

Left gastric artery pseudoaneurysm as a sequelae of chronic pancreatitis: recognizing a life-threatening complication

Case Report

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Abstract: Left gastric artery pseudoaneurysm is a rare but important life-threatening complication of chronic pancreatitis. We report a case of a 54-year-old male with chronic pancreatitis who presented with history of severe abdominal pain. Following an initial suspicion of acute pancreatitis, a computed tomography of abdomen was obtained that showed a large left gastric artery pseudoaneurysm (4x4 cm) with circumferential thrombosis. The patient then underwent successful angiographic coiling of the aneurysm, thus preventing a potentially life-threatening hemorrhage. In conclusion, in patients with a history of chronic pancreatitis who present with abdominal pain, a high index of suspicion should be maintained for alternate causes of abdominal pain such as visceral aneurysms involving left gastric artery. Early recognition is critical and consequences of missing these lesions can be catastrophic.

Keywords: Left gastric artery pseudoaneurysm • Chronic pancreatitis • Chronic abdominal pain

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1. Introduction

Visceral aneurysms occurring in patients with chronic pancreatitis are associated with significant morbidity and mortality [1-3]. The signs and symptoms of aneurysms can often be non-specific, and early recognition is critical to prevent catastrophic bleeding [1-3]. We report a rare case of left gastric artery pseudoaneurysm in a middle aged male who presented with severe abdominal pain initially thought to be due to acute pancreatitis.

2. Case Report

A 54-year-old male presented with one day history of severe abdominal pain associated with nausea. There was no history of vomiting, diarrhea or gastrointestinal

bleeding. His past medical history was significant for continued alcohol abuse and chronic pancreatitis. At presentation, serum amylase level was 446 U/L (normal: 20-105 U/L), and serum lipase level was 362 u/L (normal: 5-60 U/L). In view of the initial concern for acute pancreatitis, a computed tomography scan of the abdomen was performed. It demonstrated a pseudoaneurysm of the left gastric artery, measuring 4 cm x 4 cm, with circumferential thrombosis (Figure 1). The pseudoaneurysm was located just superior to the body of the pancreas that demonstrated coarse calcifications. Subsequently, angiography of the celiac artery was performed that showed a pseudoaneurysm of the third order branch of the left gastric artery (Figure 2). Using a micro-catheter system a 14 cm x 3 mm coil was deployed in the arterial lumen extending across the defect. A repeat arteriogram did not demonstrate any

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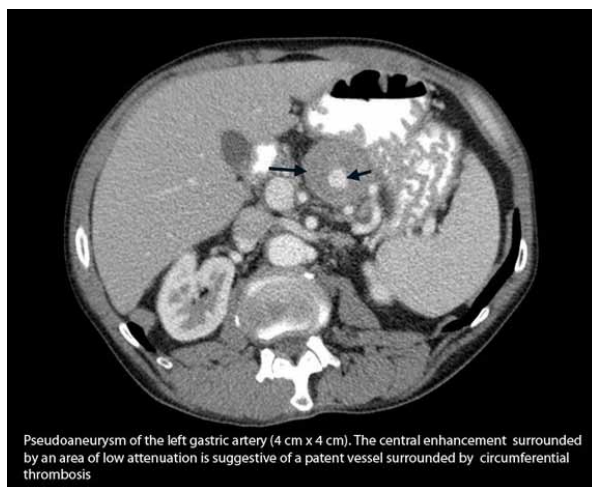


Figure 1. Computed tomography scan of the abdomen demonstrating pseudoaneurysm of the left gastric artery, measuring 4 cm x 4 cm, with circumferential thrombosis

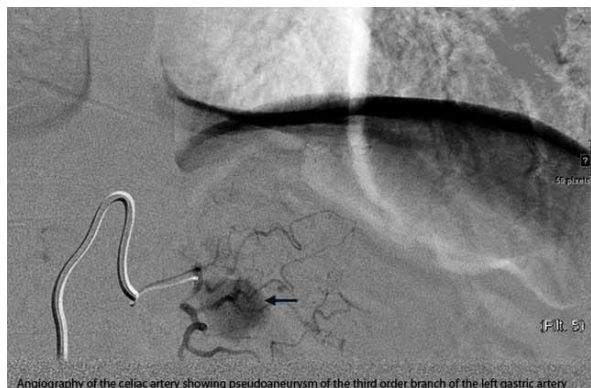


Figure 2. Angiography of the celiac artery showing a pseudoaneurysm of the third order branch of the left gastric artery.

extra luminal filling, indicating complete resolution of the pseudoaneurysm.

