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INNER SPACES
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Covid-19 CT Scan and Challenges

A 53-years old man came to us with a written history of hemoptysis. However, the patient was coughing extensively and when the history was taken in detail, he had fever as well, all these symptoms for the last 4 days. He had no history of international travel or exposure to a Covid-19 positive patient.

A CT scan was performed. The images (Fig. 1) show a classic pattern of subpleural ground glass attenuation and septal thickening, findings that are highly suggestive of Covid-19 lung involvement. His total lung involvement on quantification was 37% (Fig. 2), which is also quite significant.

Our staff was well-protected and in the current environment, every person who comes into contact with patients and attendants, from the security guard to the doctor wear standard PPEs with N-95 masks. After every patient, all surfaces that the patient and attendant touch, the scanning room, CT scan table and similar areas are sanitized and disinfected. Since diagnostic centres have no way to triage except for history, it is best to assume that all patients and their attendants are possibly positive unless proven otherwise.

Challenges

The challenges started at this point. The attendant and patient were informed. They

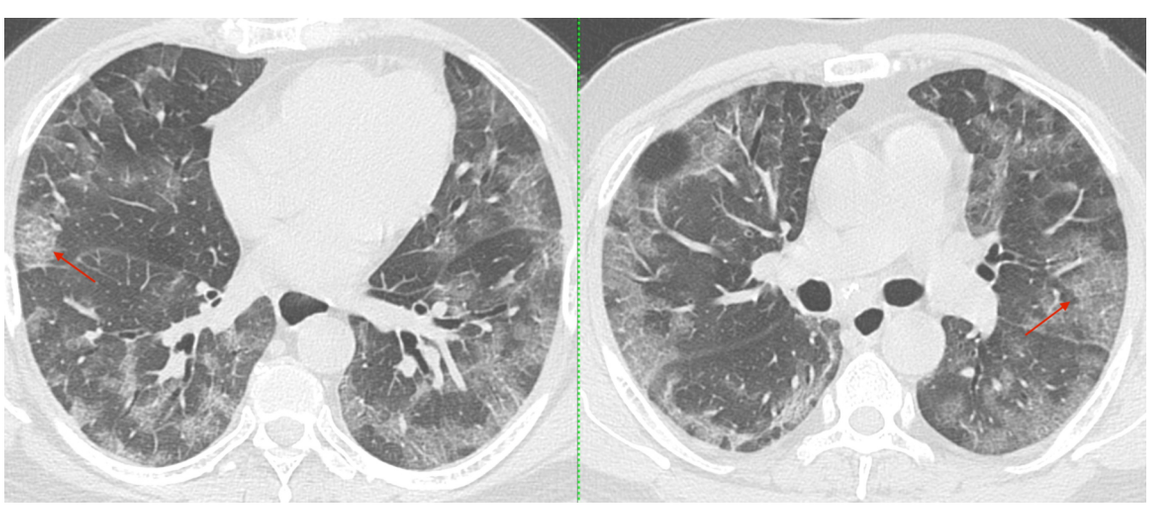


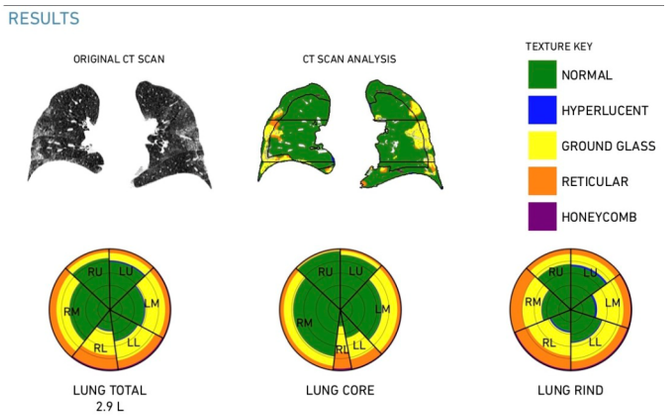
Fig. 1: HRCT of the lungs shows a characteristic pattern of subpleural ground glass and septal thickening, giving rise to a “crazy-paving” pattern.

At a glance

- CT scan is able to pick up patients who are Covid-19 positive with good sensitivity and specificity
- Referring physicians, hospitals, etc need to accept these findings and triage patients accordingly, otherwise they are likely to slip between the cracks, as happened with this patient.

went to a nearby hospital where a swab test was taken but since there was likely no “probable Covid” bed available, he was sent home and advised isolation. Two days later, they were told that the swab was not properly done. Thereafter they called 5 hospitals around their area, all of whom refused to even let them come for a swab test. Finally, 4 days later, one pulmonologist agreed to see them, got an urgent swab test done, which came positive on the 5th day and the patient was admitted in the ICU, breathless and on home oxygen on his own.

The next few weeks and months are likely to be challenging on multiple fronts and all of us will learn as we go along.



SUMMARY

	NORMAL	HYPERLUCENT	GROUNDGLASS	RETICULAR	HONEYCOMB
TOTAL LUNG	62 %	1 %	25 %	11 %	1 %
Left Lung (1.4 L)	61 %	1 %	27 %	9 %	2 %
Left Upper (T/C/R)	79 % / 90 % / 71 %	2 % / 0 % / 3 %	12 % / 6 % / 16 %	6 % / 3 % / 9 %	1 % / 1 % / 1 %
Left Middle (T/C/R)	57 % / 68 % / 40 %	1 % / 1 % / 3 %	33 % / 25 % / 43 %	8 % / 5 % / 12 %	1 % / 1 % / 2 %
Left Lower (T/C/R)	52 % / 47 % / 53 %	1 % / 0 % / 1 %	32 % / 36 % / 30 %	13 % / 15 % / 13 %	2 % / 2 % / 3 %
Right Lung (1.5 L)	63 %	1 %	23 %	12 %	1 %
Right Upper (T/C/R)	84 % / 96 % / 74 %	0 % / 0 % / 0 %	10 % / 2 % / 17 %	6 % / 2 % / 9 %	0 % / 0 % / 0 %
Right Middle (T/C/R)	66 % / 77 % / 47 %	0 % / 0 % / 1 %	22 % / 16 % / 32 %	11 % / 6 % / 20 %	1 % / 1 % / 0 %
Right Lower (T/C/R)	34 % / 27 % / 36 %	1 % / 0 % / 2 %	39 % / 42 % / 38 %	23 % / 28 % / 22 %	3 % / 3 % / 2 %

T = total, C = core, R = rind, T = C + R

Fig. 2: Quantification using CALIPER from Imbio, shows 37% lung involvement.

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