Intramural Hemorrhage of the Splenic Artery Aneurysm Mimicking Submucosal Tumor of the Stomach

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Abstract

Aneurysm of the visceral vessels are rare, however the mortality rate for such events are extremely high. The proper surgical intervention of this disease is important to achieve a positive outcome.

The patient was referred to our hospital complaining of severe epigastralgia gastrointestinal fiberscope showed an elevated lesion mimicking a submucosal tumor of the stomach. CT scan revealed impending rupture of splenic aneurysm severe collateral venous dilatation. We diagnosed it to be a large intramural hemorrhage of a splenic artery aneurysm. We performed the superselective microcoil embolization technique. The surgical intervention was successful without any complication. Although gastrofiberscopic examination showed a tumor-like lesion, we must be careful whether we perform a biopsy or not, and we must keep visceral aneurysm in our mind as differential diagnosis.

Keywords: Splenic Aneurysm; Submucosal Tumor of the Stomach/Microcoil Embolization

Introduction

A visceral arterial aneurysm is a severe complication with a high mortality rate, especially when it leads to massive gastrointestinal hemorrhage. Generally, surgery has been considered as a first choice of treatment. Here, we describe a case of an intramural rupture of a splenic artery aneurysm complicated by extrahepatic portal vein obstruction (EHO) mimicking submucosal tumor of the stomach with fibrescopic examination. Successful treatment was accomplished by superselective microcoil embolization.

Case Report

A 51 year-old Chinese male was admitted to our hospital with severe epigastric pain. He had no history of pancreatitis or any liver disease. Physical examination of the abdomen revealed was unremarkable. Gastrofiberscopic examination showed an elevated lesion mimicking a submucosal tumor of the dorsal aspect of the stomach. Portal hypertensive gastropathy was also observed (Figure 1). Laboratory examination showed the following results: white blood cell count 7300 / mm³; red blood cell count 451x10³ /mm³; hemoglobin 14.3 g/dl; platelet 18.2x10³ / mm³; aspartate aminotransferase 19 IU/L; alanine aminotransferase 15 IU/L; total bilirubin 0.7 mg/dl; blood urea nitrate 18.6 mg/dl; creatinine 0.7 mg/dl. Serological tests for hepatitis viruses B and C were negative. Computed tomography demonstrated a mass approximately 7 cm in diameter occupying in the dorsal side of the stomach. There was a partial contrast enhancement in the lesion. The portal vein was obstructed completely and collateral venous dilations were evident especially around the perimeter of the
stomach. Radiographic splenomegaly was also observed (Figure 2). At angiography, a splenic artery injection revealed a 2 cm diameter aneurysm arising from the side branch of the splenic artery. The portography via superior mesenteric artery showed complete obstruction with marked development of collateral veins in the area of the hepatoduodenal ligament (Figure 3). A 3-French catheter was passed into the aneurysm followed by seven 20-30 mm soft platinum coils (IDC soft, TARGET) and four 85 mm fibered platinum coils (VORTX, TARGET). The post-embolization angiography showed complete occlusion of the aneurysm (Figure 4). The patient was discharged from our hospital seven days after surgical treatment without any complications.

**Figure 1.** Gastrofiberscopic examination showed an elevated lesion mimicking a submucosal tumor in the great curvature of the stomach.

**Figure 2.** CT scan demonstrated a mass with a partial contrast enhancement. The collateral venous dilatation was evident especially around the stomach.

**Figure 3(a).** Angiography (a) revealed an aneurysm approximately 2 cm in diameter arising from the side branch of the splenic artery. Portography via splenic artery.

**Figure 3(b).** Angiography (b) revealed complete obstruction and the marked development of collateral veins.
Figure 4. The post-embolization angiography showed complete occlusion of the aneurysm.

Discussion

Visceral artery aneurysms are relatively uncommon but the mortality rate is extremely high. In the previous reports, 25% of the patients presented acutely as surgical emergencies and 8.5% resulted in death [1]. Although uncommon patients with these types of aneurysms require early diagnosis and surgical intervention.

Involved arteries and their frequencies are reported as follows; splenic artery 60%, hepatic artery 20%, superior mesenteric artery 5.5%, celiac artery 4%, gastroepiploic artery 4%, pancreatoduodenal artery 2%, gastroduodenal artery 1.5% [2].

Splenic artery aneurysms (SAA) frequently occur in females with a male-to-female ratio of 4:1. Most of the patients have premorbid conditions of portal hypertension, pregnancy, atherosclerosis, or fibromuscular dysplasia. The etiology of SAA remains unclear; however it has been theorized that the origin of the disease is influenced by degenerations of the arterial wall. In the patient with portal hypertension, hyperdynamic circulation can be a contributing factor in the development of SAA. Extrahepatic portal vein obstruction (EHO) is the third leading cause of portal hypertension following liver cirrhosis and idiopathic portal hypertension (IPH) [3].

In our review of the literature there were no previous reports describing splenic artery aneurysm with primary EHO. Our case showed complete obstruction of the portal vein with the severe cavernous transformation of the collateral veins. Surgery has been considered the treatment of choice for splenic artery aneurysm. In the previous reports [4], the indications for the surgical treatment of splenic artery aneurysm are as follows; 1) aneurysm over 3cm in diameter, 2) women who pregnant or within childbearing age, 3) patient symptomatic with aneurysm over 2 cm in diameter. Like the case presented here, approximately 50% of the patients with visceral aneurysm are complicated by portal hypertension [5], which usually results in the development of collateral veins. These collateral veins can present a challenge to the surgeon performing open surgery because of the increase in risk of bleeding. For these reasons, the embolization of the aneurysm was considered as an alternative procedure for the management of this patient [6]. A 3–French microcather was passed coaxially through 4-French catheter into the aneurysm. At first, bladed coils were delivered into the aneurysm and then fibered coils were delivered. In general, the conventional bladed coil is relatively soft to minimize the physical stimulation for the arterial wall and it usually does not remain in large aneurysms. In order to avoid this complication, at the same time, we delivered fibered microcoils which immediately stimulated coagulation in the aneurysm.

It should be noted that no reports concerning long-term results after embolization have been published thus far. However at present it does appear that for the patient with a splenic artery aneurysm especially with the cavernous transformation of collateral veins, superselective transcatheter microcoil embolization is a safe and effective method.

Conclusion

Careful observation during gastrointestinal fibroscope must be taken to avoid wrong diagnosis between submucosal tumor and visceral aneurysm, as it may lead to fetal complication.

References