For internal circulation only
by COC(Rad)

Radiological Findings of 2019-nCoV Pneumonia PMH Experience

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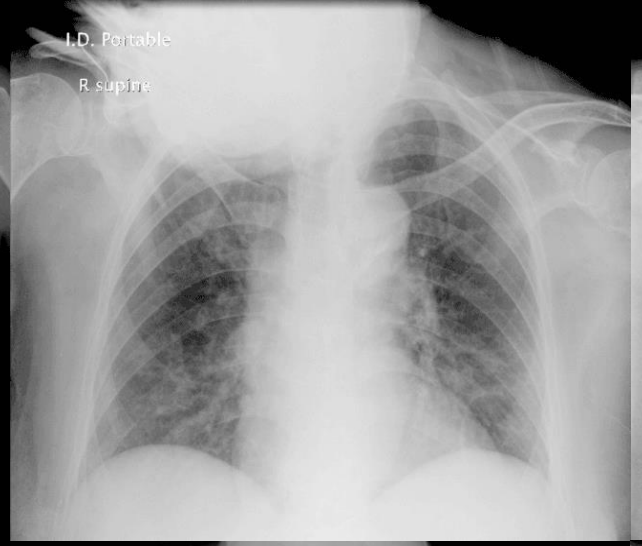
10 Feb 2020

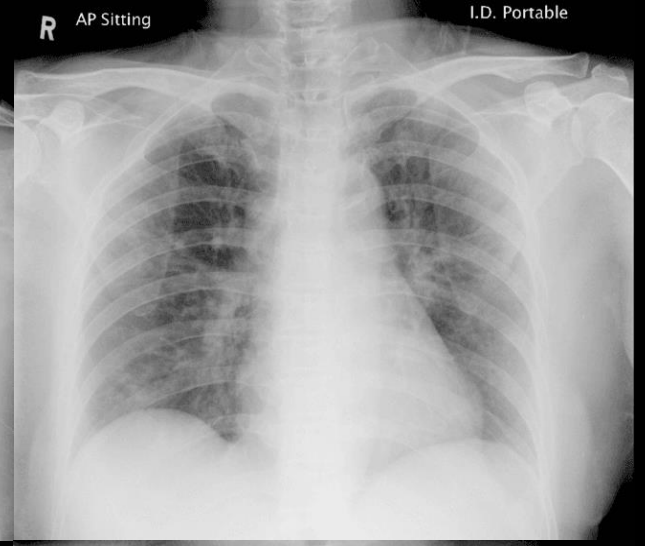
- Reviewed the first 9 thoracic CXR and CT scans of the confirmed patients with 2019-nCoV pneumonia
- Summarized the findings and observed a pattern

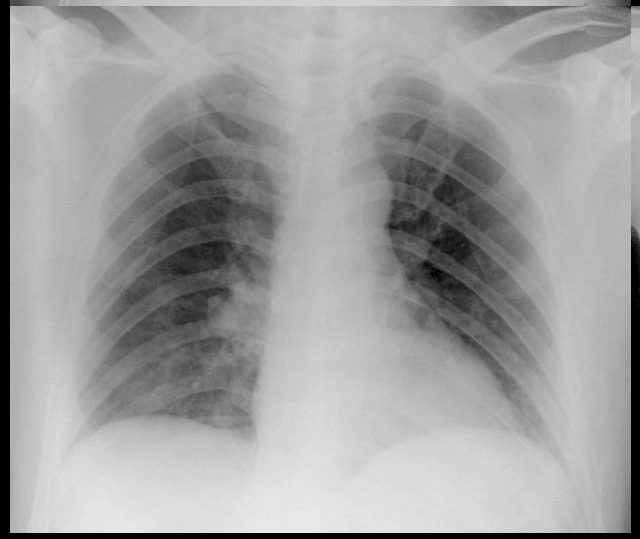
CXR findings are non-specific



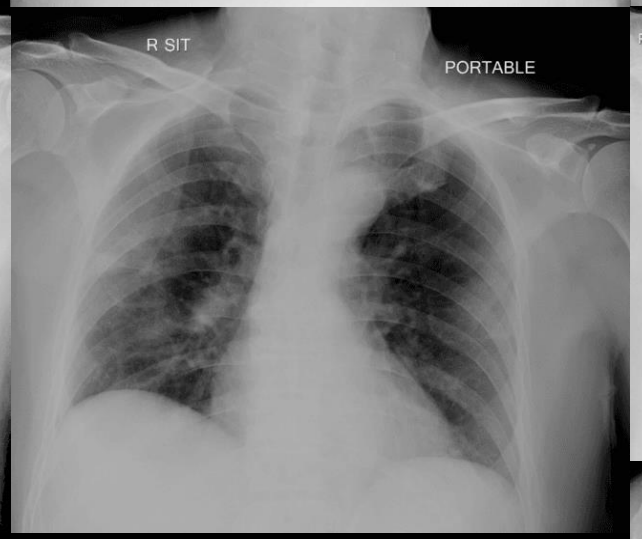
















Findings in common:

- Bilateral air-space opacities/ infiltrates
- No pleural effusion

The Key +ve CT Findings

1. Ground-glass opacities (100%)
2. Involvement of multiple lobes (100%)
3. Subpleural or peripheral distribution (often central-sparing) (100%)
4. Consolidations (77.8%)
5. Septal thickening (55.6%)
6. Bronchial dilation and wall thickening (55.6%)

The Important –ve CT Findings

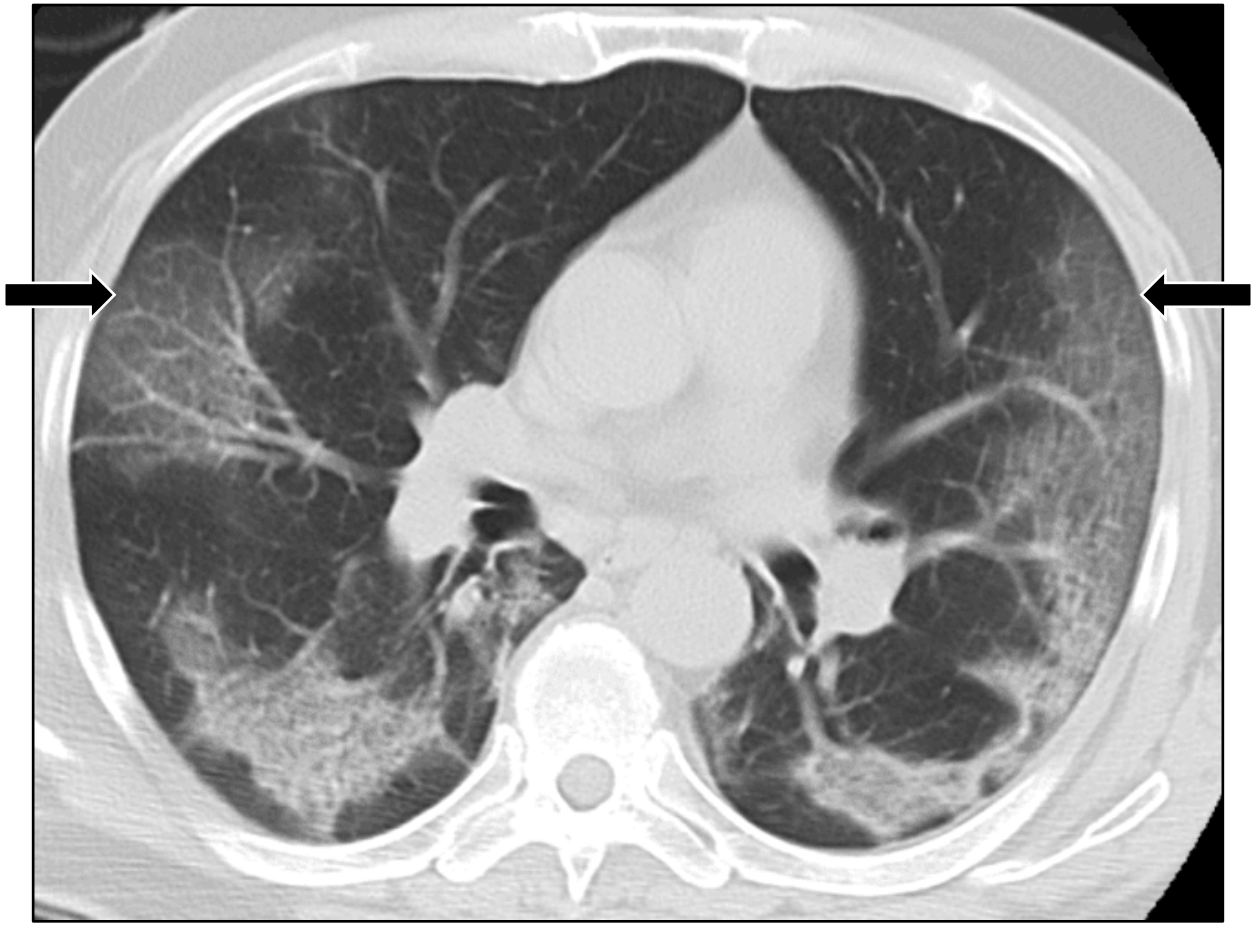
1. Pleural effusion (0%)
2. Lymphadenopathy (0%)
3. Lung nodule (0%)
4. Specific zonal predominance (variable)

Patient demographics and imaging features	
Total scans included	9
Age	63.7 (39-75)
Sex	
Male	6
Female	3
Days from diagnosis to CT	2.8 (39-75)
CT technique	
HRCT	7
Conventional CT	2
CT findings	
GGO	9 (100%)
All lobes involvement	8 (88.9%)
Upper lobes sparing	1
Peripheral subpleural distribution	9 (100%)
Zonal predominance	
Upper	3 (33.3%)
Basal	3 (33.3%)
Diffuse	3 (33.3%)
Interlobular/ intralobular septal thickening	5 (55.6%)
Consolidation	7 (77.8%)
Bronchial wall thickening or dilatation	5 (55.6%)
Centrilobular nodule	0 (0%)
Pleural effusion	0 (0%)
Lymph node enlargement	0 (0%)

Age and days expressed in means with range in brackets
CT findings expressed in case number with proportions in brackets

Examples

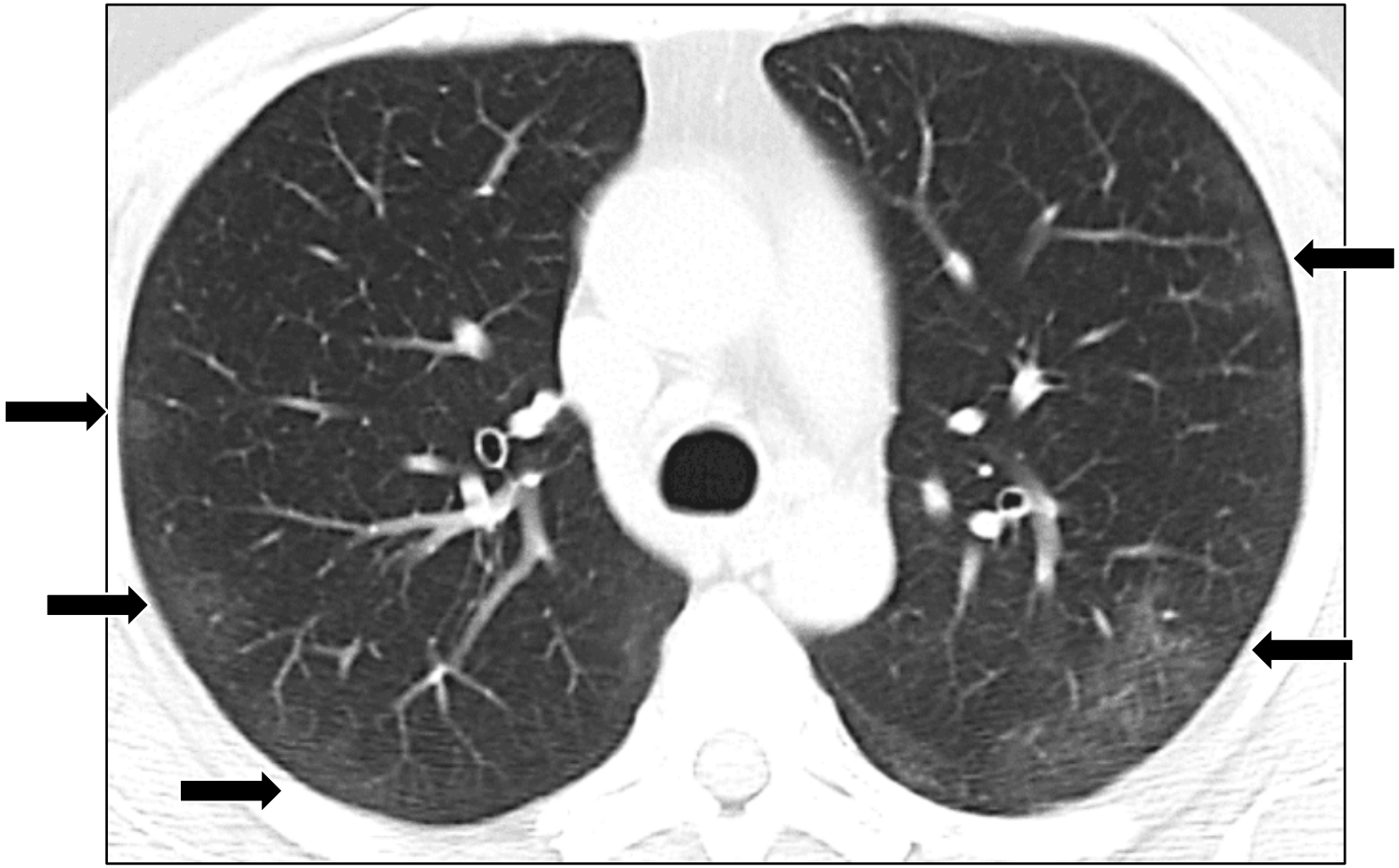
Ground-glass opacities (GGO)



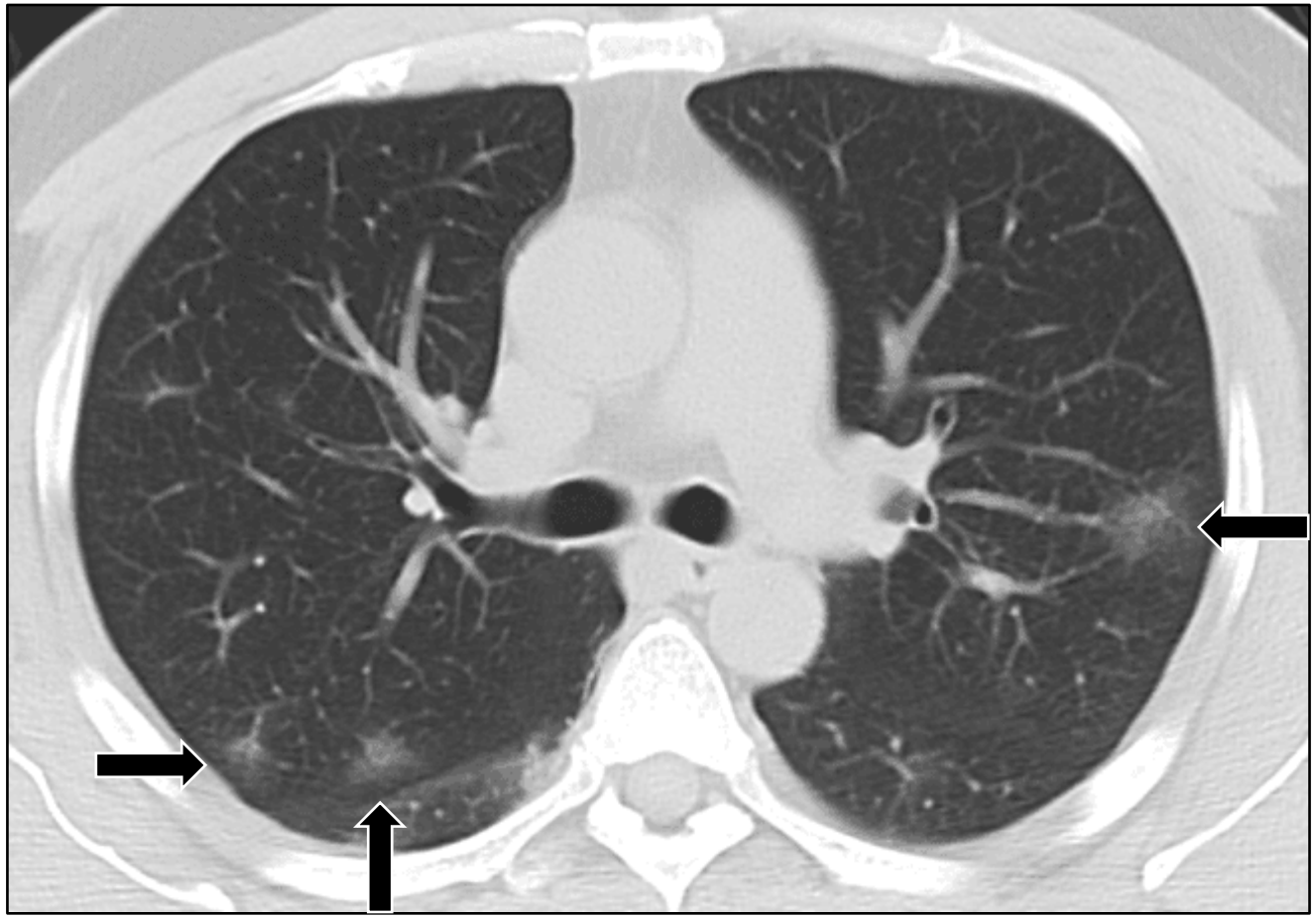
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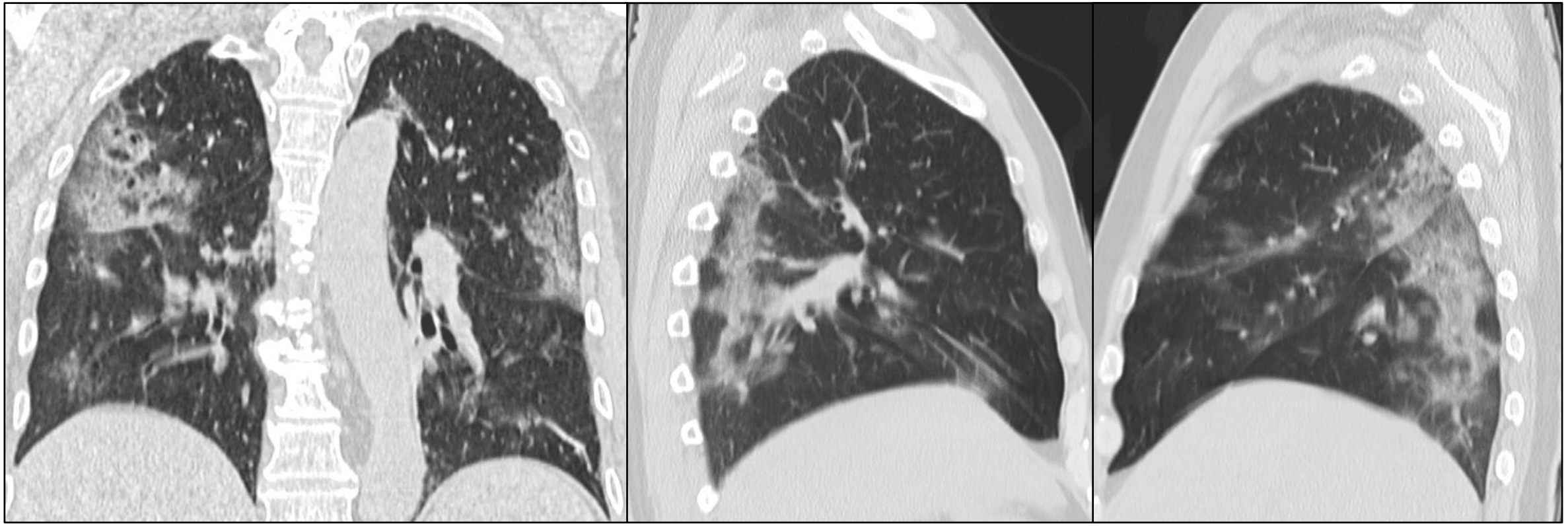


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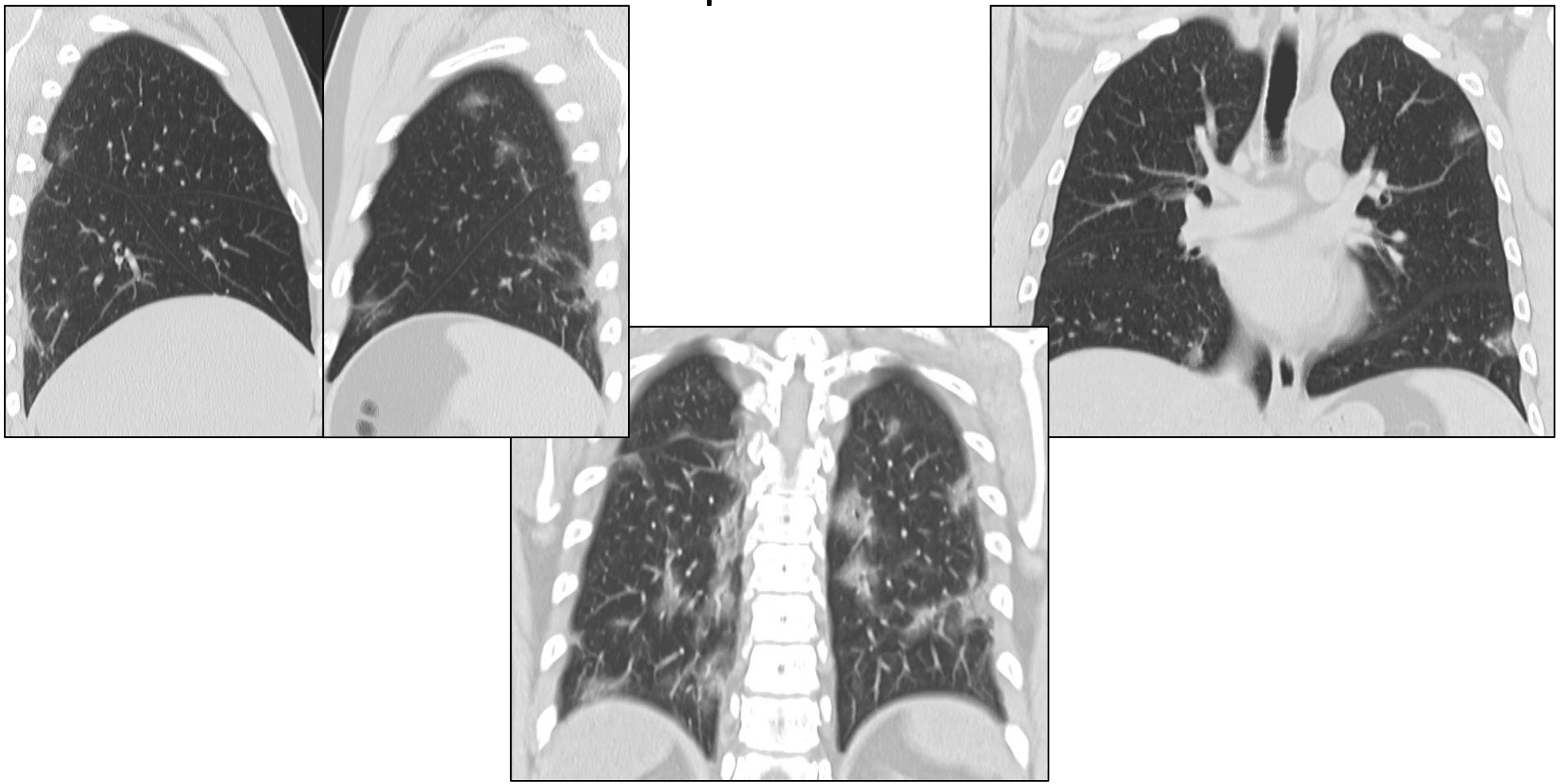


Involvement of multiple lobes

- Often more than one lobes (if not all) show GGO +/- consolidations



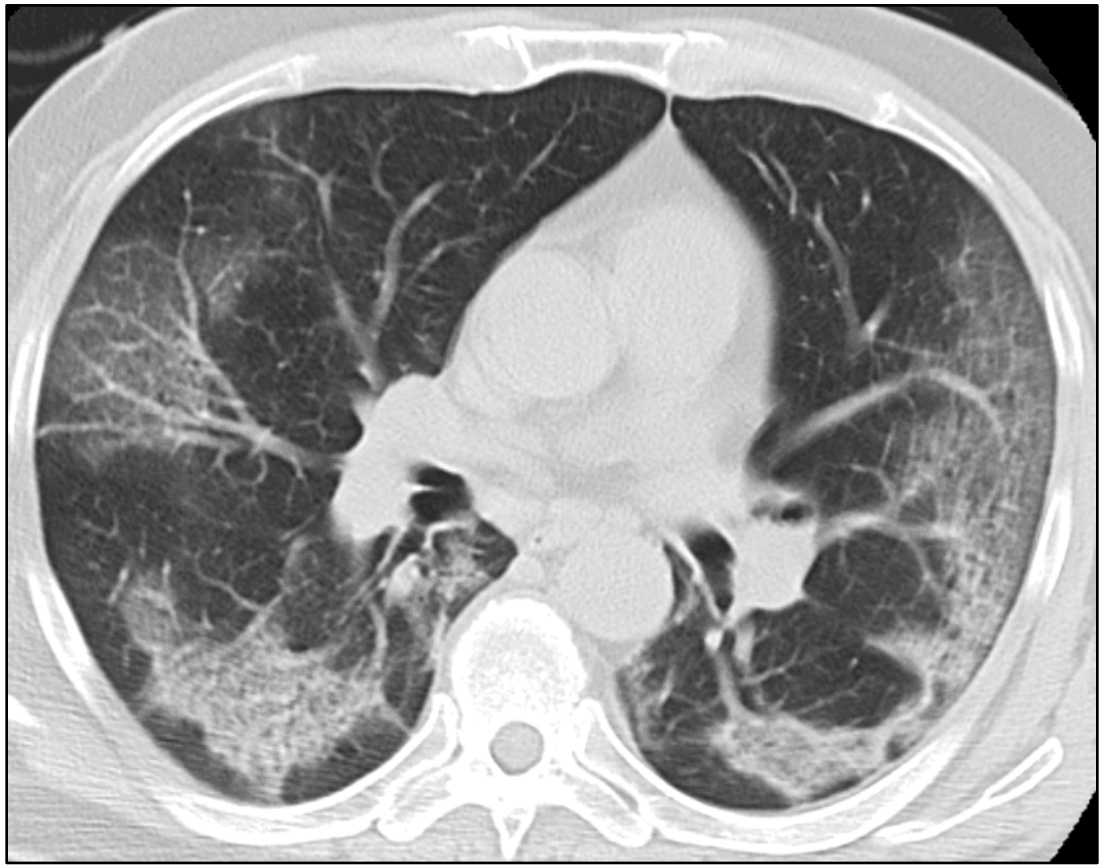
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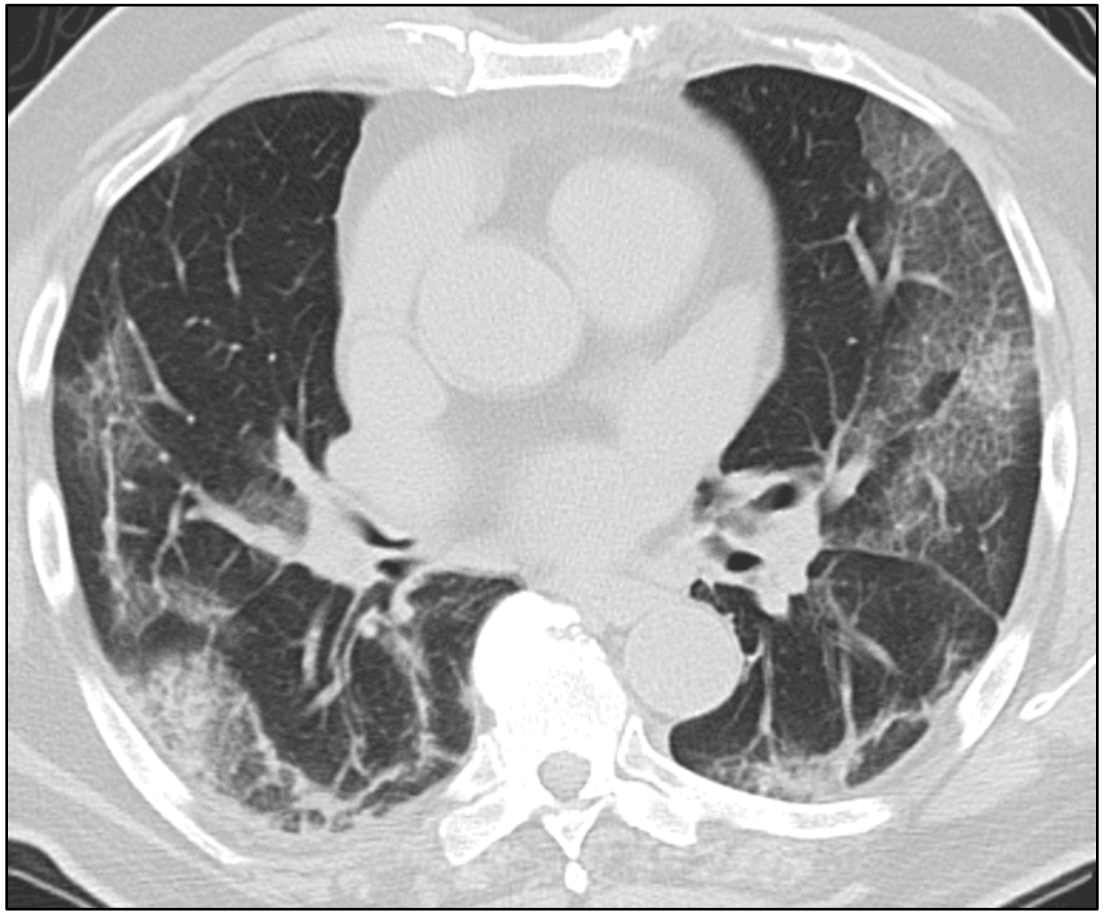


