

Pulmonary vein thrombosis in COVID-19

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DESCRIPTION

A 60-year-old woman was admitted to our hospital because of impending respiratory insufficiency 3 days after she was diagnosed with COVID-19 by PCR for SARS-CoV-2 performed on a nasopharyngeal swab. Her medical history included end-stage kidney disease due to hypertensive nephrosclerosis for which she was undergoing maintenance haemodialysis. At presentation, she had a respiratory rate of 36/min and 60% oxygen saturation on pulse oximetry. After starting oxygen via a non-rebreather mask, blood gas analysis showed a pCO₂ of 27 mm Hg and a pO₂ of 252 mm Hg. Chest radiography revealed diffuse bilateral consolidations, suspect for (viral) infection and fluid overload. She received ceftriaxone and low-molecular weight heparin (LMWH) prophylaxis for venous thromboembolism. Because of respiratory deterioration on the following day a pulmonary CT angiography (CTA) was made, which did not show pulmonary embolism, but revealed a pulmonary vein thrombosis (PVT) in the right upper lobe (figure 1A). There were no signs of pulmonary infarction, right ventricular failure or systemic arterial emboli. She was treated with therapeutically dosed LMWH. She gradually recovered and was discharged after 2 weeks. The LMWH was switched to acenocoumarol. Five weeks after the PVT diagnosis the acenocoumarol was discontinued because of anticoagulant-related bleeding complications. At that time, a repeat pulmonary CTA was made which showed no more signs of PVT (figure 1B).

PVT is a rare and probably underdiagnosed condition that can present with dyspnoea, cough, chest pain, haemoptysis and respiratory insufficiency,

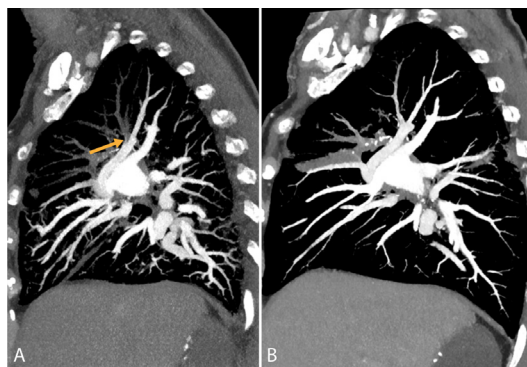


Figure 1 Sagittal view of a pulmonary CT angiography showing (A) Pulmonary vein thrombosis in the right upper lobe and (B) Resolved pulmonary vein thrombosis after 5 weeks of anticoagulant therapy.

Learning points

- ▶ Pulmonary vein thrombosis is a rare and probably underdiagnosed condition that may present with dyspnoea, cough, chest pain and/or haemoptysis and can cause systemic arterial emboli.
- ▶ Pulmonary vein thrombosis may result from the hypercoagulable state in COVID-19.

and may cause systemic arterial emboli leading to complications such as stroke, renal infarction and limb ischaemia.^{1–4} It is most often seen in patients with lung cancer and after pulmonary surgery.⁴ To our knowledge, this is the first reported case of PVT in COVID-19. It is conceivable that PVT may result from the hypercoagulable state in COVID-19.⁵ Treatment should be determined on an individual basis and can include anticoagulant therapy, thrombectomy and/or pulmonary resection.⁴

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