

Spontaneous Rupture of Splenic Artery Aneurysm: Case Presentation.

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Citation

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Abstract

Splenic artery aneurysms are rare. We present a case of a 62-year-old man who presented with sudden collapse and shock secondary to a spontaneous rupture of splenic artery aneurysm.

INTRODUCTION

Splenic artery aneurysms are rare and most of them remain asymptomatic until they rupture. We report a case of spontaneous rupture of splenic artery aneurysm presenting with sudden collapse and shock. We also discuss the presentation, diagnosis and management of the condition.

CASE REPORT

A 62-year-old male hospital staff complained of sudden epigastric pain and collapse. He was rushed to the accident and emergency department. He was known hypertensive on Amilorone 5 mg daily, not diabetic and had surgery for a testicular varicocele more than 30 years ago.

On examination he was clammy, and drossy. His blood pressure was (80/40 mmHg), pulse was 120/min and respiratory rate was 28/min. His abdomen was slightly distended but was not tender or rigid initially. ECG was normal and blood gases showed slight metabolic acidosis. Hemoglobin was 13 g/dl. Urea and electrolytes, liver function test and serum amylase were normal and the chest X ray excluded free air under the diaphragm. After initial fluid resuscitation he had an abdominal CT scan which demonstrated large amount of free fluid in the peritoneal cavity with a leaking aneurysm of the splenic artery at the level of its bifurcation (figure 1-3). The patient was started to develop signs of peritoneal irritation very rapidly.

Figure 1

Showing the leaking aneurysm (green arrow) with perisplenic and perihepatic haematoma (red arrows).

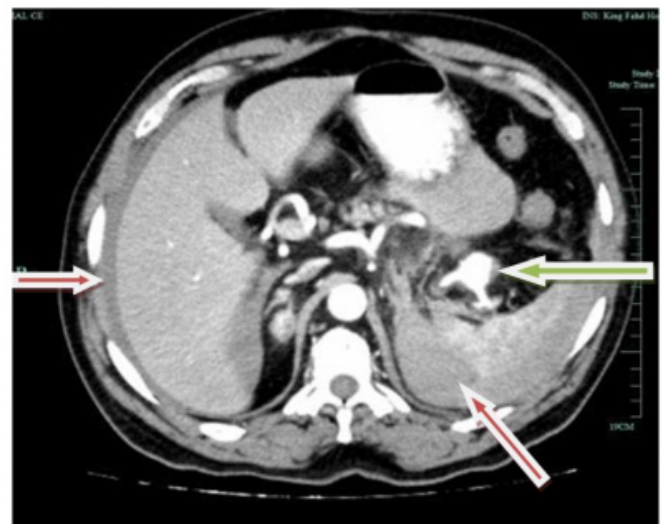


Figure 2

Showing the leaking splenic artery aneurysm in relation to the tail of the pancreas.

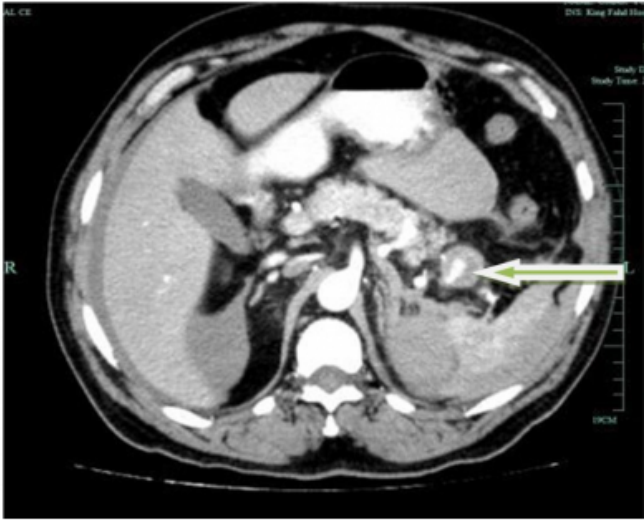
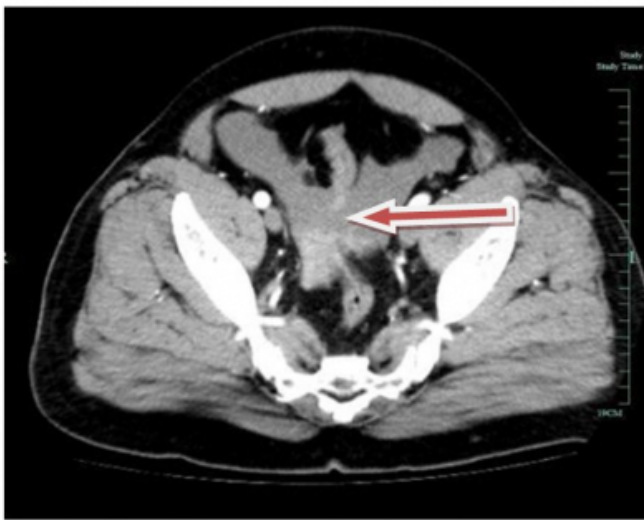


Figure 3

Showing fluid collection (blood) in the pelvis



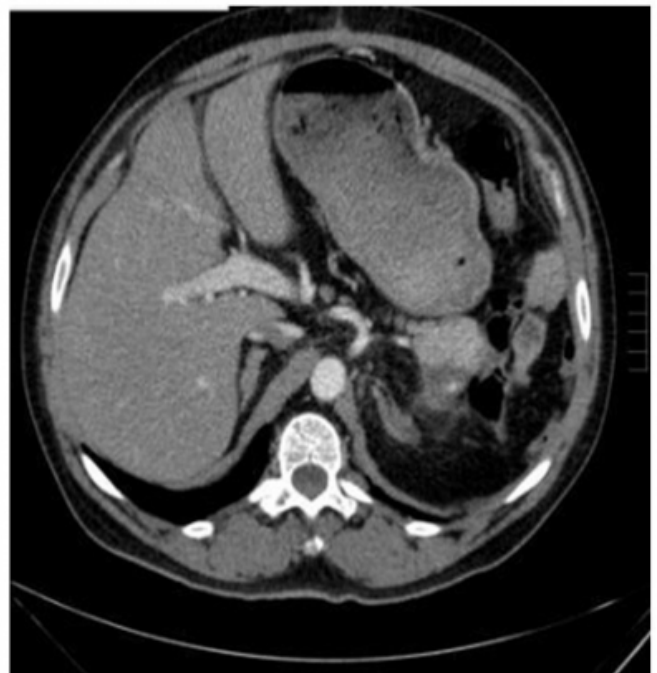
The patient was taken to theatre for urgent laparotomy - intra-operatively nearly three liters of blood was found in the peritoneal cavity mainly around the spleen and in the lesser sac. Although no aneurysm was seen along the course of the splenic artery, there was active bleeding from the artery proximal to its bifurcation at the splenic hilum. Control of bleeding was achieved by ligation of the splenic artery proximally over the superior border of the pancreas, ligation of the short gastric vessels and removal of the spleen together with packing of splenic bed. The estimated total blood was four liters and intra operative hemoglobin was 7 gram% which necessities intra operative transfusion of four units of packed red cells and 6 units of fresh frozen plasma.

Post operatively the patient was admitted to the intensive care unit. His post-operative course was stormy with severe pulmonary consolidation and segmental pulmonary artery aneurysm . He was put on antibiotics, full anticoagulation therapy and extensive chest physiotherapy. He was improved gradually and discharged home on the 10th post operative day.

A repeat CT scan a month later showed the proximal part of the splenic artery and small hematomas at splenic bed (figure 4).

Figure 4

Showing abrupt ending of the splenic artery with no residual aneurysm



DISCUSSION

Splenic artery aneurysms are an uncommon form of vascular disease, which have a significant potential for rupture (1).

The cause of splenic artery aneurysms is not clearly known, however, local failure of the connective tissue of the arterial wall to maintain the integrity of the blood vessel could be playing a major role in the development of this phenomenon. This leads to fragmentation of elastic fibers and a loss of the arterial smooth muscle (2, 3).

Many factors are recognized as etiological factors including atherosclerosis, congenital defects of the arterial wall, liver diseases with splenomegaly, repeated pregnancies, systemic hypertension and old age (4). Acute and chronic pancreatitis

has been described as the major causes of pseudo aneurysm (4-6).

Many of the diseases which have been described as associated with aneurysm of the splenic artery were probably coincidental, e.g., peptic and carcinomatous gastric ulcer, the Banti syndrome malarial splenomegaly, "wandering spleen", thrombosis of the splenic artery, and Gaucher's disease (7).

