A 63-year-old woman with a history of breast cancer in 2005 and a synovial carcinoma of the left lung with resection of the lingula in November 2013 and the upper left lobe in January 2014 was transferred to our coronary care unit from a secondary regional hospital after systemic thrombolysis for a massive pulmonary embolism. Transthoracic echocardiography revealed a solid mass of 3 × 3 cm in the right atrium (Panel A, Supplementary material online, Movie S1), which was confirmed by a CT scan (Panel B). It was first suspected to be a thrombus, but did not resolve after lysis. The computed tomography (CT) scan showed a tumour of the left kidney of unknown origin with infiltration of the inferior vena cava. Transoesophageal echocardiography was performed and confirmed a 3 × 3 cm highly mobile, solid mass without any attachment with the right atrial wall (Panel C, Supplementary material online, Movie S2 and S3). Furthermore, there was no connection between the mass and the almost completely occluded inferior vena cava.

On 4 October, the patient experienced another pulmonary embolism, caused by migration of the entire right atrial mass into the right pulmonary artery (Panels D and E). Angiographic fragmentation of the mass was performed and histological evaluation of extracted thrombotic material revealed the diagnosis of necrotic tumour tissue (Panel F). Heparin was started by continuous infusion and after stabilization the patient was transferred back to the cardiology ward 2 days thereafter. On 20 October, the patient was transferred to the urology ward for resection of the kidney tumour and thrombectomy. Histology again diagnosed a synovial carcinoma.