

Case Report

Surgical Management of Splenic Artery Aneurysm

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Abstract

Splenic artery aneurysms are a rare arterial disease. They are considered as the most common visceral artery aneurysms and found mostly in multiparous women and patients with portal hypertension. They are often difficult to diagnose due to their vague or asymptomatic forms. However, they present a high risk of rupture that may cause fatal hemorrhage and death. Symptomatic Artery Aneurysms or SAA, larger than 20 mm and aneurysms in pregnant or in women of childbearing age are indications for surgery because of the increased risk of rupture in these patients' groups. As known generally, the treatment of SAA has been surgical ligation of the splenic artery, ligation of the aneurysm or aneurysmectomy with or without splenectomy, depending on the aneurysm location. There are other percutaneous interventional procedures. We present a case of an unruptured SAA of the hilum in a 58-year-old woman, with vague abdominal pain, treated by open splenectomy.

Keywords: Splenic artery aneurysm; Splenic artery pseudoaneurysm; Splenic artery; Splenectomy for splenic artery aneurysm

Introduction

Splenic Artery Aneurysm (SAA), is rare and usually asymptomatic. It is the most common splanchnic vessel aneurysm with a reported incidence of 0.16% to 0.18% in autopsy cases [1]. SAA has a potential for fatal complications so that may necessitate repair when discovered [2]. Traditionally, open surgical techniques have been used to treat or exclude SAAs. More recently endovascular treatment has been widely accepted as the alternative for the management of these aneurysms [2]. In this article, we report a case of splenic artery aneurysm which has been treated by open surgery.

Case Presentation

A female, 58-year-old, with past medical history of hypertension, diabetes and ischemic stroke and surgical past of hysterectomy by middle umbilical laparotomy. She denied any abdominal trauma. She underwent an abdominal CT scan angiography for a non-specific, vague, diffuse abdominal pain with no other signs associated, for suspected acute mesenteric ischemia which revealed 2 saccular cystic lesions near the splenic hilum. The proximal one measured 20 mm in diameter and the second is distal with a calcified wall and measured 15.5 mm (Figure 1A and B). Besides, physical examination and biological data were normal. After multidisciplinary discussion, given the location in the hilum and the symptomatic nature of the aneurysm, the decision was to perform a splenectomy by open surgery because of previous abdominal surgery. Once the surgical indication established, we proceeded to preoperative vaccination against *Streptococcus pneumoniae* and *Haemophilus influenzae*. The patient underwent

splenectomy by a bi subcostal laparotomy. We found a calcified sacciform aneurysm measuring 20 mm on the path of the splenic artery, then we performed a retro pancreatic dissection following the splenic artery, here in the rear part of the pancreas we localized the second aneurysm which is also sacciform and calcified measuring almost 20 mm (Figure 2). So a double ligation of splenic artery was performed carrying both aneurysms, we continued dislocating the spleen for better exposure, and then carefully dissected the splenic vein from the splenic artery, then we had proceeded a ligation of the vein so that we finished the splenectomy and we did put two drains in the splenic lodge. The postoperative course was uneventful. The patient remains asymptomatic.

Discussion

Splenic artery aneurysms are the most common type of arterial visceral aneurysms, accounting for 60% of all cases [3,4]. This entity is four times higher in the female gender and almost associated with pregnancy, most likely due to the hyper dynamic state and hormonal effects in the vessel wall [5]. Its cause has not been established but the most common pathologic finding is a defect of the tunica media, with loss of elastic fibers and smooth muscle which can be associated with atherosclerosis [3]. In our case, the patient is multi-trade with clearly an atherosclerosis field as the splenic artery aneurysm cause.

