

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

### Vascular Diseases Quiz – Case 25

A 44-year-old man presented to the emergency department of a general hospital with complaints of intermittent chest pain and dyspnea. During the clinical examination, he mentioned that he had been involved in a major car accident 12 years ago. He had sustained multiple musculoskeletal injuries that required several orthopedic operations. Otherwise, his medical record was unremarkable. The patient underwent a chest X-ray that showed a widened upper mediastinum and the projection of a left upper mediastinal mass. Vascular surgeons evaluated the patient and referred him to our Computed Tomography (CT) Department. CT angiography (CTA) showed a sign of intima flap, beginning distally to the origin of left subclavian artery (LSA) for about 4 cm length, a large oval-shaped structure (aneurysm) measured 6 by 8 cm and traversed approximately 10 cm of the proximal descending thoracic aorta, connected to the aortic lumen with a narrow neck (figures 1a, 1b and 2). The aneurysm was in contact, without signs of compression of left pulmonary artery and displaced smoothly the trachea. The major arch vessels were not involved. A smooth thick wall thrombus with peripheral

calcification was noticed at the upper part of the aneurysm. Radiologic findings along with medical history of the patient were suggestive of the final diagnosis.

#### Comment

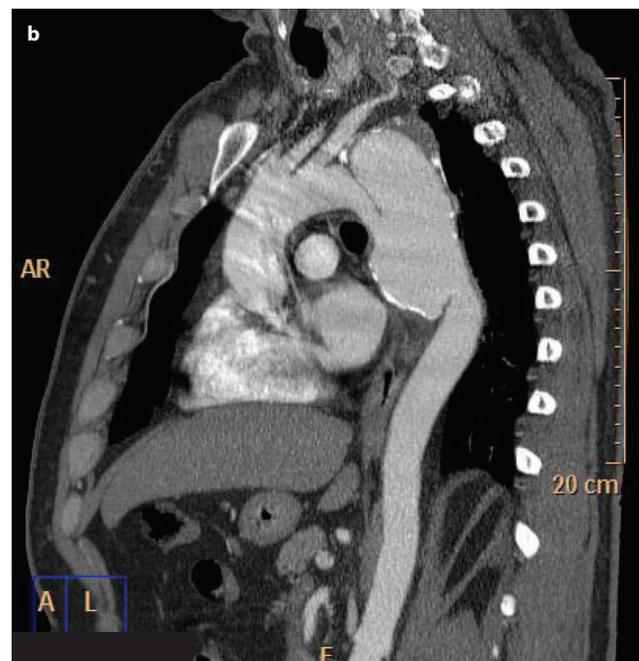
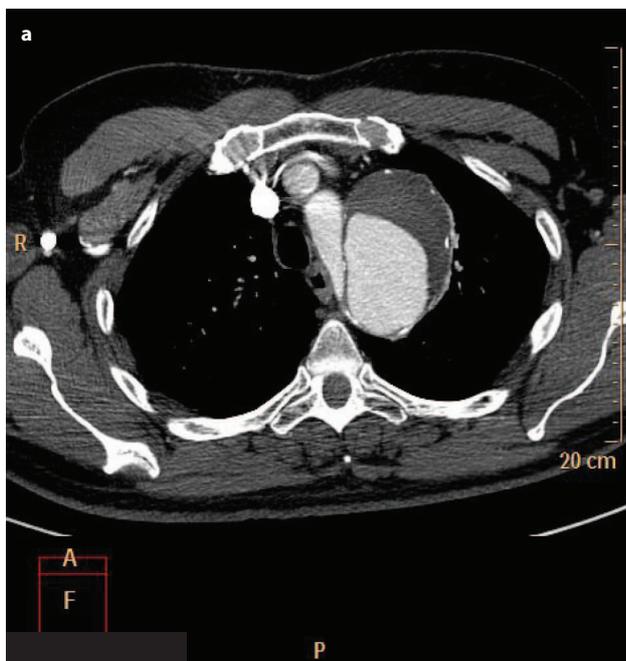
*Thoracic aortic injury is a life threatening condition. It can result mainly from penetrating trauma (gunshot or stab wounds) or blunt trauma (motor vehicle accidents, falls). Aortic trauma may result in (a) laceration (a tear in the intima that may extent through the*

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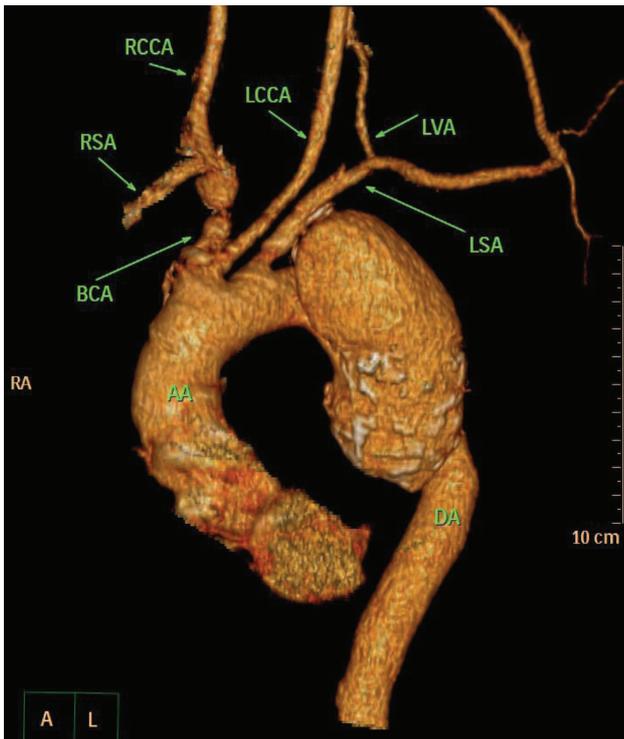
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**Figure 1a, 1b.** (a) Computed tomography angiography (CTA) at the level of aortic arch (oblique axial view): An aneurysm with peripheral thick thrombus and minor calcifications; (b) CTA of thoracic aorta (oblique coronal view): An oval shaped aneurysm, located distally to the origin of left subclavian artery, connected to the aortic lumen with a narrow neck.



**Figure 2.** Three-dimensional (3D) reconstructed image of thoracic aorta. Aneurysm of proximal descending aorta. AA: Ascending aorta; DA: Descending thoracic aorta; BCA: Brachiocephalic artery; RCCA: Right common carotid artery; RSA: Right subclavian artery; LCCA: Left common carotid artery; LSA: Left subclavian artery; LVA: Left vertebral artery.

vessel's wall), (b) transection or rupture (laceration of all three layers of the vessel wall), (c) pseudoaneurysm (aortic rupture contained by adventitia or periaortic tissue) and (d) mural hematoma (hematoma within the aorta's wall). The most typical point of thoracic aortic injury is the aortic isthmus (approximately 85–90%), which is the portion of proximal descending aorta between the left subclavian artery and the site of insertion of ligamentum arteriosum. The aortic arch is anchored with the major vessels of aortic arch, and the descending aorta is fixed to the thorax by the ligamentum arteriosum and by the intercostal vessels. The aortic isthmus is loosely fixed to the chest wall by the parietal pleura. In case of an abrupt thorax deceleration (e.g. motor vehicle accidents or fall from great height), the relatively mobile region of aortic isthmus continues to move forward until finally decelerates.

## References

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