Acute submassive bilateral pulmonary embolism in patient with recent COVID-19 pneumonia

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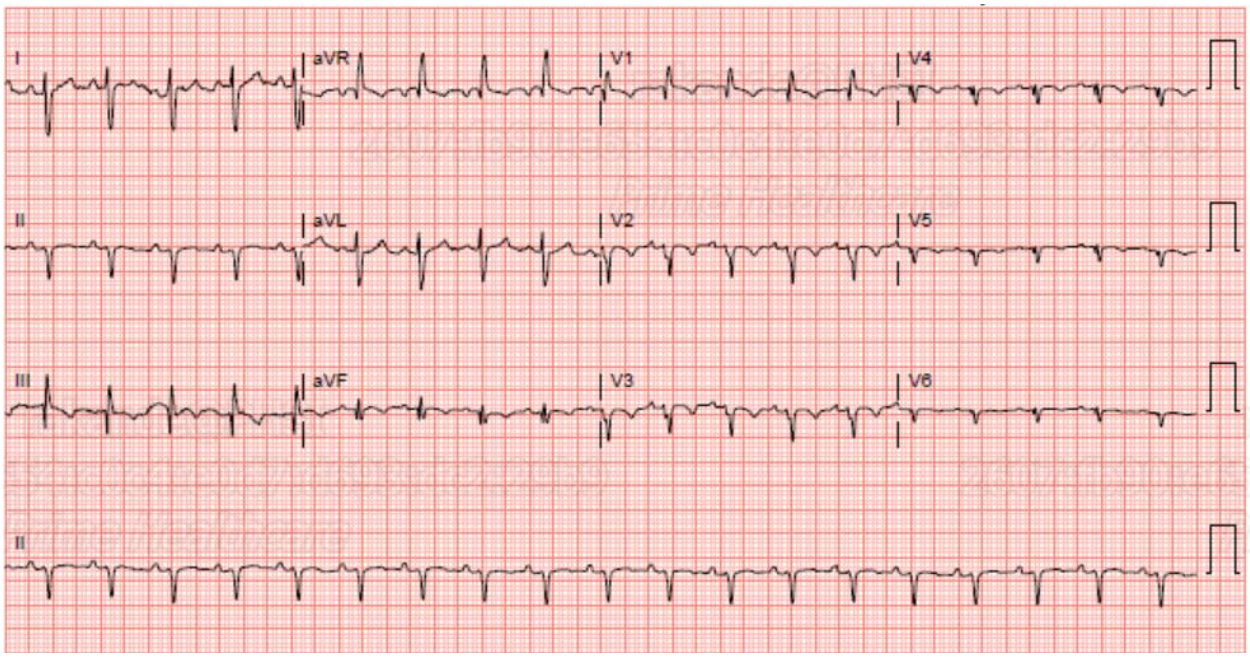
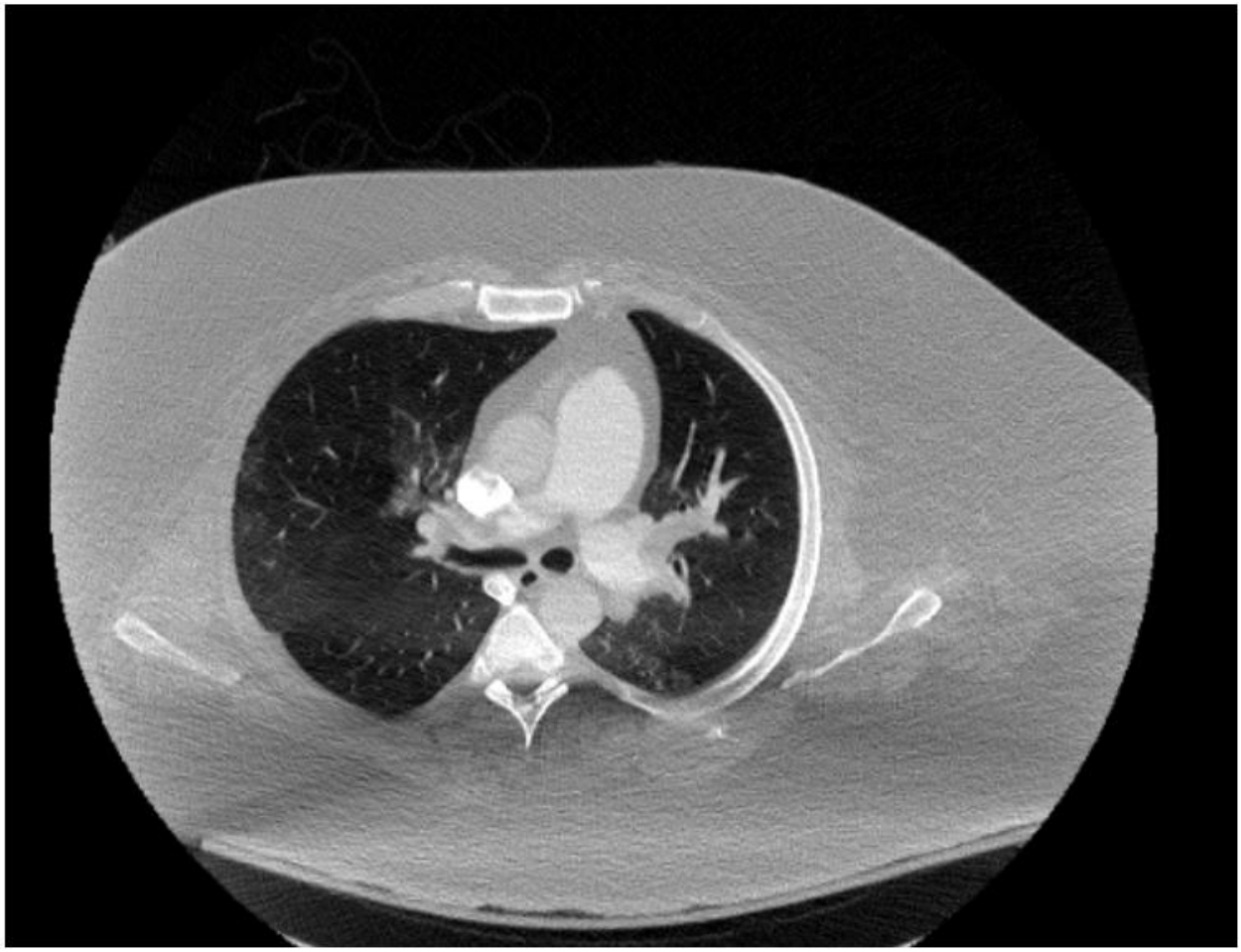
Background

