Diffuse inferior vena cava calcification in a patient with antiphospholipid antibody syndrome: multislice spiral CT findings

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Case Type: Clinical Cases
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Patient: 58 years, female

Clinical History:

The patient had a history of systemic lupus erythematosus and had suffered an episode of oedematous pancreatitis one year previously. She presented with aspecific abdominal pain.

Imaging Findings:

The patient had a history of systemic lupus erythematosus and had suffered an episode of oedematous pancreatitis one year previously. She presented with aspecific abdominal pain and underwent a spiral CT examination.

On CT examination a pancreatic pseudocyst (Fig. 1a) and extensive calcification of the inferior vena cava (Fig. 1b) were observed. In addition, blood analysis revealed elevated levels of antiphospholipid antibodies.

Discussion:

Antiphospholipid antibodies are circulating immunoglobulins that cross-react with cell membrane phospholipids and are associated with hypercoagulable states. These antibodies are found in 2% of the general population and in 30–40% of patients with systemic lupus erythematosus (SLE). The term “antiphospholipid antibody syndrome” (APS) has been used to describe a clinical complex of vascular occlusion and ischaemic events in patients with circulating antiphospholipid antibodies. The clinical manifestations most often documented in prior investigations are recurrent deep vein thrombosis, recurrent spontaneous fetal abortion, and cerebrovascular accidents.

Numerous and varied abdominal manifestations have been noted in case reports and small series, but these have provided only a limited assessment of the importance of abdominal thrombotic events in APS. While some cases of sporadic aortic occlusion have been reported, most abdominal vascular occlusions were venous; these may include the inferior vena cava (IVC) and various main branches of the portal venous system. Hepatic manifestations of APS include hepatic veno-occlusive disease (Budd-Chiari syndrome), hepatic infarction, and portal hypertension.
Because abdominal imaging, particularly CT, is frequently used in the evaluation of abdominal pain of uncertain origin and because abdominal visceral infarctions and major vascular occlusions can be recognised on CT, it is likely that radiologists will be the first physicians to recognise APS as the cause of symptoms in some patients. Calcification of the IVC is usually discovered as an incidental finding on plain abdominal radiography. The aetiology in most cases remains unclear, but is most commonly due to: disseminated intravascular coagulation, placentofetal embolus, hypotensive shock, dehydration, focal infection, septicaemia, and structural anomalies, especially in newborn infants. It may also be associated with malignant disease.

The typical appearance on plain abdominal radiography is of a bullet-shaped opacity in the right side of the abdomen. Multidetector spiral CT, which has the capability of making clear reconstructed images in the coronal and sagittal planes, is highly capable, as demonstrated in this case, of detecting calcification of the inferior vena cava and determining the exact extent. It is also superior to other imaging modalities because of its ability to demonstrate the presence of concomitant pathology. For instance, this technique was able to detect the presence of a pancreatic pseudocyst as result of an episode of pancreatitis, which, without a history of alcohol abuse or gallstones, as in this case, was attributed to APS.

Major abdominal vascular thromboses and visceral infarctions are prominent features of APS. Recognition of multiorgan ischaemia or major vascular thrombosis, particularly in a young to middle-aged patient, may allow the radiologist to suggest APS as a cause, which can be confirmed by serological and clinical evaluation.

In conclusion, multislice spiral CT, eventually with multiplanar reconstructions, is mandatory in order to obtain prompt detection of any abnormalities associated with antiphospholipid antibody syndrome.

**Differential Diagnosis List:** Diffuse inferior vena cava calcification associated with antiphospholipid antibody syndrome

**Final Diagnosis:** Diffuse inferior vena cava calcification associated with antiphospholipid antibody syndrome

**References:**


Olson MC, Demos TC, Lesnfsky MH. CT appearance of calcified tumor thrombus in the inferior vena cava. Abdom Imaging 1993;18:290-1. (PMID: 8508097)
Description: Arterial phase of a multidetector spiral CT scan shows the presence of a calcified thrombus in the inferior vena cava, associated with a cystic nodular pancreatic hypodense lesion.
Origin:
Description: Axial late phase of a multidetector spiral CT scan shows, on at lower level, the presence of a calcified thrombus in the inferior vena cava. Origin:
Description: MIP reconstruction on an oblique projection clearly depicts extensive calcification within the inferior vena cava. Origin:
Figure 3

Description: Volume rendering reconstruction on a coronal projection shows extensive calcification within the inferior vena cava. Origin: