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Giant Splenic Artery Pseudo Aneurysm with Contained Rupture: Intra Operative Challenges

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Splenic artery pseudo aneurysm is a rare entity. The presentation often varies so it will be a challenging case to diagnosis early and to give good outcome. It occurs due to blunt trauma abdomen, chronic pancreatitis, pseudo cyst of pancreas, liver transplantation, and peptic ulcer disease. The splenic artery aneurysm accounts for approximately 60% of all visceral arterial aneurysms. After abdominal aorta and iliac artery involvement visceral artery aneurysms arises commonly from splenic artery which is the third most common artery to involve. Even pseudoaneurysm of the splenic artery is a rare condition to occur, and fewer than 200 cases are reported in English literature till now.

Case: We are presenting a one case of giant splenic artery pseudo aneurysm of size 14x8 cm with contained rupture due to alcoholic pancreatitis of pseudo aneurysm into the pseudo cyst of pancreas and managed successfully with open surgical procedure.

Conclusion: The modality of treatment for the patients with giant splenic artery pseudo aneurysms with suspected rupture of the pseudo-aneurysm, is exploratory laparotomy. Early diagnosis and the modality of the treatment will give good prognosis to the patients.

Keywords: Chronic pancreatitis; pseudo cyst; pseudo aneurysm; splenic artery; visceral aneurysm; dsa digital subtraction angiography.

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1. INTRODUCTION

Splenic artery pseudo aneurysm is a rare entity. It occurs due to pancreatitis, abdominal trauma, liver transplantation, and peptic ulcer disease [1,2]. The presentations of giant pseudo aneurysm of splenic artery can be vary because sometimes it can mimics as cystic lesion of pancreas. The giant pseudo aneurysm (size >5cm) having more chance of rupture and can lead to life threatening condition [3]. DSA (digital subtraction angiography) embolization can be used as diagnostic as well as therapeutic approach to treat splenic artery aneurysm depending up on size of pseudo aneurysm. But some conditions where DSA embolization fails, exploratory laparotomy has to be done. We are presenting a case of giant pseudo aneurysm of splenic artery with contained rupture with failed DSA embolization, managed by exploratory laparotomy successfully.

2. CASE PRESENTATION

50 year old male patient with known case of alcohol induced chronic pancreatitis came to the hospital with three episodes of black colored stool and epigastric fullness. On clinical examination he was anemic and dehydrated. His blood pressure was-90/60 mm Hg. After resuscitation he underwent upper GI endoscopy which showed grade II varices. He had history of hematemesis and underwent 2 times endoscopy and sclerotherapy in the past at another center. Hemoglobin was -8.6gm%/dl. Two units of blood were transfused. The Ultrasound Doppler showed pesudocyst of pancreas with splenic artery pseudo aneurysm. Tri phasic contrast enhanced computed tomography (CECT) abdomen was done (Fig. 1A) and it showed there was approx size 12x8cm of pseudo cyst of pancreas present in lesser sac with one hyper dense area of size approx 8X6cm present in the cyst ? pseudo aneurysm of splenic artery with contained rupture. On Digital subtraction angiography (DSA) (Fig. 1B) there was saccular type of aneurysm of size approximately 6x5cm arising from distal spleinc artery with contained rupture and tried for embolization of pseudo aneurysm once but it was failed. Then exploratory laparotomy was done. On exploration, we found a large bulge in lesser sac presenting through gastrocolic omentum with surrounding clots. Before opening of sac we had taken control of supra celiac aorta. Fig. 1C Then proceeded to open the lesser sac and we found large pseudo cyst of size 12x8cm with surrounding clots. We took control of supra celiac aorta. And after that with difficulty we took control of splenic artery proximally and we were unable take control distal to pseudo aneurysm due big size of pseudo aneurysm distally adherent to splenic hilum and dense adhered clots. We have opened the pseudo cyst and evacuated all clots with infected tissue. After taking proper proximal control we have opened the pseudo aneurysm and there was small bleeding point at the base and controlled with 5-0 prolene suture. Then we have controlled back bleeding from the distal part of splenic artey. Then we have packed that area with sponge to take control of small oozing from base of pseudo aneurysm. After 10 min we have proceeded further and splenctomy was done. Distal end of pancreas was preserved.

