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Current approaches to the management of jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy

Dmitry Victorovich Garbuzenko

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Abstract

Jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy due to portal hypertension caused by extrahepatic portal vein obstruction is a life-threatening complication and is very difficult to treat. Pharmacotherapy, endoscopic methods, transcatheter embolization of veins supplying the jejunal afferent loop, portal venous stenting, and surgical procedures can be used for the treatment of jejunal variceal bleeding. Nevertheless, the optimal management strategy has not yet been established, which is due to the lack of randomized controlled trials involving a large cohort of patients necessary for their development.

Key Words: Pancreaticoduodenectomy; Hepaticojejunostomy; Extrahepatic portal vein obstruction; Portal hypertension; Jejunal variceal bleeding; Management

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Core Tip: Pharmacotherapy, endoscopic methods, transcatheter embolization of veins feeding the afferent loop of the jejunum, portal vein stenting and surgical interventions can be used to treat jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy. Nevertheless, the optimal management strategy has not yet been established, which is due to the lack of randomized controlled trials involving a large cohort of patients necessary for their development.

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INTRODUCTION

I read with interest a case report by Liu *et al*[1], who presented three patients with jejunal variceal bleeding at the site of choledochojejunostomy managed by endoscopic sclerotherapy with lauromacrogol/ α -butyl cyanoacrylate injection. All of the patients had previously undergone Whipple procedure. Jejunal variceal bleeding at the site of choledochojejunostomy (hepaticojejunostomy) after Whipple procedure (pancreaticoduodenectomy) is described quite rarely, and the incidence of this complication is still unknown[2].

MANAGEMENT OF JEJUNAL VARICEAL BLEEDING AT THE SITE OF HEPATICOJEJUNOSTOMY AFTER PANCREATICODUODENECTOMY

Portomesenteric venous complications such as stenosis and thrombosis are serious complications of pancreaticoduodenectomy[3]. As a result of extrahepatic portal vein obstruction (EHPVO), portal hypertension promotes the formation of hepatopetal collaterals *via* low-resistant natural vascular spaces such as pancreaticoduodenal or gastrocolic veins along the afferent jejunal loop rather than newly formed postoperative tissue around the hepatic hilum. This can lead to the development of jejunal varices at the site of hepaticojejunostomy and bleeding from these varices[4].

The management of patients with jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy can be challenging and requires a multidisciplinary approach involving gastroenterologists, endoscopists, interventional radiologists, and surgeons to determine optimal therapeutic tactics. Mild bleeding may stop spontaneously. However, continuous bleeding requires immediate medical attention[5].

Although the existing evidence on the efficacy of pharmacological treatment for EHPVO-related variceal bleeding remains inconclusive, modern guidelines consider it possible to apply the recommendations for gastroesophageal variceal bleeding in liver cirrhosis patients. These guidelines suggest the use of vasoactive drugs such as terlipressin, somatostatin, and octreotide for at least 5 days. Non-selective β -blockers, including propranolol, nadolol or carvedilol, is the treatment of choice for secondary prophylaxis[6].

Endoscopic treatment, in particular, sclerotherapy injecting N-butyl-2-cyanoacrylate[7-9] or 1% aethoxysklerol[10], argon plasma coagulation[11], endoclip[12], *etc.*, can be used as a first-line method to control EHPVO-related jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy. The anatomic difficulty often prevents the jejunal afferent loop from being reached using conventional upper gastrointestinal endoscopy. In this situation, balloon-assisted enteroscopy may be useful[13].

Transcatheter embolization of veins supplying the jejunal afferent loop is an interventional radiological procedure to prevent EHPVO-related jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy. To perform this procedure, a surgical approach *via* the ileocolic vein or a percutaneous transsplenic approach can be applied. N-butyl-2-cyanoacrylate mixed with lipiodol or 5% ethanolamine oleate with iopamidol are usually used for embolization[10,14]. The disadvantages of transcatheter embolization of veins supplying the jejunal afferent loop are the technical complexity due to the abundance of collaterals at the hepatic hilum, the potential danger of liver dysfunction and worsening of portal hypertension caused by blockage of the hepatopetal flow with high probability of recurrence of variceal bleeding. However, if combined with portal venous angioplasty and stenting, this approach can be particularly effective[15].

Portal venous stenting is another interventional radiological procedure to prevent EHPVO-related jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy[16]. Self-expanding nitinol stents are placed in the portal vein usually *via* an ultrasonography-guided percutaneous transhepatic and/or transsplenic approach, and a surgical approach for insertion *via* the ileocolic vein. Stent length should be selected to ensure coverage of the entire stenotic lesion (approximately 2 cm longer)[17,18]. In a study by Nakai *et al*[19], portal vein stent placement was technically feasible and effective in improving portal hypertension. However, stent occlusion was not uncommon. Residual portal vein stenosis > 30% after stent placement is largely associated with stent occlusion.

Surgical procedures for EHPVO-related jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy include meso-Rex bypass and portosystemic shunts. Meso-Rex bypass represents the only and last resort to restore physiological portal vein flow for EHPVO. Although successful in a majority of patients, this procedure is associated with major morbidity and mortality and should be performed in tertiary centers experienced in vascular liver surgery to obtain the best results[20]. A portosystemic shunts allows for reliable portal decompression for EHPVO. The shunting site and anastomosis method can be selected individually. For example, Lee *et al*[21] reported on the mesocaval shunt operation after the failure of portal venous stenting. Saeki *et al*[10] created an end-to-side anastomosis between the dilated jejunal vein and the right ovarian vein. Shiozaki *et al*[22] performed a superior mesenteric vein to the right testicular vein shunt operation.

CONCLUSION

The optimal management strategy for EHPVO-related jejunal variceal bleeding at the site of hepaticojejunostomy after pancreaticoduodenectomy has not yet been established. This is due to the lack of randomized controlled trials involving a large cohort of patients necessary for their development.

FOOTNOTES

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