



DECT in Covid-19

-Dr Parang Sanghavi

Recent data suggests that Covid-19 is primarily a vasculopathy. Hence it is very common for patients to have perfusion defects in the lungs even in the absence of pulmonary thromboembolism. Dual energy CT (DECT) is able to show these perfusion defects, as well as thrombi in the pulmonary vessels, if present.

Often patients with Covid-19 lung involvement have improvement of the lung lesions on CT scan, but continue to remain symptomatic.

DECT helps in these patients to pick up perfusion defects as a cause of the persistent symptoms.

There is also whole lung perfusion reduction associated with RV dysfunction, and this can also be quantified using DECT.

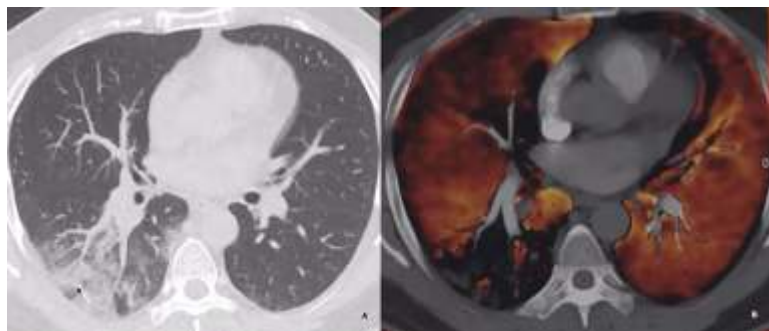


Fig 1: Axial CT scan (A) shows typical perivascular ground glass lesion in the right lower lobe. The DECT perfusion map (B) shows a perfusion defect in the lesion with surrounding hyperemia.

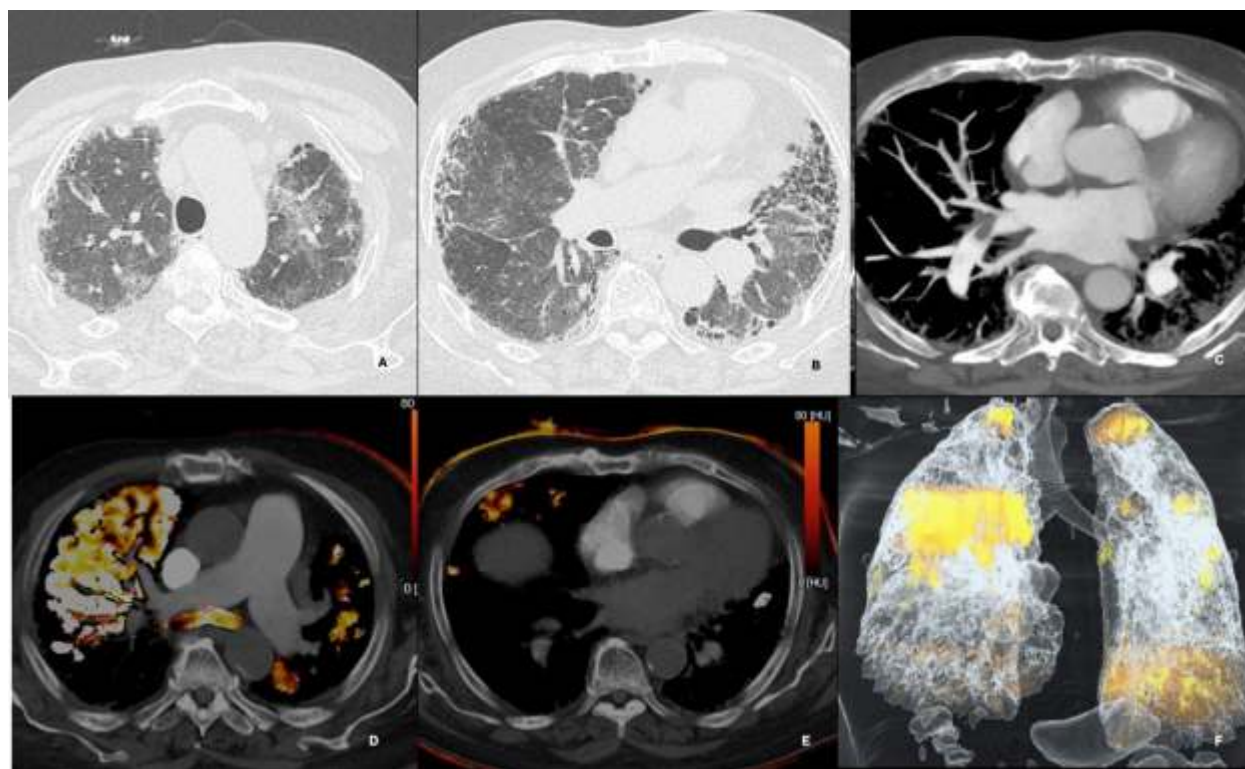


Fig 2: Axial CT scan (A, B) shows typical bilateral perivascular ground glass lesions. The CTPA (C) shows thrombosis in the right lower lobe pulmonary artery. The DECT perfusion maps (D-F) show extensive perfusion defects in both the lungs.



At a glance

- ◆ Covid-19 causes vasculopathy in lungs, reflected as perfusion defects.
- ◆ DECT can demonstrate these perfusion defects both qualitatively and quantitatively.

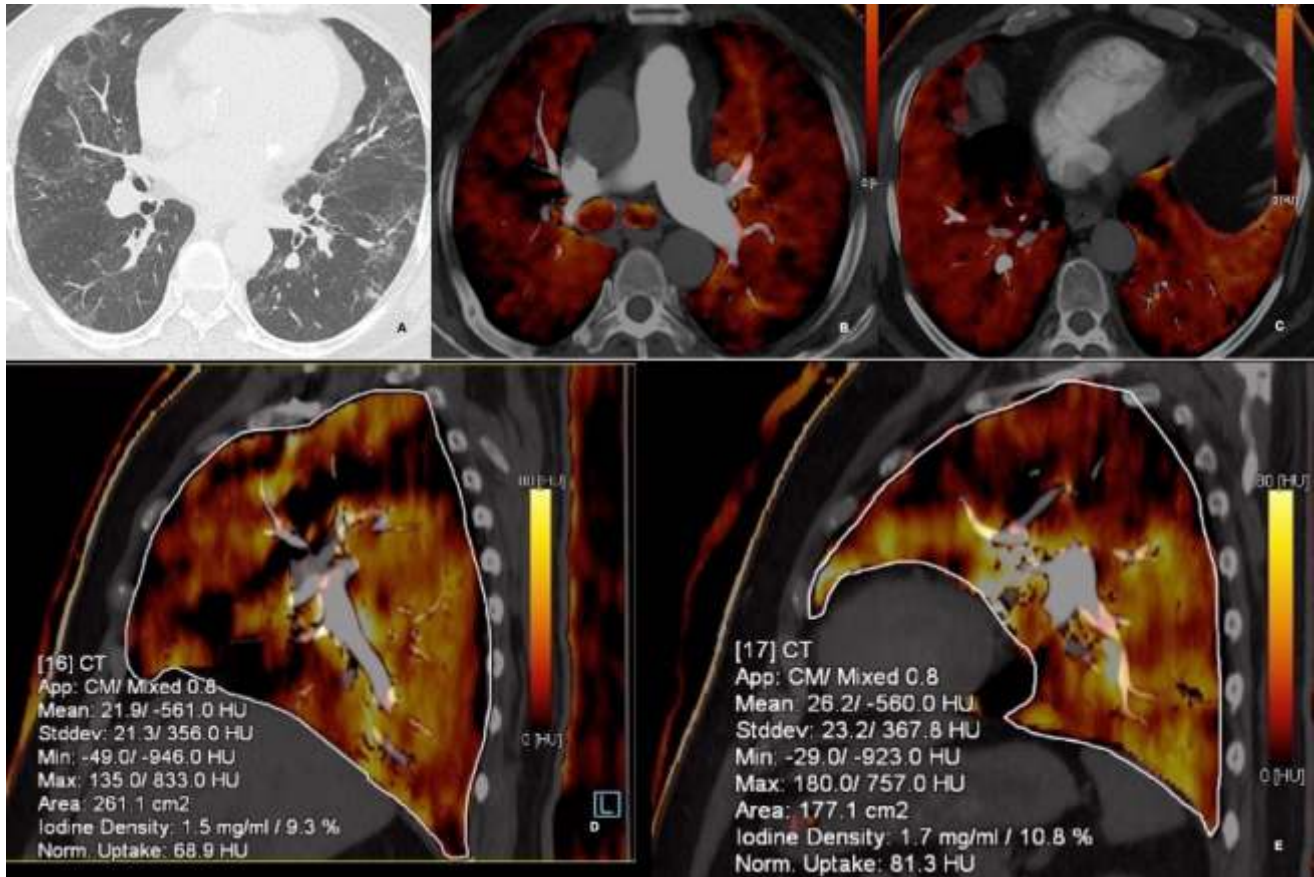


Fig 3: Axial CT scan (A) shows typical bilateral perivascular reticular and ground glass opacities of Covid-19 lung sequelae. The DECT perfusion maps (B,C) show bilateral perfusion defects. The quantitative lung PBV calculation (PBV/PAenh) shows reduced perfusion (D,E) in both the lungs.

References:

1. Ridge CA et al. Dual-Energy CT Pulmonary angiography (DECTPA) quantifies vasculopathy in severe COVID-19 pneumonia. Radiology:Cardiothoracic Imaging 2020. rycr.2020200428

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