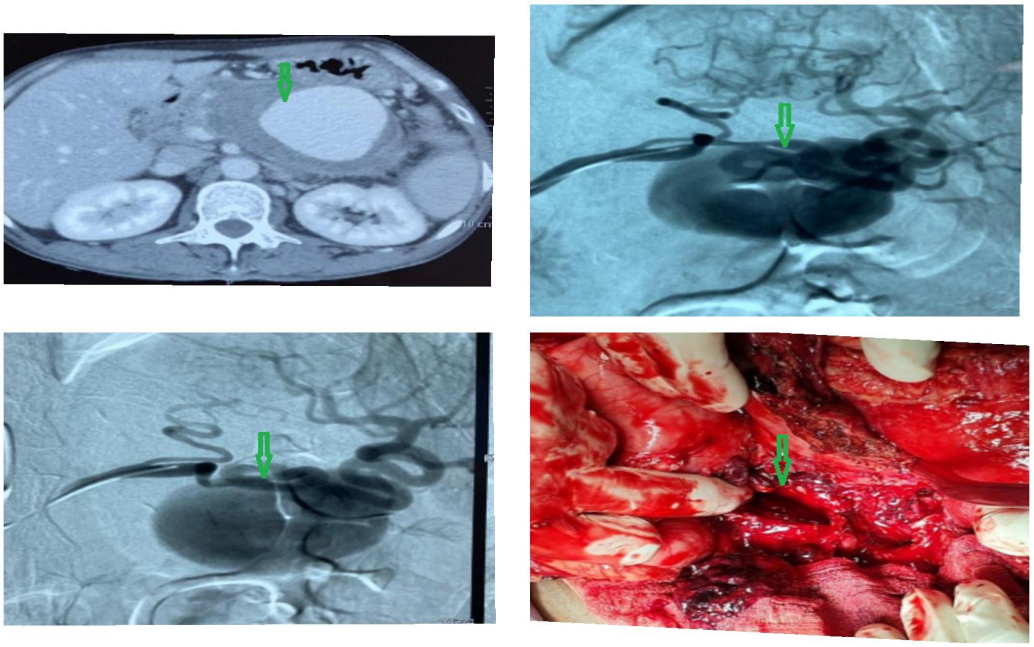
2.1 Outcome

He was kept under observation in postoperative ICU for two days. Post operatively patient required organ support and nutritional support in intensive care unit. Daily monitor of lesser sac drain was done. Post operative drain fluid amylase was gradually decreasing in trend. Gradually he improved well and he was discharged on POD 12.

3. DISCUSSION

Giant pseudo aneurysm of splenic artery is rare condition to occur. A giant pseudo aneurysm is defined as a pseudo aneurysm of size equal or greater than 5 cm. The lifetime risk of rupture for giant splenic artery aneurysms is 28%. It is a life threatening condition and the underlying causes of splenic artery pseudo aneurysms are abdominal trauma, chronic pancreatitis, pseudocyst of pancreas, liver transplantation, and peptic ulcer disease [4]. The most common presentation of pseudo aneurysm of splenic artery is pain in upper abdomen and other symptoms are like hematemesis, melena, vomiting and loss of weight.

In our index case, the patient came to our OPD with history of pancreatitis in the past and now came with pain in upper abdominal pain and two episodes of melena+ and gradual epigastric fullness with hemodynamic unstable condition. Up to 50-58% patients with splenic artery pseudo aneurysm can presents with in hemodynamic unstable condition. Bleeding can occur in lesser sac, stomach, pancreatic duct and retro peritoneum. Splenic artery pseudo aneurysms are very fatal to rupture [5]. Diagnostic modalities for splenic artery aneurysms are doppler ultra-



Above mentioned figure shows clockwise description. (A,B,C,D)

Fig. 1A. CT scan showing large pseudo aneurysm of approx size 8x6cm of size arising from splenic artery with surrounding thrombosis; Fig. 1B, C. showing DSA angiogram showing saccular type giant pseudo aneurysm arising from splenic artery with contained rupture; Fig. 1D. Intra operative picture showing opening of pseudo aneurysm arising from splenic artery with posterior wall active ooze

sound, tri phasic CECT abdomen and MRI angiography [6]. Computed tomography is useful for observing the typical pseudo aneurysm body in the arterial phase. It is also useful to differentiate splenic artery pseudo aneurysms from pancreatic tumors, pseudo cysts, solid epithelial tumors, and gastric leiomyomas. The magnetic resonance imaging is more sensitive and specific. Normally asymptomatic splenic artery peudoaneurysms less than 2 cm in size can be followed up. But all symptomatic pseudo aneurysm of splenic artery should be managed immediately either endovascular procedure or open surgical procedure [7]. Management of splenic artery aneurysms depends on their dimensions, location, the severity of the clinical findings and the condition of the patient. Digital subtraction angiography embolization is diagnostic as well as therapeutic modality of choice [8]. Now a days many cases of splenic artery pseudo aneurysms are managed by DSA coil embolization in patients with hemodynamic stable condition. Other modalities are like open abdominal surgery, endovascular treatment (coil embolization or stent) and laparoscopic surgery depending upon patient condition. In our index case, patient was managed with open surgical procedure exploratory laparotomy after failed attempt of DSA coil embolization. So the exploratory laparotomy is required in unstable conditions where the giant pseudo aneurysm of splenic artery with contained rupture. But the surgeons, should aware intra operative challenges before the surgery and during surgery. Before opening of the giant pseudoaneurysm of splenic artery, surgeon should take control of aorta above the level of celiac origin supra celiac aorta control and distal control also should be taken when feasible.

4. CONCLUSION

Giant pseudo aneurysms of splenic artery is rare condition which can occur in the sequel of chronic pancreatitis. In hemodynamic stable patients, endovascular procedures like coil embolization, stents, glue embolization can be tried depending up on the size of pseudo aneurysm and patient condition. But when endovascular procedure fails exploratory

laparotomy is the only choice to treat the condition. The intra operative challenges should be aware before the procedure and pre operative or intra operative supra celiac aorta control should be taken.

4.1 Patient's Perspective

Chronic pancreatitis is a deadly disease; I went through multiple time upper GI endoscopy previously and now underwent surgery. Postoperative period I had 2 units of blood transfusion. At the end, I am alive now and able to do routine activities after 2 months of surgery. I really thank my doctors and family for their care and support.

CONSENT FOR PUBLICATION

Written informed consent was obtained from the husband of the patient for publication of this case report and any accompanying images.

ETHICS APPROVAL

Not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX- I

Learning points

1. Giant pseudo aneurysm of splenic artery can present as cystic lesion of pancreas with having size of around 8cm.
2. Giant pseudo aneurysm of splenic artery is very fatal to rupture and leads to life threatening condition. Early decision on the mode of treatment is very important.
3. In giant pseudo aneurysm of splenic artery with contained rupture direct exploratory laparotomy is indicated.
4. Pre operative aortic balloon insertion or intra operative supra celiac aorta control should be taken before opening of giant pseudo aneurysm.

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