Delayed presentation of traumatic splenic arterio-venous fistula

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Abstract

We report a patient who presented with dyspnoea and was found on examination to have a machinery murmur in the left upper quadrant of the abdomen. The patient had sustained blunt abdominal trauma one year prior to presentation. A diagnosis of splenic arterio-venous fistula was made. The diagnosis and management of delayed presentation of traumatic splenic arterio-venous fistula are discussed.

Introduction

Splenic arterio-venous fistulae are rare. They can result from spontaneous rupture of a splenic artery aneurysm into the splenic vein or or may occur at a complication of mass ligation of the splenic pedicle at splenectomy.[2] Blunt abdominal trauma has also been proposed as a predisposing factor to the development of a splenic arterio-venous fistula although the mechanism remains unclear. We report a patient with a documented splenic artery aneurysm who sustained blunt chest and abdominal trauma and presented one year later with a splenic arterio-venous fistula.

Case Report

A 54 year old woman presented with a one year history of fatigue, dyspnoea on exertion and orthopnoea. Her pulse, blood pressure and respiratory system were normal. There were no masses palpable on abdominal examination but auscultation revealed a loud machinery murmur present in the left upper quadrant radiating into the left lower chest and lumbar region. Her haemoglobin, white cell count and liver function tests were with in normal limits.

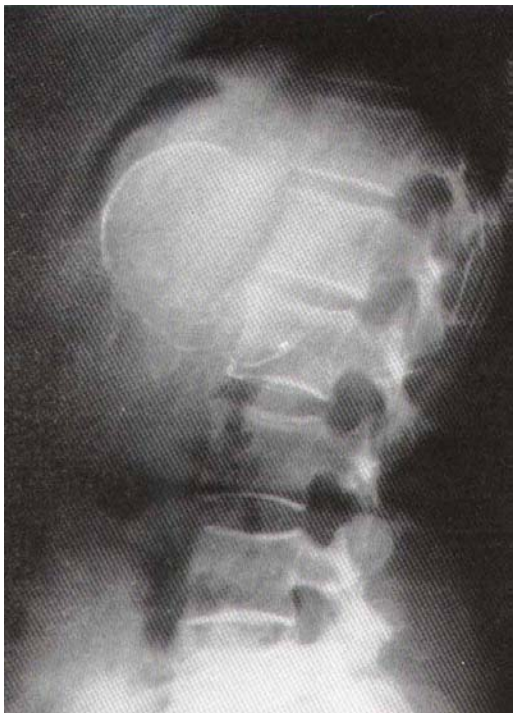

Figure 1 - Plain x-ray of the chest/abdomen at the time of trauma demonstrating a calcified mass in the left hypochondrium

She was involved in a road traffic accident 12 months previously where she was a front seat passenger wearing a seat belt. Her injuries included an undisplaced fracture of the sternum and fractures of the eight, ninth and tenth ribs on the right side. A calcified mass in the left upper abdomen was also noted on the plain radiology at the time(Fig 1). Her condition remained stable during that admission and she was discharged home three days later.

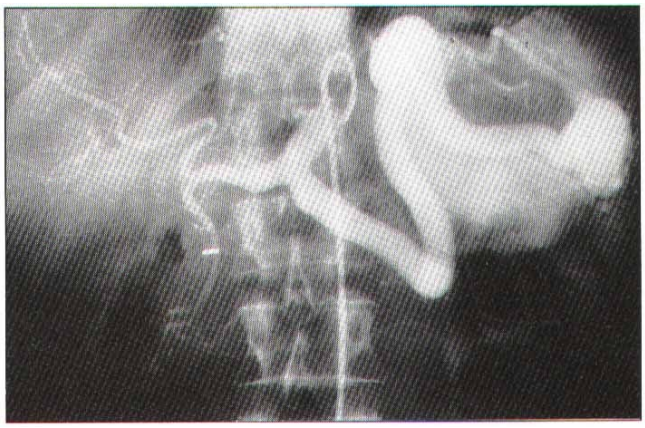

Figure 2 - Arterial phase ofcoeliac axis angiography demonstrating aneurysm of the splenic artery

At presentation one year later, her initial investigations included ECG and echocardiography to exclude an underlying cardiac lesion. The only positive finding on both examinations were left ventricular hypertrophy. Chest x-ray confirmed this finding and the calcified mass seen 12 months previously was again noted in the left upper quadrant of the abdomen. Abdominal ultrasound revealed a 8 cm cystic lesion between the spleen and trail of pancreas with calcification in its wall. Duplex scanning off this lesion demonstrated both arterial and venous doppler signals while the splenic vein was noted to be two and half times its normal diameter. Coeliac axis angiography was then performed and demonstrated a hypertrophied splenic artery which terminated in an aneurysmal sac corresponding to the lesion seen on ultrasound (Fig 2). There was immediate filling of the splenic vein from this site. (Fig 3) and a diagnosis of a splenic arterio-venous fistula was made. Embolisation of the splenic artery was considered but deemed inappropriate due to the calibre of the vessels. A laparotomy was performed at which an arterio-venous fistula between an aneurysmal splenic artery and a grossly distended splenic vein was identified. There was no evidence of ascites or portal hypertension and the liver was macroscopically normal. The splenic artery was ligated and a splenectomy performed including excision of the arterio-venous fistula, the machinery murmur, which was monitored intraoperatively, disappeared once the spleen was removed. The patient's postoperative progress was uneventful and at follow up to three months later was symptom free.

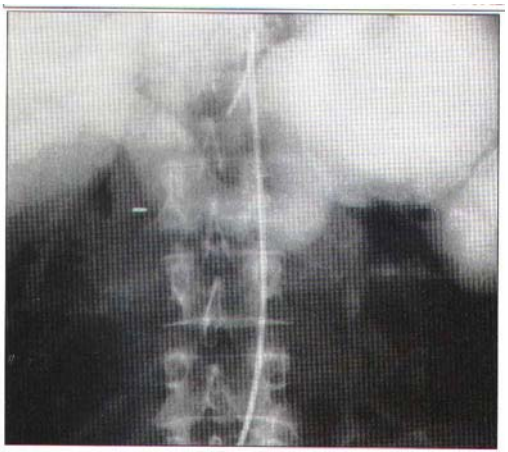

Figure 3 - Filling of the venous limb of the splenic arterio-venous fistula during coeliac axis angiography

Discussion

Splenic arterio-venous fistulae are usually due to spontaneous rupture of a pre-existing splenic artery aneurysm into the splenic vein.[1] The vast majority of traumatic splenic arterio-venous fistulae occur as a result of mass ligation of the splenic pedicle during splenectomy.[2] This is the first reported case of blunt abdominal trauma resulting in a splenic arterio-venous fistula in a patient with a previously documented splenic artery aneurysm.

The most important clinical sign in the present case was a machinery type murmur maximal in the left upper abdomen and its value in the diagnosis of splenic arterio-venous fistula has been previously documented.[1] This case report is also unusual in that the only presenting symptoms were dyspnoea on exertion and orthopnoea while the vast majority of previously reported cases presented with clinical features of portal hypertension.[3]

This case report suggests that patients who sustain blunt abdominal trauma and who have a calcified splenic artery aneurysm visible on plain radiology require long term follow up to recognise the development of this complication.

References

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