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Hypercoagulability in Severe COVID Infection

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Case Presentation

A 42-year-old male, a former heavy smoker, was diagnosed with COVID-19 confirmed with PCR test. With background co-morbidities of hypertension and diabetes, his condition quickly worsened to category 5 requiring intubation. Computed tomography (CT) scan of his thorax at the time revealed presence of organizing pneumonia and pulmonary embolism (Figure 1). He was treated with intravenous methylprednisolone and anti-coagulation. He made an uneventful recovery requiring only a week of intubation. His oxygenation and exercise capacity improved to near normal before discharge. A 3-month course of Dabigatran was commenced, and a follow up appointment was arranged with a repeat CT of his chest. Upon follow up review at 3 months, he was asymptomatic and had just completed the anticoagulant treatment. Repeat chest radiograph was normal and he achieved a distance of 555 metres at 6-Minute Walk Test with no detectable oxygen desaturation. The static lung function test showed almost normal lung volume, but the gas transfer was reduced to 63.0% predicted. A repeat CT scan was done with images (Figure 2) shown below. An echocardiogram performed in light of the repeat CT scan revealed a borderline raised pulmonary arterial pressure of 19mmHg. The rest of the relevant parameters were within normal range.

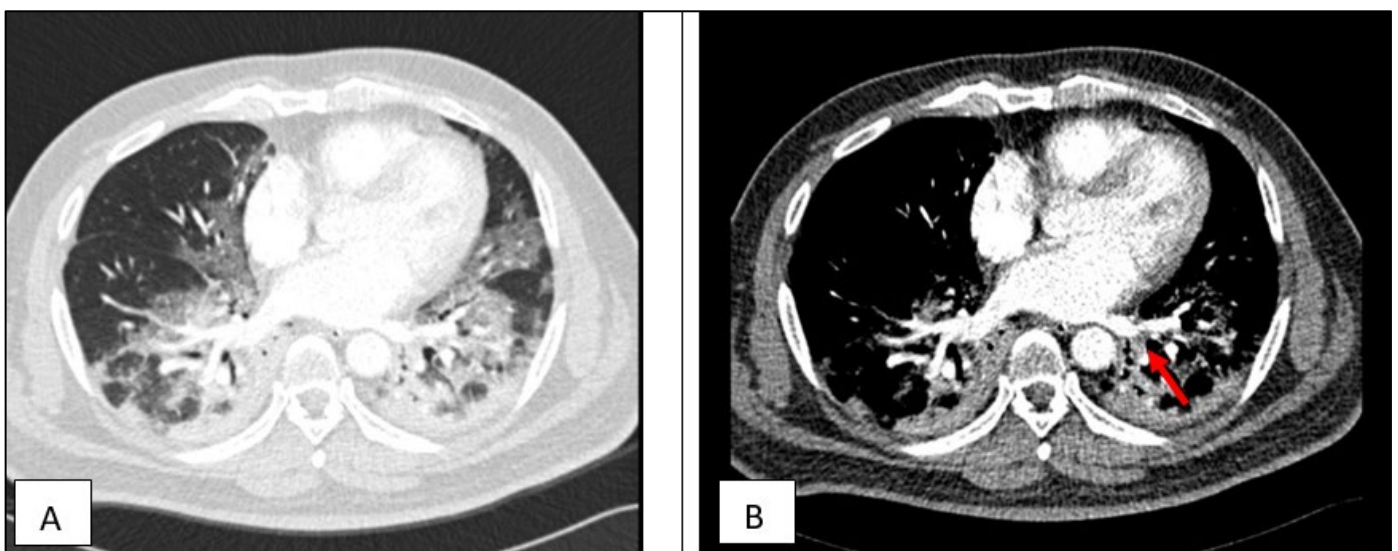


Figure 1 Selected CT Thorax demonstrating (A) lung injury with organizing pneumonia and (B) Left basal subsegmental PE (red arrow)

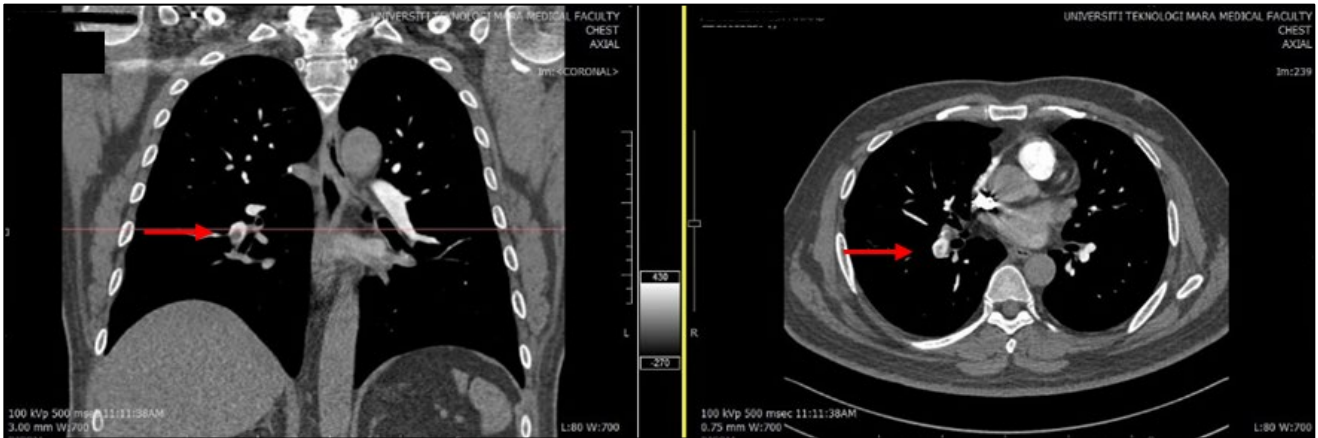


Figure 2 Selected CT images performed after COVID 19 infection at outpatient follow up review

Questions:

1. What new abnormality is seen on CT images at 3-month follow up (Figure 2)?
2. Give possible explanations for the cause of the finding on this CT?
3. What is the most reasonable treatment option following the finding on this CT?