Case Report
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Splenic Artery Pseudoaneurysm – Unusual Pediatric Case

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Splenic artery is the third most frequently place of aneurysm in abdominal vessel taking place after abdominal aorta and iliac arteries. Pseudoaneurysm although differs from true one by histological point of view generally has same symptoms, complication. But aneurysms and pseudoaneurysms of the splenic artery require different management strategies. This entity can encounter in adult population not so rare but it is very unusual to see it in children. In our case we show complicated splenic artery pseudoaneurysm, it background and endovascular treatment.

Keywords: splenic artery, pseudoaneurysm, pediatric, endovascular treatment

Introduction

Complicated with the hemorrhage splenic artery pseudoaneurys could be life-treating condition, which required prompt intervention, ranging from embolization to radical surgery. Splenic artery pseudoaneurysm generally symptomatic and the most common presentation is abdominal pain upper or lower GI bleed, hemorrhage into pancreatic duct and hematemesis. Only small percentage of patient is asymptomatic [1]. In children population, unlike in adult where pancreatitis plays an important role most common cause of splenic artery pseudoaneurysm is blunt abdominal trauma. Although non-invasive methods like multidetector computed tomography (MDCT) angiography and magnetic resonance (MR) angiography become more popular in diagnosis of splenic aneurysm conventional digitally subtracted angiography is gold standard modality. Not only for diagnosis but endovascular treatment of aneurysms could be also possible in a same procedure [2]. Splenic artery aneurysms and pseudoaneurysms require different management strategies. Management of true aneurysm depends on size of aneurysm, patient status, pregnancy and of course symptoms. Follow up generally advised asymptomatic small size aneurysm except pregnancy. Because of high rite of hemorrhagic complication, which could be, life-threatening prompt intervention is advised in pseudo aneurysm cases [3].

Case Report

Eight years old female patient was admitted to our hospital with symptoms of epigastric pain lasting 14 days. Ultrasound reviled cystic lesion around duodenum in size of 3 x 4 cm. Upper abdominal magnetic resonance imaging (MRI) was performed with contrast administration. On MRI there was cystic lesion in oval shape located para-duodenal space without evidence of hemorrhage. Another cystic lesion was found in pancreatic glands caudate segment in size of 2 x 3 cm. Patient denied any trauma or symptoms of pancreatitis. Acute phase reactants were not elevated. Because of epigastric pain the patient was undergone to surgery. During operation there was found cystic lesion located para-duodenal `qspace, no evidence of clot but fluid content of the cyst was hemorrhagic. Cyst was removed totally. Pancreatic cyst was not touched because of absence of symptoms. The patient releases from hospi-

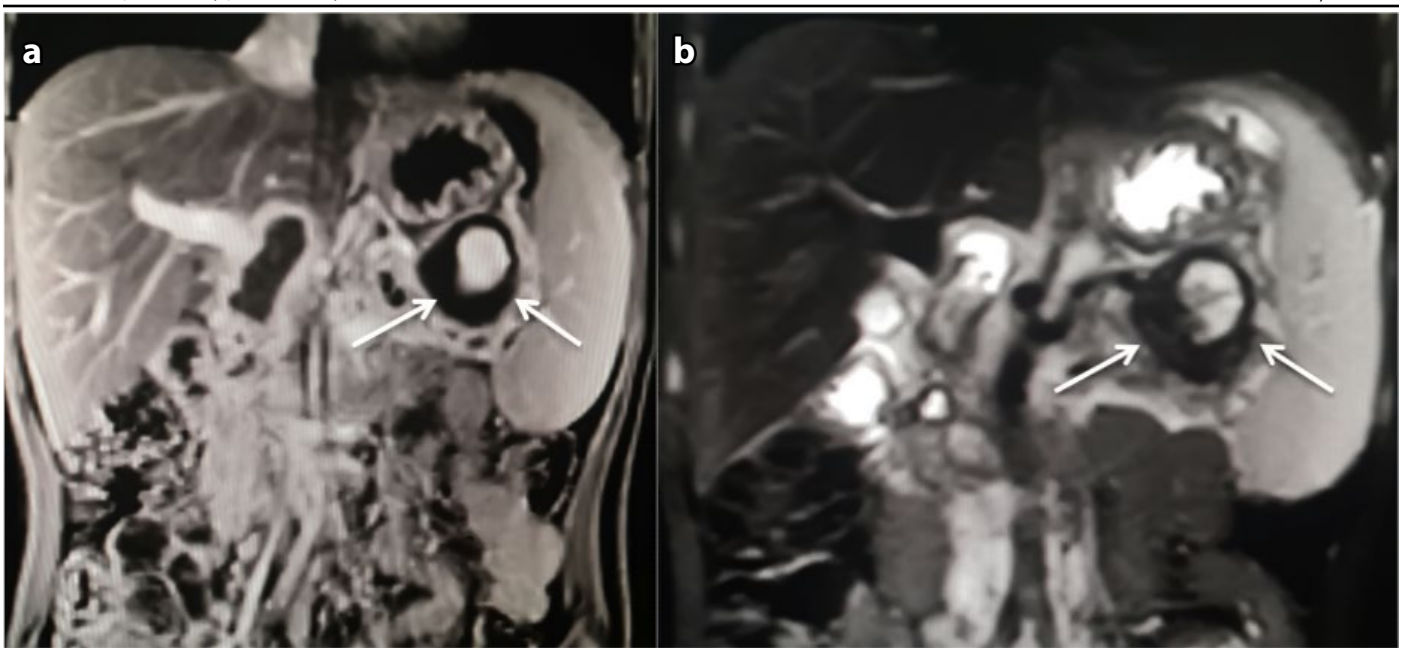

Figure 1. Coronal T*2 weighted **(a)** and contrast enhanced MRI **(b)** shows pseudoaneurysm arising from the distal segment of splenic artery (white arrows).

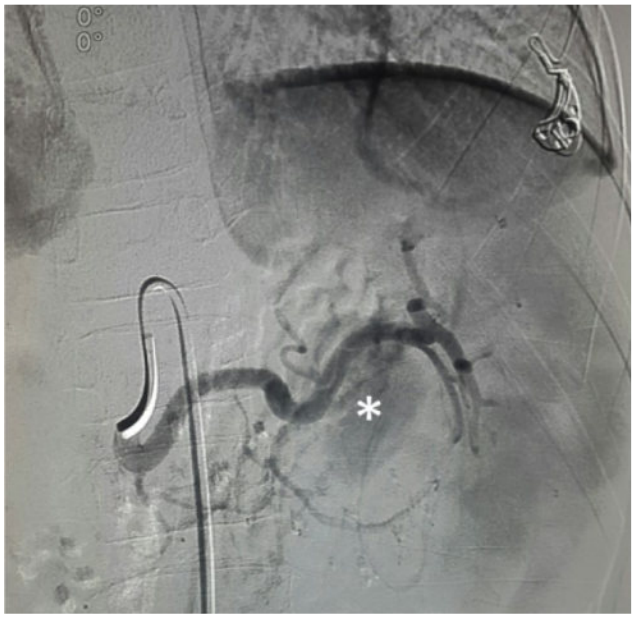

Figure 2. Digital subtracted angiography demonstrated contrast filling into the aneurysmal sac (asterisk).

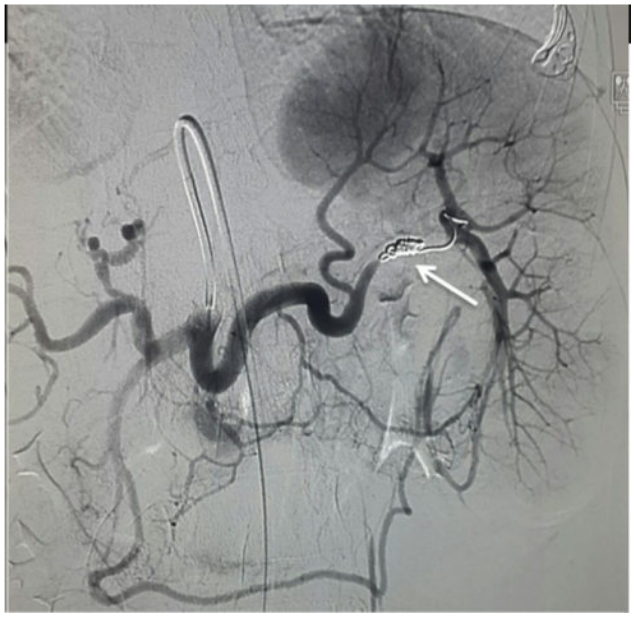

Figure 3. Digital subtracted angiography - post embolization image. There is no flow with in the sac (arrow).