Regarding the etiology, the most commonly incriminated causes for the development of a true splenic artery aneurysm include arterial or portal hypertension, cirrhosis, liver transplantation or pregnancy [6,7]. The diagnosis is often difficult because of non-specific symptoms. Most splenic artery aneurysms are asymptomatic, while others usually present with vague symptoms such as nausea, vomiting and dull abdominal pain or located in the left upper quadrant like in our present case symptomatology. Although the rupture could cause hemorrhagic shock leading to death. When splenic artery aneurysms are suspected, angiography is the gold standard for diagnosis [8]. Generally, SAA is diagnosed with CT angiography which enables arterial reconstruction and appreciates its features and location [5]. In the present case, the Angio-CT scan has confirmed the presence of two splenic artery aneurysms and has localized them on the path of the splenic artery.

Management of splenic artery aneurysms depends on their size,

Citation: Mesbahi M, Zouaghi A, Hadded D, Benzarti Y, Mahmoudi W, Cherif M, et al. Surgical Management of Splenic Artery Aneurysm. J Surg Surg Case Rep. 2021;2(1):1012.

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Publisher Name: Medtext Publications LLC

Manuscript compiled: Feb 04th, 2021

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Figure 1: Coronal abdominal CT scan picture showing a splenic artery aneurysm localized on the splenic hilum measuring 20 mm and associated with a calcified wall. The second is distal, in the rear part of the pancreas and it measured 15.5 mm with a calcified wall.

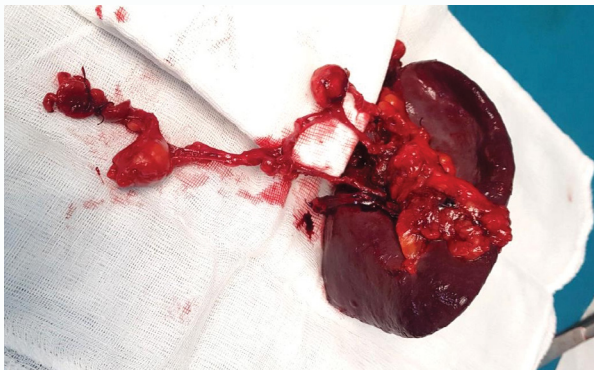


Figure 2: Postoperative picture showing surgical specimen: the spleen, the splenic artery aneurysms, and the splenic vein.

location, and presenting symptoms [8]. Splenic artery aneurysms are indicated for treatment in the following situations: Symptomatic patients, asymptomatic with lesions >2 cm [7], pregnant women or women of childbearing age with SAA >1 cm. Lesions between 1 cm and 2 cm in asymptomatic patients should be monitored every 3 years to assess growth [7]. Endovascular surgery is the gold standard. According to literature, trans catheter embolization has been more used, due to their low morbidity and mortality. However, not all aneurysms are suitable for this technique [9]. Nowadays, there are many and several surgical techniques for SAA but no guidelines for its treatment [5]. Therapeutic alternatives are several, ranging from a simple vascular ligation, by open or laparoscopic route, to splenectomy for the proximity of the aneurysm with the spleen [3]. The laparoscopic approach by experienced surgeon hands is a simple, safe, minimally invasive technique with rapid recovery compared with open. Through this approach, the aneurysm could be ligated, resected, excluded or obliterated with or without splenectomy [5]. In the case of proximal SAA, we can choose simple ligation, but in the case of those involving the hilum, splenectomy is indicated [8]. It is also indicated in unpredictable per operative splenic injury, dissection necessitating the sacrificing the short gastric vessels or if no flow is detected in the spleen on intra operative ultrasound. In the current case, the decision to submit the patient to open splenectomy was imposed by the hilum localization of the aneurysm and the surgical history of laparotomy.

This was the safest way to insure an adequate release of her condition.

Conclusion

A multidisciplinary discussion is an important step in choosing the optimal treatment for visceral aneurysms. Not all SAA is an indication of endovascular treatment especially those located at the hilum of the spleen exposing to the complication of massive splenic infarction. Surgical approaches should take place especially in cases where splenic perfusion is seriously threatened. Laparoscopic surgery has recently replaced open procedures, because of its low morbidity and short hospital stay. However, conventional surgery has not lost of its efficiency and indications, especially in hemodynamic emergencies, inexperienced surgeons or surgical history of laparotomy.

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