

Platypnea–orthodeoxia syndrome: a rare presentation of inferior vena cava thrombosis

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Received 26 November 2018; accepted 27 November 2018; online publish-ahead-of-print 14 December 2018

A 69-year-old patient with a history of high blood pressure and a left nephrectomy due to a myxoid liposarcoma 2 years before. He reported shortness of breath on moderate exertion that began 15 days before.

Physical examination revealed hypotension (95/55 mmHg), 125 b.p.m. and an oxygen saturation (SatO₂) of 85%, associating tachypnoea and intercostal retractions. After adopting decubitus, there was an improvement of ventilatory mechanics

with SatO₂ of 94%, normalization of blood pressure levels, and heart rate, all resulting in the platypnea–orthodeoxia syndrome (POS).¹ The cardiac and pulmonary auscultations were normal, without lower limb pain or oedema. The electrocardiogram showed a sinus tachycardia with S1Q3T3 pattern (Figure 1). Chest radiograph showed no pathological findings. Blood tests revealed a D-dimer of 4000 ng/mL, normal renal function and an alveolar–arterial oxygen gradient of 69 mmHg (NV: <30)

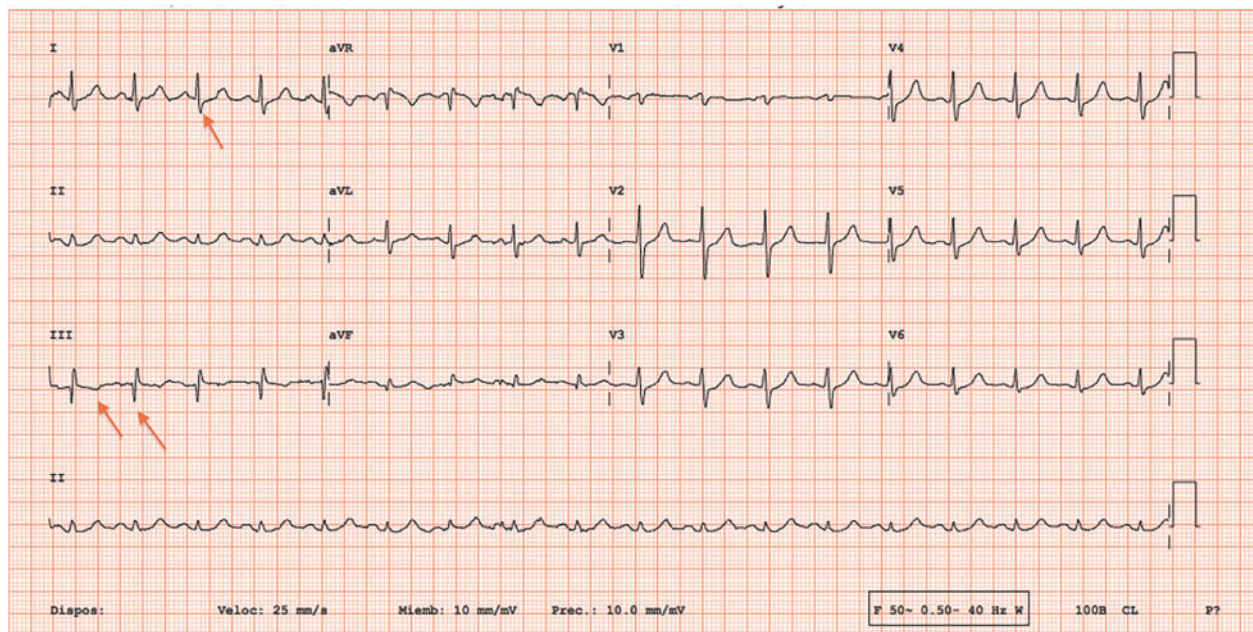


Figure 1 Electrocardiogram showing S1Q3T3 pattern.

