Pulmonary artery sheath haematoma caused by ruptured type A aortic dissection

A 78-year-old man with a history of hypertension presented to the emergency department with chest pain. Laboratory tests showed that he had an elevated D-dimer level (>10 000 ng/ml). Non-contrast computed tomography showed circumferential high attenuation change along the wall of the main and bilateral pulmonary arteries (*Figure 1a*, white arrowheads) with mild lumen narrowing. Computed tomography angiography during the pulmonary arterial phase showed no obvious filling defect (*Figure 1b*). Computed tomography angiography during the aortic phase showed type A aortic dissection with an intimal flap (*Figure 1c*, red arrow). The high attenuation lesion around the pulmonary arteries showed no enhancement, indicating that this was likely to be a haematoma (*Figure 1c*, white arrowheads).

Surgical findings confirmed the multidetector computed tomography findings of a haematoma surrounding the sheath of the pulmonary artery and haemopericardium, caused by rupture of the posterior aortic wall in front of the pulmonary artery. Ascending aortic replacement was performed uneventfully.

Dr Chih-Wei Chen, Resident, Department of Radiology, Section of Thoracic and Circulation Imaging, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

Dr Fu-Zong Wu, Assistant Professor, Department of Radiology, Section of Thoracic and Circulation Imaging, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

Correspondence to: Dr F-Z Wu (cmvwu1029@gmail.com)

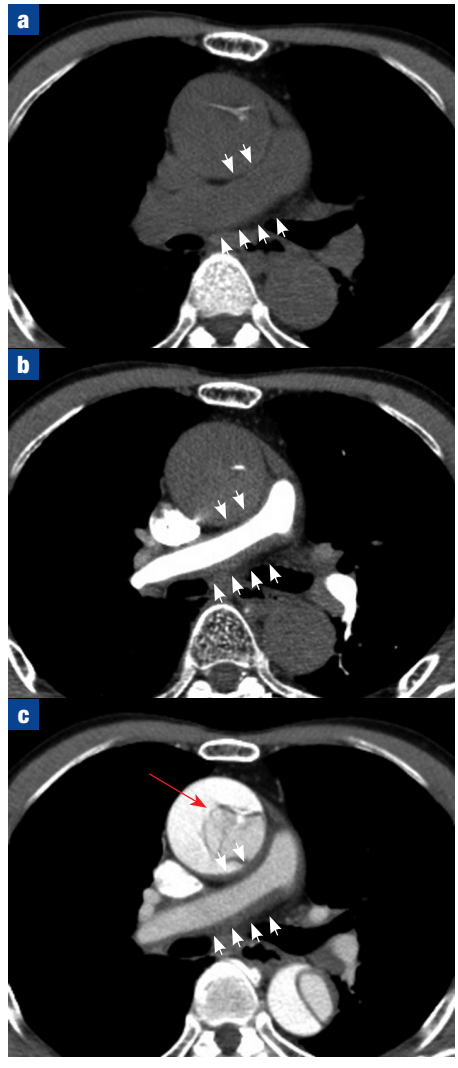

Figure 1. a. Non-contrast multidetector computed tomography showed circumferential high attenuation change along the wall of the main and right pulmonary arteries (arrowheads). **b.** Computed tomography angiography during the pulmonary arterial phase showed no obvious filling defect in pulmonary lumen. **c.** Computed tomography angiography during the thoracic aortic phase showed type A aortic dissection with intimal flap (red arrow). The high attenuation lesion around the pulmonary arteries showed no enhancement, indicating that it was likely to be a haematoma (white arrowheads).

Acute type A aortic dissection complicated by pulmonary artery sheath haematoma is a rare life-threatening condition that requires prompt recognition and management (Castañer et al, 2003). Although this has similar imaging features to intramural haematoma, the haematoma itself is presumed to be located in the interstitial space bordering the pulmonary arteries rather than in the medial layer (Shiau et al, 2013; Miele et al, 2015). Early diagnosis with imaging allows appropriate management, and differentiation from acute pulmonary embolism or pulmonary artery vasculitis (Shiau et al, 2013; Gutschow et al, 2016). **BJHM**

Castañer E, Andreu M, Gallardo X, Mata JM, Cabezuelo MÁ, Pallardó Y. CT in nontraumatic acute thoracic aortic disease: typical and atypical features and complications. Radiographics. 2003 Oct;23(Spec No) suppl_1:S93–S110. https://doi.org/10.1148/rg.23si035507

Gutschow SE, Walker CM, Martínez-Jiménez S, Rosado-de-Christenson ML, Stowell J, Kunin JR. Emerging concepts in intramural hematoma imaging. Radiographics. 2016 May;36(3):660–674. https://doi.org/10.1148/rg.2016150094

Miele V, Merola MG, Roncacci A, Ianniello S. Pulmonary artery intramural hematoma associated with Stanford type B aortic dissection. J Cardiovasc Comput Tomogr. 2015 Sep;9(5):466–468. https://doi.org/10.1016/j.jcct.2015.05.004

Shiau EL, Wu FZ, Huang YL, Wu MT. Aortic intramural hematoma with pulmonary artery extension mimics pulmonary embolism. Am J Emerg Med. 2013 Oct;31(10):1538.e3-4. https://doi.org/10.1016/j.ajem.2013.05.036