Case 4108

Multi–detector row CT angiography of rupture of Stanford type A typical aortic dissection with acute hemopericardium.

Published on 12.10.2005

DOI: 10.1594/EURORAD/CASE.4108
ISSN: 1563-4086
Section: Cardiovascular
Case Type: Clinical Cases
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Patient: 82 years, male

Clinical History:

Patient with chest pain, dyspnoea and previous history of abdominal aortic aneurysm subjected to percutaneous implantation of an endovascular stent. He died for cardiac arrest due to acute hemopericardium with tamponade.

Imaging Findings:

Helical CT examination was performed with a 16-row MDCT and began with the acquisition of an unenhanced CT scan. Then, a contrast-enhanced CT was performed with a bolus injection of non-ionic contrast material followed by a bolus of saline solution. The synchronisation of the scan with the arterial passage of contrast material was performed with the Bolus Tracking technique. The unenhanced CT findings consisted of an aneurysm of ascending aorta and a large pericardial fluid collection, predominantly anterior, with CT density measurements consistent with hemopericardium (44 UH). The contrast-enhanced CT scans showed an intimal flap in the ascending aorta that separates the true from the false lumen, an increase of attenuation values of pericardial effusion (53 UH) and a right atrial compression with an intense enhancement of the azygos vein, inferior vena cava and right hepatic vein.

Discussion:

Thoracic aortic dissection is the most frequent cause of aortic emergency. Helical CT enables the diagnosis of acute aortic dissection with a sensitivity and specificity nearly 100%. CT also is especially important to detect possible complications such as the aortic rupture. Seventy-five percent of ruptures take place in the pericardium, the left pleural cavity, or the mediastinum. The signs of aortic rupture include hyperattenuating mediastinal, pericardial or pleural fluid collections on unenhanced CT scans and irregularity of aortic wall and extravasation of vascular contrast material on contrast-enhanced CT scans. In the case we present there is the compression of right cardiac cavities, especially of right atrium and the presence of contrast medium refluxing into the azygos vein, into the IVC and into the right hepatic vein which reveals a significant hemodynamic disturbance.

Differential Diagnosis List: Rupture of Stanford type A aortic dissection with cardiac tamponade.
**Final Diagnosis:** Rupture of Stanford type A aortic dissection with cardiac tamponade.

**References:**


Sebasti C et al. Aortic Dissection: Diagnosis and Follow-up with Helical CT. RadioGraphics 1999;19:45-60. (PMID: 9925391)


Description: Aneurysm of ascending segment. Origin:
Description: Large pericardial fluid collection, predominantly anterior. Origin:
Description: Attenuation values of pericardial effusion consistent with hemopericardium. Origin:
Description: Intimal flap in the ascending aorta. Origin:
Description: Coronal MPR: intimal flap that separates the true from the false lumen and right atrial compression. Origin:
Description: Increase of attenuation values of pericardial effusion after contrast material injection.
Origin:

Description: Presence of contrast medium refluxing into the azygos vein.
Origin:
Description: Intense early enhancement of the IVC and right hepatic vein. Origin: