

McConnell's sign in invasive small cell lung cancer

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A 59-year-old male with history of hypertension and tobacco abuse presented following an out of hospital cardiac arrest. His initial cardiac rhythm was pulseless electrical activity. He was resuscitated and achieved return of spontaneous circulation upon arrival to the hospital. Troponin T was slightly elevated at 0.09 ng/mL and creatinine kinase-MB was elevated at 7.7 ng/mL. Electrocardiogram revealed sinus tachycardia with right bundle branch block. Transthoracic echocardiogram revealed a moderately enlarged right ventricle (RV) with severe hypokinesis of the RV free wall, sparing the apex (+McConnell's sign) (Figure 1 and Video 1). Systemic thrombolytic therapy was considered; however, given temporary stability of the patient computed tomography angiography was pursued. Computed tomography angiography chest was negative for pulmonary embolus

(PE). Unfortunately, he was found to have a large right upper lobe/perihilar mass with complete occlusion of the right medial and superior subsegmental pulmonary arteries and tumour thrombus invasion of the proximal superior vena cava (Figure 2). Biopsy revealed small cell lung cancer.

Lung malignancies represent a potentially fatal entity and patients may present with acute hypoxic respiratory failure in advanced stages. Bedside echocardiogram can assist in distinguishing among various causes of reversible cardiorespiratory arrest and directs real-time clinical decision-making.^{1,2} Potential differential diagnosis for acute RV failure include PE, pulmonary hypertension, cardiomyopathy, valvular disease, and myocardial infarction. In our case, the extrinsic compression on the right pulmonary artery by the lung mass

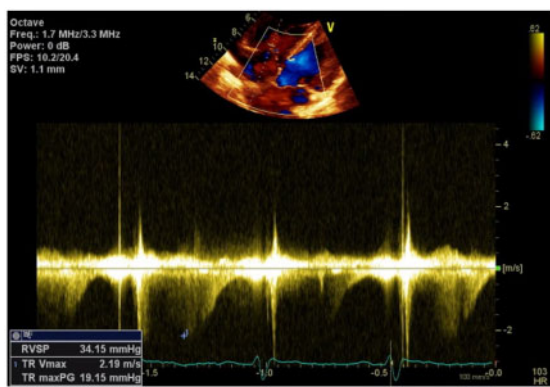
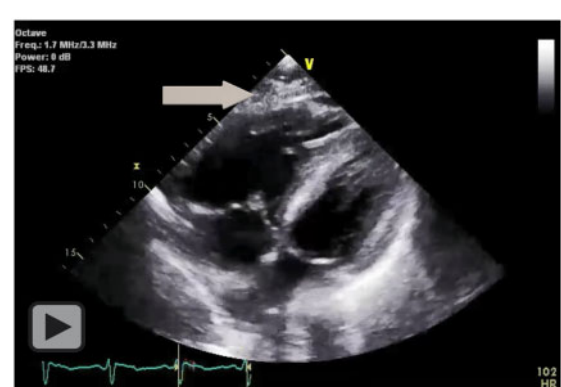


Figure 1 Continuous wave Doppler across the tricuspid valve showing right ventricular systolic pressure of 35.4 mmHg and right atrial pressure of 15 mmHg. RVSP, right ventricular systolic pressure.



Video 1 Subcostal four-chamber transthoracic echocardiogram with a moderately enlarged right ventricle with severe hypokinesis of the right ventricle free wall (grey arrow), sparing the apex (+McConnell's sign).

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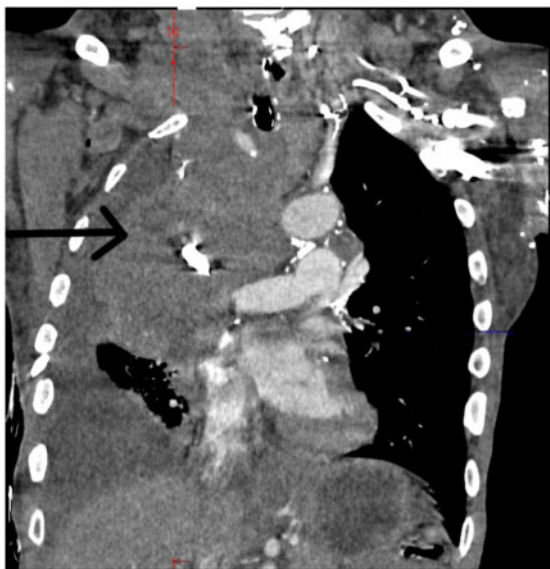


Figure 2 Large right upper lobe/perihilar mass with tumour thrombus invasion within the proximal superior vena cava and invasion into the right upper lobe bronchial structures (black arrow).

leads to an acute elevation of RV pressure and subsequent appearance of McConnell's sign. Physicians should be aware that McConnell's sign is not completely specific for acute right heart strain from PE, and the specificity and sensitivity are ~94% and 77%, respectively.^{1,3} This case illustrates that in the right clinical scenario further diagnostic studies may be warranted before initiating systemic anti-coagulation or thrombolysis.

Consent: The author/s 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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