Pulmonary arteriovenous malformation mimicking a lung mass

A 66-year-old man was referred with an incidental abnormal finding of a serpiginous mass projected over the right hemidiaphragm (*Figure 1a*) on a chest X-ray. A computed tomography scan demonstrated serpiginous lesion, presenting with the feeding artery, the aneurysmal sac and the draining vein (*Figure 1b–d*). Giant pulmonary arteriovenous malformation was diagnosed by computed tomography angiography. Surgical resection was recommended, but the patient refused this, preferring regular outpatient follow up.

Pulmonary arteriovenous malformations are abnormal capillary-free communications between pulmonary arteries and veins, with 80–95% occurring in patients with hereditary haemorrhagic telangiectasia (Cartin-Ceba et al, 2013; Dupuis-Girod et al, 2017). Pulmonary arteriovenous malformations provide 'right-to-left' shunts, resulting in hypoxaemia and increasing the risk of paradoxical embolic stroke, cerebral abscess, myocardial infarction or haemorrhage (Cartin-Ceba et al, 2013; Shovlin et al, 2017).

The chest X-ray revealed a well-defined mass, initially misdiagnosed as malignancy. Computed tomography is the gold standard for diagnosis of pulmonary arteriovenous malformation (Gill et al, 2015; Dupuis-Girod et al, 2017). The feeding arteries and draining veins can be clearly demonstrated, and the venous sac may enhance homogeneously. Vascular mimics include anomalous unilateral single pulmonary vein, pulmonary varix or meandering veins (anomalous connections between the pulmonary veins without a feeding pulmonary artery) (Lin et al, 2018). Careful evaluation with a range of imaging modalities is necessary for accurate diagnosis and to avoid 'mimics' of pulmonary arteriovenous malformation. **BJHM**

Dr Yun-Pei Lin, Resident, Department of Radiology, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

Ms Chia-Hao Liang, Scientific Researcher, National Yang Ming University, Taipei, 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)

Cartin-Ceba R, Swanson KL, Krowka MJ. Pulmonary arteriovenous malformations. Chest. 2013 Sep;144(3):1033–1044. https://doi.org/10.1378/chest.12-0924

Dupuis-Girod S, Cottin V, Shovlin CL. The lung in hereditary hemorrhagic telangiectasia. Respiration. 2017;94(4):315–330. https://doi.org/10.1159/000479632

Gill SS, Roddie ME, Shovlin CL, Jackson JE. Pulmonary arteriovenous malformations and their mimics. Clin Radiol. 2015 Jan;70(1):96–110. https://doi.org/10.1016/j.crad.2014.09.003

Lin CT, Zimmerman SL, Mitchell SE, Fishman EK. Pulmonary venous anomalies causing misdiagnosis of pulmonary arteriovenous malformations. Clin Imaging. 2018 Jan;47:96–100. https://doi.org/10.1016/j.clinimag.2017.09.003

Shovlin CL, Condliffe R, Donaldson JW, Kiely DG, Wort SJ; British Thoracic Society. British Thoracic Society clinical statement on pulmonary arteriovenous malformations. Thorax. 2017 Dec;72(12):1154–1163. https://doi.org/10.1136/thoraxjnl-2017-210764

Figure 1. a. Chest radiograph showed a soft tissue opacity in the lower right side of the lung mimicking a lung mass. The prominent vascular markings raised the suspicion of pulmonary arteriovenous malformation. **b.** Axial, **(c)** coronal and **(d)** three-dimensional chest computed tomography scans (post-processed by the imaging workstation of Attractive 3D; PixSpace, Ltd, Fukuoka, Japan) demonstrated an enlarged and tortuous feeding artery (red, red arrow) and draining vein (blue, white arrow), communicating with a dilated venous sac. Pulmonary arteriovenous malformation was diagnosed.