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Handling Editor: Gianluigi Savarese

Peer-reviewers: Riccardo Liga and Rami Riziq Yousef Abumuaileq

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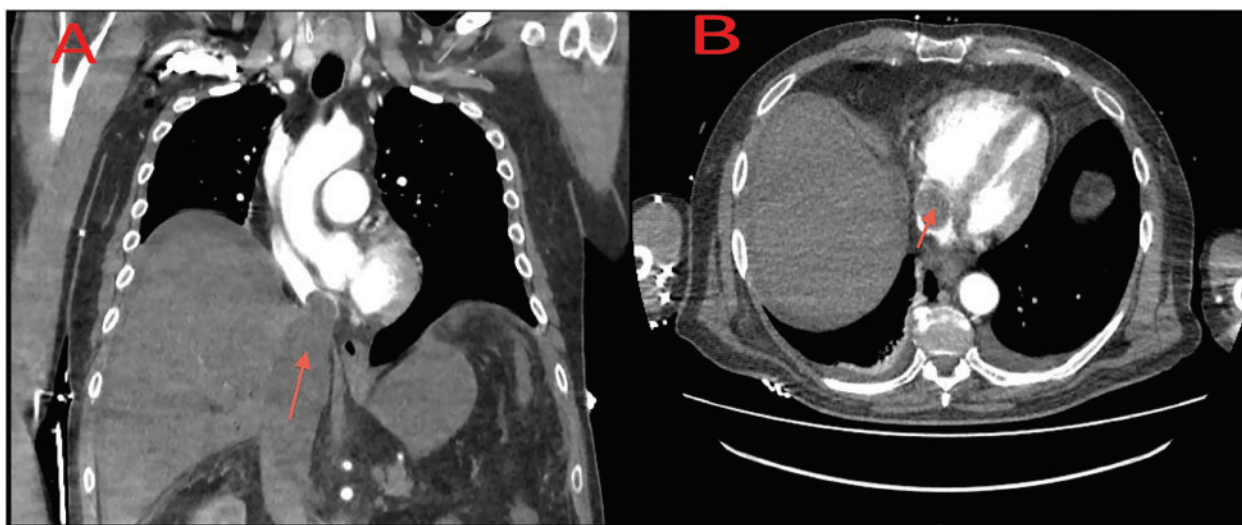


Figure 2 (A) Coronal view of a thoracoabdominal computed tomography showing a large thrombus in the inferior vena cava from the right atrium to the right renal vein. (B) Same finding in the axial view.

with no other remarkable findings. A computed tomography (CT) angiography of the pulmonary arteries ruled out pulmonary thromboembolism.

Platypnea–orthodeoxia syndrome is recognized by dyspnoea while standing or seated and normal breathing lying. It might be caused by right-left shunt or ventilation/perfusion mismatch.²

At admission, prophylactic anticoagulation was started to prevent pulmonary thromboembolism. The echocardiography showed a normal morphology and function of both ventricles and atriums, without valvulopathies, septal defects, or visible thrombus ([Supplementary material online, Videos S1 and S2](#)). The bubble study was normal ([Supplementary material online, Video S3](#)). The spirometry, showed no disorders. Therefore, an extracardiac shunt was the most likely mechanism.

On the third day of hospitalization, the patient presented abrupt haemodynamic deterioration with signs of peripheral and central hypoperfusion. An urgent thoracoabdominal CT revealed a large occlusive thrombus in the inferior vena cava from the right atrium to the right renal vein, putting in context a renal tumour recurrence³ ([Figure 2A,B](#)).

The presence of the thrombus determined the decrease of the venous return and the right heart preload specially during orthosta-

tism, clinically observing hypotension and low SatO₂, partially corrected during decubitus.

Although intensive treatment was promptly started, the patient presented rapidly progressive clinical deterioration, deceasing a few hours later.

Supplementary material

[Supplementary material](#) is available at *European Heart Journal - Case Reports* online.

Consent: The authors confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: none declared.

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