Aortic aneurysm and the split eggshell sign

Case presentation

A 90-year-old woman presented to our emergency department due to gradually increasing dyspnea over the last 3 days. Her medical history was significant for well-controlled arterial hypertension and pernicious anemia. Physical examination demonstrated blood pressure of 125/64 mmHg, heart rate of 74 beats/minute, bilateral lung crepitations and holosystolic murmur at apex radiating to axilla. Her oxygen saturation was 80% while breathing ambient air. Laboratory tests disclosed moderate anemia and estimated glomerular filtration rate of 67 ml/min/1.73 m². Chest radiogram showed Grade 2 pulmonary venous hypertension and substantially enlarged and partially calcified right cardiac silhouette (Figure 1A). Computed tomography of the thorax and abdomen revealed a nonruptured, fusiform thoraco-abdominal aortic aneurysm measuring $9 \times 8$ cm with a calcified wall as seen on chest radiogram and extensive intraluminal thrombus (Figure 1B). The patient refused surgical management. Treatment with parenteral fursemide and blood transfusion led to complete resolution of the symptoms.

Type A aortic dissection and aortic arch aneurysms may be detected on plain radiogram by split egg shell sign. In aortic dissection, it is defined as a distance > 6 mm from the aortic calcification to the lateral soft tissue margin of the aorta. However, in patients with silent thoracic aneurysms calcified margin may be placed lateral to the intramural thrombus. Egg shell sign is rarely seen in Type B aortic dissection and aneurysms of the descending aorta as presented in our case. We would like to remind clinicians that calcified enlargements of the cardiac silhouette and mediastinum should always raise suspicion of aortic aneurysm.

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Photographs and text from: I. Kruljac, Department of Internal medicine, Division of Endocrinology, Diabetes and Metabolic Diseases "Mladen Sekso", University Hospital Center "Sestre Milosrdnice", University of Zagreb Medical School, Vinogradska cesta 29, 10000 Zagreb, Croatia; A. Šikić, Department of Emergency medicine, University Hospital Center "Sestre Milosrdnice", University of Zagreb Medical School, Vinogradska cesta 29, 10000 Zagreb, Croatia. email: ivkruljac@gmail.com

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References

Figure 1. Plain radiogram showing enlarged and calcified right cardiac silhouette consistent with the split eggshell sign (A). Computed tomography of the thorax showing a nonruptured, fusiform aortic aneurysm with a calcified wall and extensive intraluminal thrombus (B). The distance between the calcified wall and aortic endothelium is previously defined as split eggshell sign.