Peripheral/ subpleural distribution



- Peripheral/ subpleural regions are almost invariably involved
- Central regions are often spared/ or involved in a later stage

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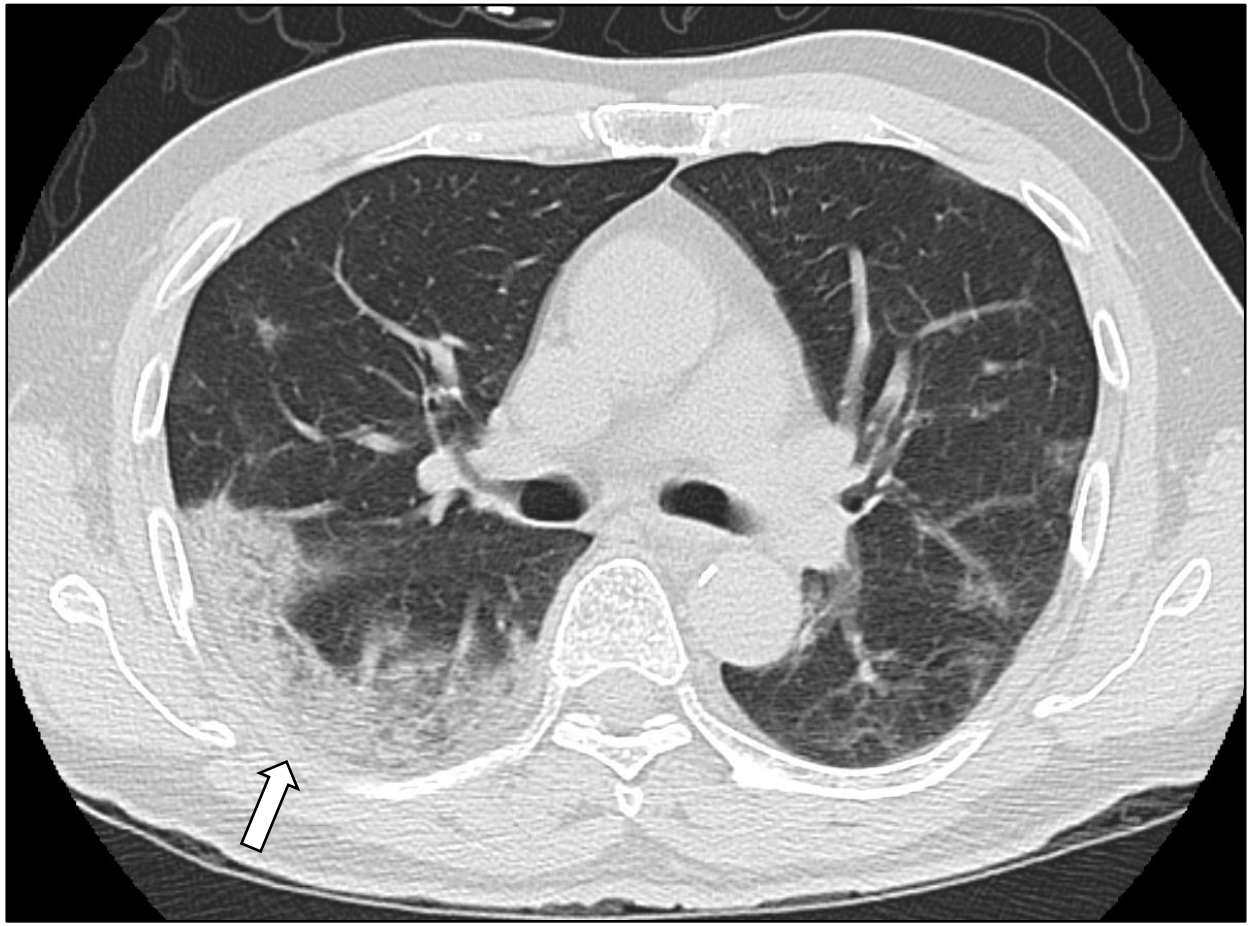


