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Case Report

Surgical management of splenic artery aneurysm

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ABSTRACT

Introduction: 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.
Case presentation: 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.
Discussion: Splenic artery aneurysms 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.
Conclusion: A multidisciplinary discussion is an important step in choosing the optimal treatment for visceral aneurysms. Surgical approaches should take place especially in cases where splenic perfusion is seriously threatened.

1. Introduction

Splenic artery aneurysm (SAA), is rare and usually asymptomatic. It is the most common splanchnic vessel aneurysm with a reported incidence of 0.16–018% in autopsy cases [1]. SAA has a potential for fatal complications so that it 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 an alternative for the management of these aneurysms [2]. In this article, we report a case of a splenic artery aneurysm that has been treated by open surgery. This work has been reported concerning the SCARE 2020 criteria [3].

1.1. Patient and observation

A 58-year-old female, with a past medical history of hypertension, diabetes, and ischemic stroke, she denied any allergies neither drug history, and surgical past of hysterectomy by middle umbilical laparotomy. Also, she had no specific gynecologic or obstetric history. She presented with a non-specific, vague, diffuse abdominal pain with no other signs associated. She denied any abdominal trauma. Physical examination and biological data were normal. The abdominal CT scan angiography revealed 2 saccular cystic lesions near the splenic hilum. The proximal one measured 20 mm in diameter and the second was distal to the first one with a calcified wall and measured 15.5 mm (Fig. 1 & Fig. 2). After a 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 influenza. The patient underwent splenectomy by a bi subcostal laparotomy. We firstly 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 and localized the second aneurysm in the rear part of the pancreas, which was also sacciform and calcified measuring almost 25 mm (Fig. 3). So, a double

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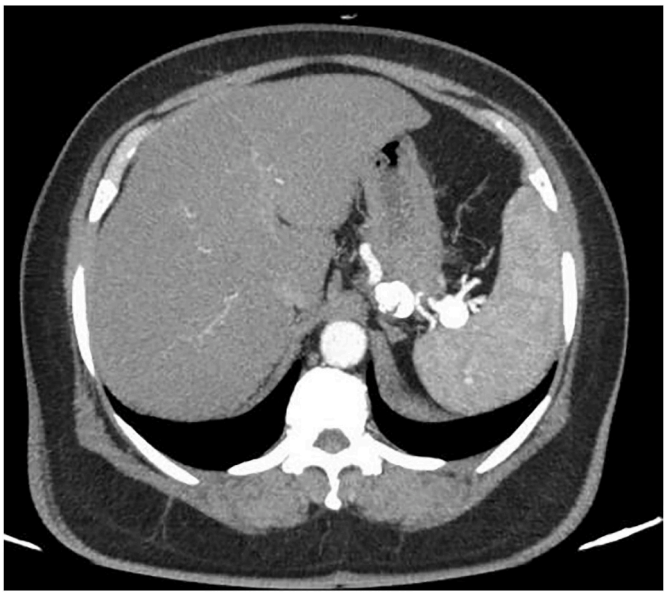

Fig. 1. Axial abdominal CT scan picture showing two splenic artery aneurysms localized on the splenic hilum: The proximal one measured 20 mm in diameter and the second was distal to the first one with a calcified wall and measured 15.5 mm.

Fig. 2. Coronal abdominal CT scan picture showing two splenic artery aneurysm localized on the splenic hilum.

ligation of splenic artery was performed carrying both aneurysms. We continued dislocating the spleen for better exposure and carefully dissected the splenic vein from the splenic artery. we had proceeded to a ligation of the vein so that we finished the splenectomy and did put two drains in the splenic lodge. The patient reported being satisfied with the intervention, and the postoperative course was uneventful. The patient remains asymptomatic.

2. 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 hyperdynamic 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 was multi-tared with clearly an atherosclerosis field as the splenic artery aneurysm cause.

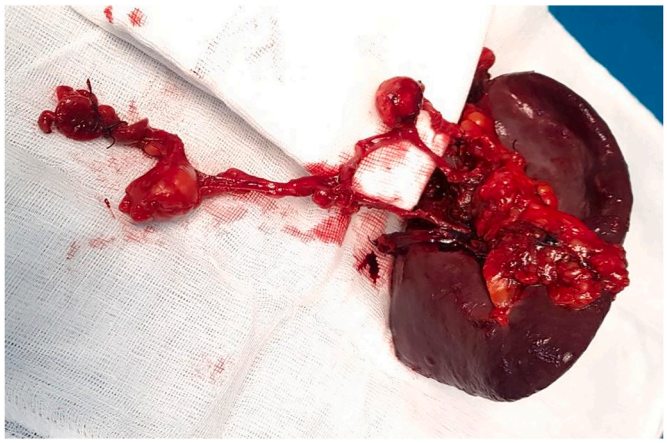

Fig. 3. Surgical specimen showing the dissected splenic artery aneurysms.

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, 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 and 2 cm in asymptomatic patients should be monitored every 3 years to assess growth [7]. Endovascular surgery is the gold standard. According to the literature, transcatheter embolization has been more used for its 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, done by experienced surgeon hands, is a simple, safe and minimally invasive technique with rapid recovery compared with open surgery. 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 [10]. It is also indicated in unpredictable per operative splenic injury, dissection necessitating the sacrificing of the short gastric vessels, or if no flow is detected in the spleen on intraoperative 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 ensure an adequate release of her condition.

3. 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 its efficiency and indications, especially in hemodynamic emergencies, inexperienced surgeons, or surgical history of laparotomy.

Conflict of interest for all authors

The authors declare no competing interest.

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Compliance with ethical standards

The patient has provided both verbal and written consent for the publication of This article. It was made sure that his identity will be kept a secret at all levels.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

All authors were involved in the researching, writing, and editing of the manuscript.

Research registration

Not applicable.

Guarantor

Meryam Mesbahi.

Ethical approval

The patient has provided both verbal and written consent for the publication of This article. It was made sure that his identity will be kept a secret at all levels.

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