Splenic artery aneurysm occurs predominantly in women and the majority of them rupture during the third trimester of pregnancy (8).

It was suggested that the hemodynamic and endocrine changes of pregnancy appear to be the cause of arterial alterations which may lead to new aneurysm formation and/or weakening of preexisting aneurysms (9-12). This may explain the increased incidence of the disease with multiple pregnancies (3, 13).

Few cases of ruptured splenic aneurysms during pregnancy in patients with portal hypertension were reported suggesting association of portal hypertension and ruptured splenic artery aneurysm during pregnancy (14, 15).

Up to 80% of patients with splenic artery aneurysm are asymptomatic (16); most of them are detected incidentally during diagnostic imaging performed for other indications (17). The other 20% of patients present with a wide range of nonspecific symptoms including nausea, vomiting, abdominal pain, and bloating (18).

Rupture is the most fatal clinical presentation of the splenic artery aneurysm and it was first reported by Beaussier in 1770(19). The risk of rupture is higher in pregnant women and if the aneurysm is more than 2cm in diameter (20). The estimated incidence of ruptures varies between 0.02% and 0.1% as it was reported in large autopsy series (21).

The literature reports a 25% mortality rate for ruptured splenic artery aneurysm (5,22). The mortality rate among pregnant women is disproportionately high (75%) with a fetus mortality rate of 95 %.(5, 23).

Patients with a ruptured aneurysm can present with acute abdomen, hypotension, and hemorrhagic shock. Other symptoms include upper epigastric pain or left upper quadrant pain with radiation to left shoulder (20).

Double rupture phenomenon may occur, in which the aneurysm first ruptures into the lesser sac with mild clinical symptoms then the blood overflows into peritoneal cavity

through the Winslow foramen with hemorrhagic shock (20, 24).

Early diagnosis depends on high index of suspicion and should be suspected in all pregnant ladies who present with sudden collapse and shock especially during the third trimester of pregnancy. Similarly it should be considered in all patients who are known to have asymptomatic splenic artery aneurysm who present in same way. Bedside ultrasound is a safe and rapid to establish the diagnosis in those patients.

Apart from pregnant ladies and patients who are known to have asymptomatic splenic artery aneurysm the diagnosis can be difficult because in many occasions symptoms may be attribute to cardiac events especially myocardial infarction. CT scan is important to establish the diagnosis in haemodynamically stable patients. On CT scans, splenic artery aneurysms appear as well defined low-density masses with or without calcifications. Intense enhancement within the residual patent lumen following the administration of intravenous contrast medium confirms the diagnosis of an aneurysm (25).

Treatment of splenic artery aneurysms is recommended in patients with symptomatic or expanding aneurysms, patients with aneurysms > 2 cm, women of childbearing age, and liver transplantation candidates (2, 26).

The traditional treatment of ruptured splenic artery rupture is open surgery, aneurosectomy with or without splenectomy (27). Transcatheter embolization of splenic artery aneurysms/pseudoaneurysms is safe and effective and may induce less morbidity than open surgery in selective cases (28).

SUMMARY

Splenic artery aneurysms are an uncommon form of vascular disease, which have a significant potential for rupture.

Splenic artery aneurysm occurs predominantly in women and the majority of them rupture during the third trimester of pregnancy. Up to 80% of patients with splenic artery aneurysm are asymptomatic. Rupture is the most fatal clinical presentation of the splenic artery aneurysm and it occurs in about 5% of the cases. Patients with a ruptured aneurysm can present with acute abdomen, hypotension, and

hemorrhagic shock. Other symptoms include upper epigastric pain or left upper quadrant pain with radiation to left shoulder.

Early diagnosis depends on high index of suspicion and should be suspected in all pregnant ladies who present with sudden collapse and shock especially during the third trimester of pregnancy and in all patients who are known to have asymptomatic splenic artery aneurysm who present in same way. Bedside ultrasound is a safe and rapid to establish the diagnosis in those patients. CT scan is important to establish the diagnosis in the others haemodynamically stable patients.

The traditional treatment of ruptured splenic artery rupture is open surgery, aneuroidectomy with or without splenectomy. Transcatheter embolization of splenic artery aneurysms is safe and effective and may induce less morbidity than open surgery in selected cases.

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