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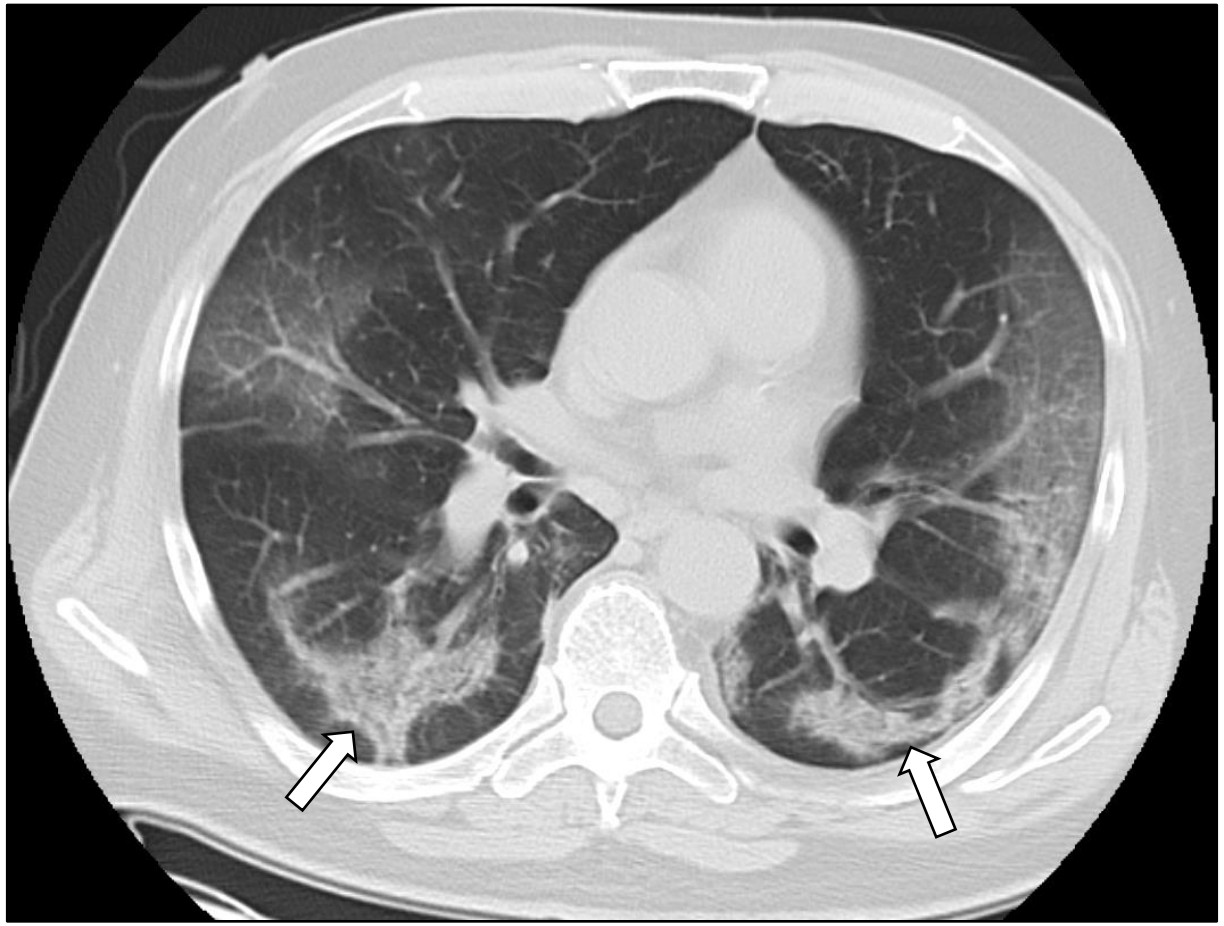
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Consolidations



