



In reply: Uncertainty in using chest computed tomography in early coronavirus disease (COVID-19)

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To the Editor,

The recent letter by Drs Mungmunpantipand Wiwanitkit¹ argues that our report about chest computed tomography (CT) findings in a pregnant woman with coronavirus disease (COVID-19)² are inconsistent with “early” COVID-19. In doing so, they discourage the consideration of CT findings when ruling out cases of COVID-19. Nevertheless, we think that their concern may have been guided by an incomplete understanding of the COVID-19 epidemic. As of 17 March 2020, more than 50,000 people have been confirmed with COVID-19 in Wuhan. During the period of the most severe increases in COVID-19 cases, the supply of nucleic acid detection kits could not meet the demands of the sharp increase in COVID-19 patients. So the diagnosis of COVID-19 followed the New Coronavirus Pneumonia Prevention

and Control Program (fifth edition)^A issued by the National Health Commission of China that took “suspected cases with pneumonia imaging features” as the clinical diagnosis case standard in Hubei Province. This allowed more COVID-19 patients to receive more timely treatment.

In earlier stages of the disease progression, the changes of chest CT scan were mainly congestion, edema, and exudation. For example, Shi *et al.* reported that “COVID-19 manifests with chest CT imaging abnormalities, even in asymptomatic patients, with rapid evolution from focal unilateral to diffuse bilateral ground-glass opacities that progressed to or co-existed with consolidations”.³ It is worth noting that only a single ground-glass opacity can be seen in some patients at an early stage, and the range significantly increases in the short-term re-examination.⁴ When a patient’s condition improves, a few fibrous streaks may appear. On the contrary, when the condition is more advanced, diffuse lesions appear in the lungs, and the density of both lungs increases, showing a “white lung”, which seriously affects the patient’s lung function.⁴

Importantly, all diagnostic methods have disadvantages. In China, 29.2% of asymptomatic patients who were found to be infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and presented with either no or mild symptoms at the time of diagnosis by real-time reverse-transcription polymerase chain reaction (RT-PCR) test had a normal chest CT scan.⁵ In addition, there were also some patients with positive chest CT findings who presented with a negative RT-PCR for SARS-CoV-2.⁶ Ai

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^A National Health Commission of China. New Coronavirus Pneumonia Prevention and Control Program (5th ed.). Available (in Chinese) from URL: <http://www.nhc.gov.cn/yzygj/s7653p/202002/d4b895337e19445f8d728fcfa1e3e13a/files/ab6bec7f93e64e7f998d802991203cd6.pdf> (accessed March 2020).

et al. showed that 60–93% of cases had an initial positive CT consistent with COVID-19 prior to (or parallel with) the initial positive RT-PCR results. Forty-two percent (24/57) of cases showed improvement in follow-up chest CT scans before the RT-PCR results turned negative.⁷ Thus, chest CT may still be considered as one of the primary tools for detecting COVID-19 in epidemic areas.

We therefore still suggest that the combined assessment of CT imaging features with clinical and laboratory findings could facilitate diagnosis of COVID-19 earlier and more accurately. This may also help curb the spread of the COVID-19 pandemic.

Conflicts of interest None.

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