tal after 7 days. 2 years later she admitted to our hospital again with episodes of epigastric pain, hematemesis and bloody dearie lasting 6 days. On examination there was severe pallor. Hb was 4.0 gm/dL, Attempt for blood transfusion caused three more episodes of vomiting which was red in color and melena. Gastroscopy was performed and blood coming out from pancreatic duct was found. Contrast administrated upper abdominal MRI revealed splenic artery pseudo-aneurysm formation with in the pancreatic cyst, which was diagnosed previously. Conventional angiography was performed and splenic artery aneurysm was confirmed. Coil embolisation of splenic arteries (damaged part, where pseudoaneurysm was located) was performed, so pseudo aneurysm was thrombosed consequently. The patient releases from hospital after 2 days with symptom free.

Discussion

Etiology of the splenic artery pseudoaneurysm differs from case to case but most leading cause of this entity is pancreatitis. Second and third causes are abdominal trauma and postoperative complication. In our case there was not history of pancreatitis and trauma but we thought it was due to incomplete history gathering because of urban circumstances where she lives.

Splenic artery pseudoaneurysm generally symptomatic and the most common presentation is abdominal pain. Upper or lower GI bleed, hemorrhage into pancreatic duct and hematemesis are also common symptoms. Around 2.5% of cases present incidentally [1]. In children population, unlike in adult most common cause of splenic artery pseudoaneurysm is blunt abdominal trauma. The most common symptom is abdominal pain. Conventional angiography is steel remain gold standard for diagnosis of splenic artery pseudoaneurysm and true aneurysm. It provides more detailed information about blood inflow and out flow of aneurismal sac, presents of extravasations and leakage, collateral blood supply of spleen and small vessel architecture. But because of invasive procedure there are still angiography related complication like puncture site complication, vessel dissection or rupture during catheterization, inflectional complication and contrast nephropathy. Gray-scale and Doppler ultrasonography is used as an initial modality and could play some role for the diagnosis of splenic artery aneurysm in curtain patients. But there are some limitations like it is operator-dependent and may be limited due to obesity, shadowing from bowel gas, and arteriosclerosis aneurysms [2].

With current MDCT and MRI technology, patient scan be imaged quickly during the arterial phase, which is essential for detecting these lesions. There are some relative contraindications for non invasive angiography so especially MR angiography being used widely. Current generation scanners are capable of high spatial resolution and short breath-hold times. The high temporal resolution facilitates acquisition of data during a purely arterial phase and results in decreased motion artifact [3].

Due to high risk of rupture and high mortality rate if splenic artery pseudoaneurysm ruptures, various interventions have been used for both ruptured and intact pseudoaneurysms. Aneurysms and pseudoaneurysms of the splenic artery require different management strategies. Recent data suggest that symptomatic and high risk splenic artery aneurysms should be promptly treated. However, no consensus has been reached regarding intervention in asymptomatic patients with splenic artery aneurysm. The appropriate treatment for splenic artery aneurysms depends on the location of the lesion (proximal, middle or distal part of artery), the age of the patient, operative risks like comorbidities, size of the aneurysm, and clinical status of the patient. There are several surgical and endovascular methods for treatment of the aneurysm. Surgery is still remain radical solution bur has high mortality and morbidity rates. Selected patient may be undergone for huge surgery like splenectomy and distal pancreatectomy whereas small size aneurysm in distal segment of splenic artery could be simply dissected [4].

Approach for pseudoaneurysm is different. As this pseudoaneurysm is more prone to rupture and carries high mortality rate, the earliest possible intervention is warranted. Same as in true splenic arteries aneurysm in this entity there several way to go. Endovascular embolization is safe and mini invasive method, which has been gaining favor. Although success rates of approximately 85% are lower than those of direct surgical intervention, associated operative morbidity and mortality rates are significantly reduced. A major dilemma is whether transarterial catheter angioembolization should be the definitive approach or if it should always be followed by surgical intervention [5].

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