

Lung cavitation due to COVID-19 pneumonia

Vijairam Selvaraj, Kwame Dapaah-Afriyie

Division of Hospital Medicine,
Miriam Hospital, Providence,
Rhode Island, USA

Correspondence to
Dr Vijairam Selvaraj;
vijairam.selvaraj@lifespan.org

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DESCRIPTION

A 52-year-old man with a recent diagnosis of COVID-19 3 weeks ago presented to the hospital with multiple episodes of haemoptysis, intermittent cough and shortness of breath. There was no history of haematemesis, epistaxis, fever, chills, night sweats or weight loss. He had been discharged 1 week prior for right-sided segmental and subsegmental pulmonary emboli and right leg deep venous thrombosis, which was treated with apixaban. The initial CT scan of the chest also showed bilateral multifocal patchy airspace disease consistent with COVID-19 pneumonia (figure 1).

Physical examination on admission revealed a few coarse crackles bilaterally. Repeated CT scan of the chest revealed opacity in the left upper lobe with cavitation (figure 2) and small left-sided pneumothorax, which were new from prior imaging. He maintained adequate oxygen saturation on room air and was discharged home on apixaban. He presented to the hospital 2 weeks later with recurrent haemoptysis and shortness of breath. CT scan of the chest revealed multiple new cavitary lesions bilaterally with the largest lesion in the left lower lobe (figure 3). Infectious diseases, rheumatology and pulmonology consultants recommended an extensive workup including mycobacterial, autoimmune, HIV and fungal tests that were negative. Laboratory workup was significant for mild eosinophilia and Antinuclear Antibody titres of 1:160. Peak C-Reactive Protein level was 259 mg/L, and peak oxygen requirement was noted to be 4L/min. Reverse transcription-PCR assays for Severe Acute Respiratory Syndrome- Coronavirus-2 (SARS-CoV-2) were persistently positive. Bronchoscopy was performed, and bronchoalveolar lavage samples had no growth. He completed a 14-day course of amoxicillin-clavulanate. His symptoms and oxygen requirements gradually improved,

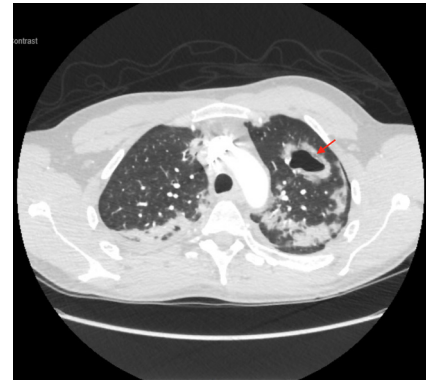


Figure 2 CT scan of the chest with contrast with opacity in the left upper lobe with cavitation.

and he was discharged home on apixaban with no further haemoptysis episodes.

Cavitory lung lesions are usually related to mycobacterial, parasitic, fungal, autoimmune or neoplastic aetiologies. Typical CT imaging features of COVID-19 mainly include ground-glass and consolidative pulmonary opacities, primarily in the lower lobes. Notably, there is also the absence of cavitation, lymphadenopathy and pleural effusion.^{1 2} Lung cavitation following pulmonary embolism and infarction has been described previously in non-COVID-19 patients.^{3 4} In our case, cavitation predominantly occurred in the left lung, whereas pulmonary emboli were primarily noticed in the right lung. The velocity of the development of multiple cavitary lesions in a few weeks was felt to be atypical for *Mycobacterium tuberculosis* or fungal infections such as aspergillosis and most likely related to complications from COVID-19 pneumonia.

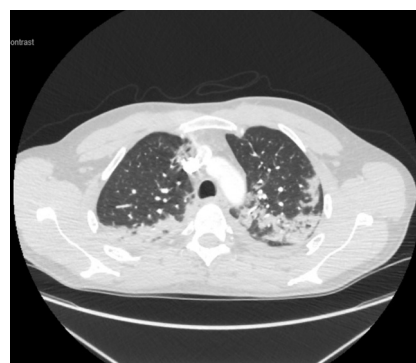


Figure 1 CT scan of the chest with contrast showing bilateral multifocal patchy airspace disease.

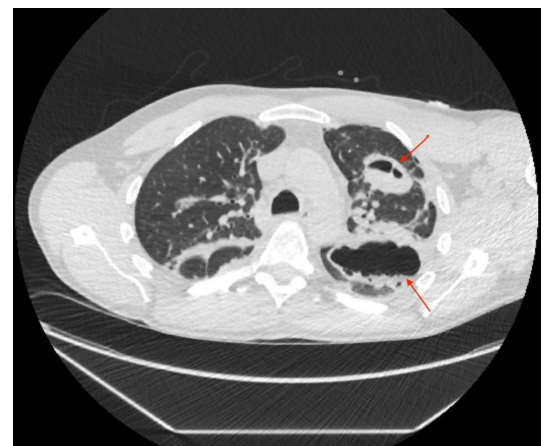


Figure 3 CT scan of the chest showing new 7x5 cm cavitary lesion in the left lower lobe along with previously noted left upper lobe cavitary lesion.

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Learning points

- ▶ Cavitory lung lesions are usually related to fungal, mycobacterial, autoimmune, parasitic or neoplastic aetiologies.
- ▶ While not routinely seen in patients with viral pneumonias, lung cavitation can occur in COVID-19.
- ▶ Clinicians should be aware about evolving radiological findings of COVID-19 pneumonia.

Lung cavitation due to COVID-19 pneumonia is uncommon.⁵ Although the exact mechanism of cavitation in COVID-19 pneumonia is unknown, it may be related to diffuse alveolar damage, intra-alveolar haemorrhage and necrosis of parenchymal cells based on prior autopsy reports.^{6,7} While most cases are self-limited and managed conservatively, as in our case, respiratory status must be monitored closely in patients with massive haemoptysis.

The clinical spectrum of disease secondary to SARS-CoV2 continues to evolve. Early and late complications associated with COVID-19 are still unknown. Common causes of cavitory lung lesions must be investigated appropriately in all patients. Clinicians must be aware of evolving CT findings of COVID-19 and must arrange appropriate follow-up of convalescent patients with COVID-19 to ensure complete recovery.

Twitter Vijairam Selvaraj @Vj235

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