3. Discussion

The incidence of intra-abdominal visceral pseudoaneurysms is rare and has been reported to be less than 1% in postmortem studies [1,2]. They occur most commonly in the splenic artery (60%), hepatic artery (20%), superior mesenteric artery (5%), and celiac trunk (4%) [1,2]. Left gastric artery pseudoaneurysms are extremely rare. The pathophysiology of visceral pseudoaneurysm has been attributed to atherosclerosis (30%), traumatic (25%), inflammatory (15%), infective embolic processes or medial dysplasia and arteritis, and rarely, visceral artery aneurysm is associated with spontaneous splenorenal shunt [3-8]. Left gastric artery pseudoaneurysms most frequently develop as a vascular complication to an adjacent inflammatory process such as pancreatitis [4].

Patients with left gastric pseudoaneurysm often present with an acute abdomen and hemorrhagic shock due to rupture [4]. The risk of rupture of gastric and gastropiploic artery has been reported as up to 90%, with mortality reaching to about 70% [3]. The corresponding figures for hepatic artery, coeliac artery and splanchnic artery are 20-44%, 13%, and 2-20% respectively [5,9,10].

In the recent years, the widespread use of noninvasive imaging techniques such as Doppler ultrasound and cross-sectional body imaging for intra-abdominal pathology has resulted in increased incidental recognition of visceral artery aneurysms and pseudoaneurysms. Fortunately, this allows treatment of a large number of asymptomatic lesions, thereby reducing the catastrophic complications of a ruptured visceral artery aneurysm.

In hemodynamic unstable patients, such as those with ruptured aneurysms, the diagnosis is usually made on laparotomy [7,9]. In other situations, useful diagnostic imaging modalities include computerized tomography (CT) with intravenous administration of contrast material, MR angiography or ultrasonography with color Doppler flow imaging or spectral waveform imaging [9].

Endoscopic ultrasound (EUS), which can show the gastric wall in fine detail, is an excellent tool for diagnosing gastric submucosal lesions. The added doppler functionality of the EUS device is a better tool for diagnosing and following small aneurysms resembling submucosal tumors.

EUS with color doppler imaging can quickly verify whether a lesion is indeed vascular, and the presence and size of a thrombus can also be appreciated. Color doppler sonography can also evaluate complex flow patterns and internal hemodynamics such as high velocity central jets, bidirectional or swirling flow, very low flow adjacent to the aneurysm wall, and a mosaic color configuration. This will help to characterize and differentiate aneurysms from other vascular abnormalities. Furthermore, EUS with dopplers have an added advantage as it is portable and there is no need for iodine-based intravenous contrast material or ionizing radiation [9,11,12]. However, selective visceral angiography remains the gold standard for accurate localization of visceral pseudoaneurysms [4,9].

Indications for treatment of the asymptomatic visceral artery aneurysms are unclear. It is generally accepted that all aneurysms should be treated only if the surgical risk is acceptable. Based on reported literature, derived from retrospective studies, conservative treatment is recommended when visceral artery aneurysms/pseudoaneurysms are either too small in size (diameter: <1.5 cm) or when there is complete thrombosis of the

pseudoaneurysm [3,6,13]. These patients, however, require close follow up for any future complications.

In contrast, invasive treatment is recommended for all symptomatic visceral artery aneurysms/ pseudoaneurysms (regardless of the size) and for asymptomatic patients with aneurysms >2 cm in size [13]. The therapeutic strategies include surgical treatment or endovascular treatment. The surgical management consists of revascularization, resection of the aneurysm, ligation of the feeding vessels with some form of arterial reconstruction [13,14]. Endovascular approaches to managing visceral aneurysms and pseudoaneurysms offer an alternative to conventional open surgery with the benefit of low procedural morbidity and mortality. While endovascular treatment is safe and feasible and highly technically successful in selected patients, it is not suitable for large aneurysms with one or several collaterals [13,15-17]. Advantages of endovascular treatment include being less invasive, reduced length of hospital stay, and better quality of life in the perioperative period. Endovascular treatment can be performed

either with placement of endografts or coil embolization [13,15-18]. Endovascular stent-graft is preferred where the aneurysms are localized in the proximal or middle part of the artery, with a straight course of the artery [13,15-18]. In contrast, coil embolization has been used for saccular aneurysms [13,15-18].

4. Conclusion

Visceral artery pseudoaneurysm is a rare but important complication of chronic pancreatitis. Endovascular therapy can be a life-saving procedure in appropriately chosen patients. An awareness of this condition among health care providers is essential for its timely recognition and initiation of appropriate therapy before a catastrophic hemorrhage can occur.

Conflict of interest statement

Authors state no conflict of interest.

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