A 37-year-old man with multiple comorbidities who developed pulmonary embolism after a recent COVID-19 pneumonia. Clinicians must have a high index of suspicion for pulmonary embolism in patients who are at risk. Supportive findings of pulmonary embolism on echocardiogram and ECG are reviewed.

Case Presentation

A 37-year-old Hispanic man with class III obesity, diabetes, and COVID-19 pneumonia three weeks prior presented with progressive shortness of breath, subjective fevers, and cough of two days duration. Vitals were T 97.7F HR 118/' BP 124/85 mmHg, RR 24/', SPO2 95% on 4 L oxygen. He was lethargic, in respiratory distress, and had bilateral lower extremity tenderness with edema. Laboratory results revealed leukocytosis, elevated troponin, lactic acidosis, respiratory alkalosis with metabolic acidosis, and hypoxemia. EKG showed sinus tachycardia, S1Q3T3, and T inversions in V1-V4. Echocardiogram showed right heart strain, McConnel sign, and elevated RVSP. CTPA revealed extensive blood clots in his left and right pulmonary arteries. Bilateral acute provoked submassive pulmonary embolism was diagnosed. He underwent thrombolysis following which full dose anticoagulation with enoxaparin was commenced. He improved clinically. He was discharged home on Apixaban.





Conclusion

Our patient's EKG showed sinus tachycardia, S1Q3T3 (McGinn White sign), as well as T wave inversion in leads V1-V4 which are suggestive of pulmonary embolism. Pulmonary embolism causes cor pulmonale which leads to a prominent S wave in lead I, Q wave, and inverted T wave in lead III on EKG. His echocardiogram revealed an akinetic right ventricular free wall with a contractile apex, an indication of right heart strain referred to as McConnel sign. He also had a dilated right ventricle, severe tricuspid regurgitation, and elevated right ventricular systolic pressure.

Based on numerous studies, evidence of right heart strain on ECG occurs in about 40 – 80 % of patients with pulmonary embolism while evidence on echocardiogram occurs in 37 – 45%. These signs of right ventricular strain as seen in our patient are associated with increased patient mortality.