging (MRI) enhancement in the upper abdomen revealed a blurred fat space around the mesangium of the upper abdomen, with multiple lymph nodes, consistent with panniculitis. A large varicose vein was seen in the fundus of the stomach (Figure 1A). Endoscopy revealed an IGV of approximately 4 cm × 5 cm (Figure 1B). EUS showed an IGV with a maximum diameter of 2.0 cm (Figure 2A). EUS also revealed a blood vessel entwined with the IGV, and colour Doppler revealed a pulsatile signal, which was determined to be an arterial vessel (Figure 2B).

FINAL DIAGNOSIS

The final diagnosis was an IGV entwined with an artery.



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Figure 1 Abdominal enhanced magnetic resonance imaging and endoscopy findings. A: Abdominal enhanced magnetic resonance imaging shows gastric varicose veins (white triangle); B: Endoscopic examination shows isolated gastric varicose veins of about 4 cm × 5 cm in size; C: Gastric varicose veins were decreased in size after treatment.

TREATMENT

EUS guidance allowed precise avoidance of the entwined artery and successful coil embolization by cyanoacrylate injection (Figure 2C). The IGV subsided after treatment (Figure 1C).

OUTCOME AND FOLLOW-UP

The patient had no abdominal pain, gastrointestinal bleeding, fever, or ectopic embolism and was discharged 3 d after the procedure. There was no obvious discomfort at the 1-year follow-up.

DISCUSSION

IGVs occur less frequently than oesophageal varices, but they are associated with higher morbidity and mortality rates [4]. The Sarin classification includes two types of GV. IGV1 are in the fundus of the stomach, and IGV2 are located anywhere other than the fundus[5]. IGVs are observed in cirrhotic and noncirrhotic patients with portal hypertension (PHT)[6]. The aetiology of IGV can be divided into three categories from the perspective of anatomy and pathophysiology: PHT, regional PHT, and anatomic variation[7]. PHT combined with cirrhosis is the most common cause of gastroesophageal varices and IGV. The second is left PHT, which is more common in patients with splenic-vein occlusion or stenosis caused by pancreatic tumours, pancreatitis, and other diseases, resulting in regional PHT[8]. Anatomical variation is rare, and any structural abnormality that obstructs venous return can lead to the formation of GVs[7].

Most IGVs are asymptomatic, are found incidentally, and are usually diagnosed by endoscopy. EUS is more accurate than endoscopy for observing IGVs and evaluating splenic venous patency. Contrast-enhanced computed tomography (CECT) and magnetic resonance angiography detect not only many gastric varicose veins but also reveal portal collateral circulation[7]. This patient had a history of chronic liver disease, but there was no diagnostic basis for PHT or a history of pancreatic disease. MRI enhancement revealed no obvious anatomical abnormalities. Unfortunately, the vascular anatomy could not be clearly shown because the patient was allergic to the iodine contrast media used with CECT.

GV treatment has changed in recent decades. Transjugular intrahepatic portosystemic shunts are considered effective for reducing portal pressure and the risk of bleeding from oesophageal varices. However, the effectiveness of GV treatment is decreased if bleeding occurs when the portal vein pressure is low[9]. Study results show a 76.9%-100% success of balloon retrograde transvenous obliteration treatment for acute GVs. However, it was used only for treating GVs with a gastrorenal or gastro-vena cava shunt, which is limited to centres with advanced radiological capability[10]. EUS-guided coil deployment for treating IGVs is a novel intervention that has recently attracted considerable attention, and it can be combined with injection of cyanoacrylate given to embolize the IGV and feeders to prevent recurrence. EUSguided coil deployment with cyanoacrylate injection/sclerotherapy has a reported success rate of 87.5%-94% for the treatment of IGVs[1,11]. A meta-analysis found that EUS-guided therapy was effective and safe for treating GVs, with an overall technical success rate, of 100%, a clinical success rate of 97%, and an adverse event rate of 14%. Compared with cyanoacrylate injection alone or coil embolization alone, EUS-guided coil embolization combined with cyanoacrylate injection was reported to be the preferred strategy for the treatment of GVs[12]. This patient had no signs of gastrointestinal bleeding, but because the occurrence of bleeding can be fatal, we chose endoscopic primary prevention therapy after discussion with the patient. However, EUS revealed arterial entwinement of the IGV, greatly increased the difficulty and risk of treatment. If the puncture needle accidentally punctures the artery, severe haemorrhage or extensive ischemic necrosis of the tissue may occur. Large GVs are often associated with abnormal shunts, and in this case, EUSguided visualization made it easier to avoid the entwined artery, reduced difficulty and risk, and resulted in successful treatment by coil embolization combined with endoscopic injection of cyanoacrylate.

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Figure 2 Endoscopic ultrasound-guided therapy. A: Endoscopic ultrasonography shows varicose veins with a maximum diameter of 2.0 cm; B: Endoscopic ultrasonography shows a blood vessel entwined with varicose veins, and colour Doppler shows a pulsatile signal; C: Endoscopic ultrasound-guided coil embolization combined with cyanoacrylate injection.

CONCLUSION

EUS-guided interventional therapy was used to successfully treat an IGV entwined with arteries. because of the small sample size, its efficacy and safety need further evaluation in prospective studies.

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FOOTNOTES

Author contributions: Zhang HY contributed to manuscript writing and editing and data collection; Zhong DF assisted in writing the paper; He CC revised the manuscript.



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