Unusual association of diseases/symptoms

Ruptured abdominal aortic aneurysm presenting as acute unilateral leg swelling – not all swelling below the knee is DVT

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The authors describe a patient with a previously undiagnosed abdominal aortic aneurysm who presented to the emergency department with acute unilateral leg swelling following aneurysm rupture into the vena cava. Abdominal examination raised the suspicion of intra-abdominal pathology which was confirmed with bedside ultrasound, followed by CT aorta. The patient was transferred for urgent repair and made a good recovery. Unilateral leg swelling is a common presentation to frontline clinicians and this case is a reminder that deep vein thrombosis is not the only important cause.

BACKGROUND

Painful, unilateral leg swelling is a common presentation to the emergency department (ED) and the acute medical take. Many hospitals have pathways for investigating the possibility of deep vein thrombosis (DVT) with this presentation.

The prevalence of abdominal aortic aneurysm (AAA) is approximately 5%–10% in men aged between 65 and 79 years.¹ While most will be asymptomatic, rupture is the commonest symptomatic complication. When rupture occurs the clinical presentation can be variable and non-specific.

This case is a reminder that DVT is not the only important cause of unilateral leg swelling. It highlights the importance of performing a thorough examination and the usefulness of bedside ultrasound in the ED for making a timely diagnosis.

CASE PRESENTATION

A 56-year-old man self-presented to the ED with a 3-day history of a painful, swollen left leg with a dusky appearance. The swelling had started below the knee, extended upwards towards the mid thigh and had started to involve his groin, scrotum and the left side of the lower abdomen.

He was generally fit and well with no medical history and was on no regular medication. On further questioning, he admitted to intermittent back pain of a few weeks duration and new onset of breathlessness on exertion, which had begun at the same time as the leg swelling.

On examination, he was pain free and comfortable at rest. Pulse was 98, blood pressure 162/80, respiratory rate of 18/min and O₂ saturation of 98% on room air. Cardiovascular and respiratory examination was unremarkable. Abdominal examination revealed an easily palpable pulsatile abdominal mass without abdominal bruit.

The left leg was swollen from foot to groin, and swelling to his scrotum and the left side of the lower abdominal wall was noted. The entire limb had a dusky appearance.

Both legs were of normal temperature on palpation. Femoral pulses were present bilaterally and neurological examination of the lower limbs was normal. The right leg was entirely normal in appearance.

INVESTIGATIONS

Bedside ultrasound demonstrated a 9.4 centimetre AAA with intramural thrombus. There was no evidence of intra-abdominal free fluid. Urgent CT aorta (figure 1) confirmed the presence of a AAA complicated by an aorto-caval fistula accounting for his unusual presentation.

Figure 1 Reconstructed coronal image from the CT aorta showing the calcified aortic wall (1), intramural thrombus (2) and contrast in the aortic lumen (3). Of note is the compressed inferior vena cava (4) containing contrast opacification of the same density as that in the aorta. This unusual appearance is due to shunting of arterial blood into the venous circulation causing venous hypertension, a sign of an aortocaval fistula. Abnormal opacification is also seen in the femoral vein on the left (5), but not on the right, confirming venous hypertension on the left side. The presence of oedema in the subcutaneous tissues on the left is also seen.

DIFFERENTIAL DIAGNOSIS

DVT.

TREATMENT

Following review by the on call surgical registrar he was transferred for further management.

OUTCOME AND FOLLOW-UP

He underwent endovascular aneurysm repair complicated by a small stroke, but made a good recovery.

DISCUSSION

AAA is common affecting 5%–10% of men over 65 and most will be asymptomatic.^{1 2} Rupture is the commonest symptomatic complication of a AAA. Approximately 3%–8% of ruptures occur into the vessels, most commonly the vena cava, resulting in an aortocaval fistula.^{2 3}

The clinical presentation of an aortocaval fistula is variable and dependent on many factors, local and systemic. The classic triad of abdominal or back pain, a pulsatile mass and a continuous abdominal bruit is not always present. Factors influencing the clinical presentation include the size and position of the AAA and the aortocaval fistula, the size of the communicating area, the presence of thrombus or retroperitoneal haematoma and any resulting venous obstruction.

Lower limb oedema can occur as a result of shunting of arterial blood through the fistula into the venous circulation causing venous hypertension and or local mechanical venous obstruction. In one series of 26 patients with AAA complicated by aortocaval fistula, 13 had severe bilateral leg swelling on presentation.⁴ In one patient this was associated with DVT.

Combe *et al*⁵ reported 10 cases of AAA causing symptomatic venous compression in the absence of aortocaval fistula. In seven of the 10 cases this manifested clinically as unilateral leg swelling.

In our patient, arterial shunting from the aortocaval fistula resulted in increased pressure in the venous system on the left causing the left leg swelling and oedema. The lack of arterial shunting on the right may have been due to the compressed inferior vena cava, the direction of flow through the aortocaval fistula, the presence of thrombus or a combination of these. Our case illustrates the variable presentation that can occur with AAA complicated by aortocaval fistula.

In the UK, phased implementation of the National Health Service Aortic Aneurysm Screening Programme, which targets men in their 65th year, has begun, and aims to cover the whole of England by March 2013.⁶ This should, in the future result in early detection of many AAAs before they become symptomatic. However, not all 65-year-old men will undergo screening, and some AAAs will present before the age of 65, as in our patient. Therefore, patients with undiagnosed, newly symptomatic AAAs will continue to seek medical attention and frontline clinicians must remain vigilant to this possible diagnosis and its potentially variable presentation.

Learning points

- ▶ DVT is not the only serious cause of unilateral leg swelling.
- ▶ The prevalence of AAA is likely to rise with an ageing population, and newly patients with symptoms may present to frontline clinicians with a variety of symptoms.
- ▶ In cases of painful, unilateral leg swelling, abdominal examination is mandatory.

Competing interests None.

Patient consent Obtained.

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