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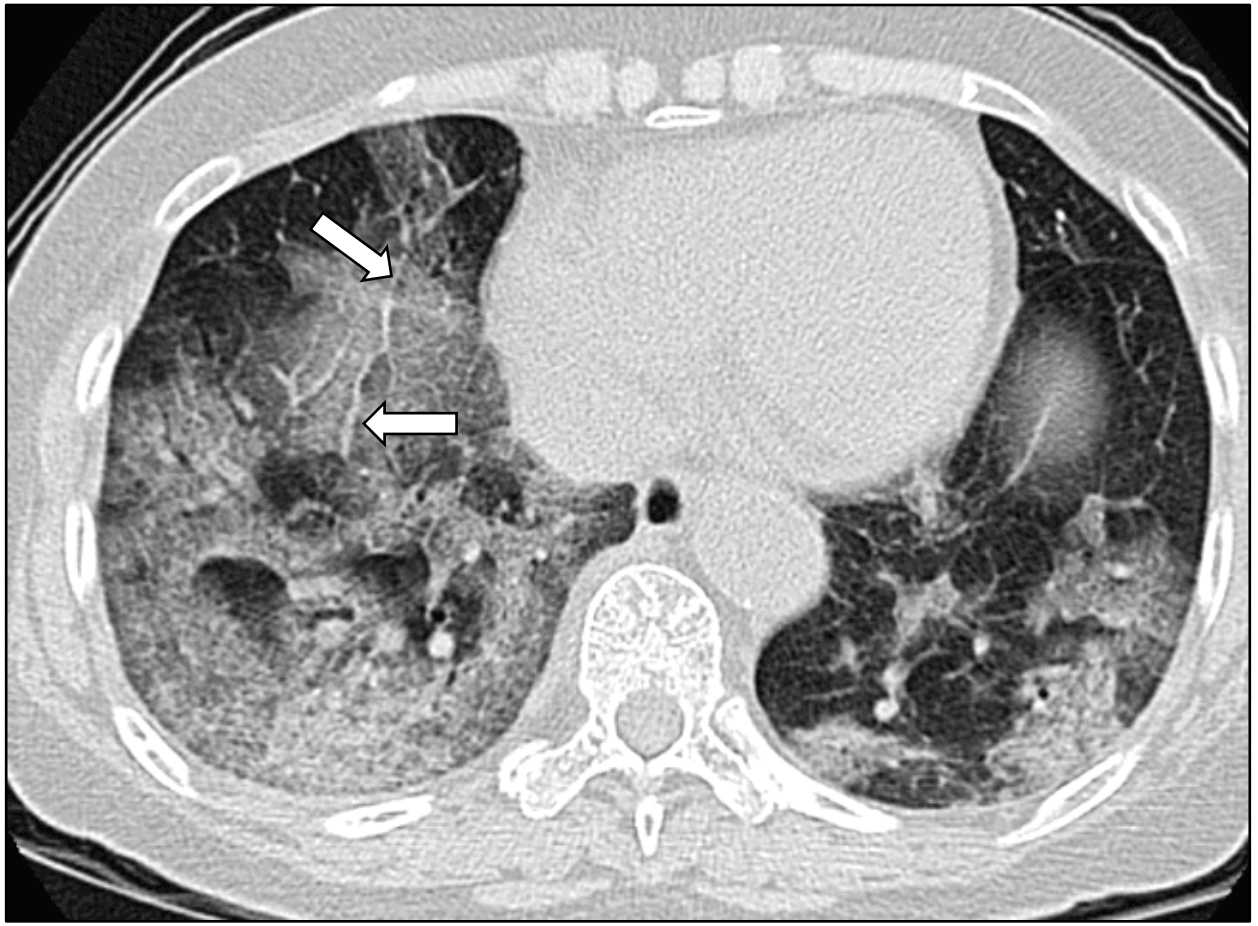
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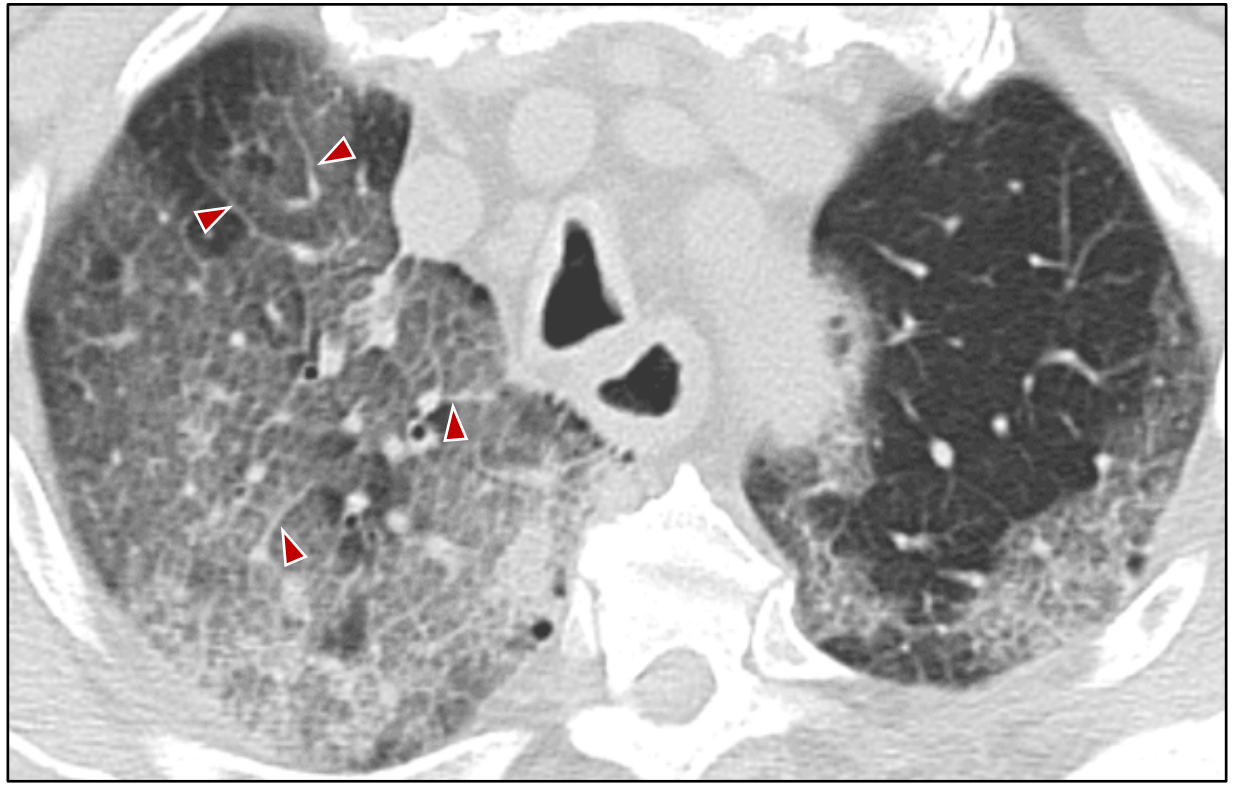
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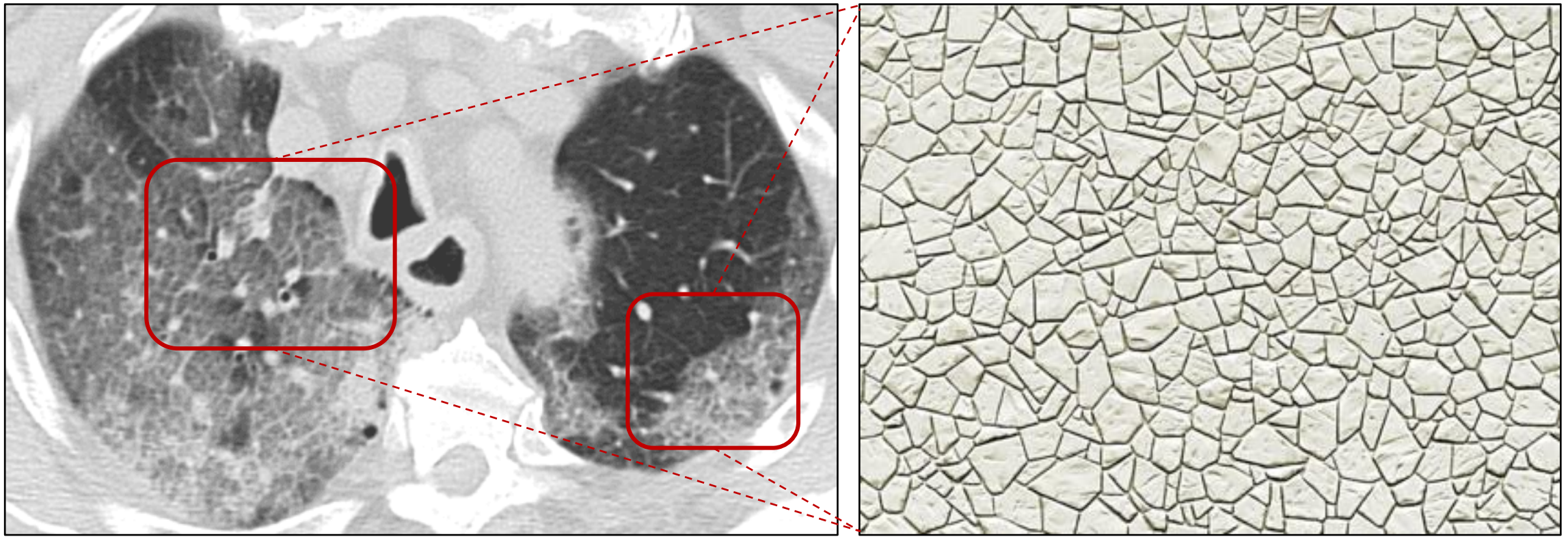
Septal thickening



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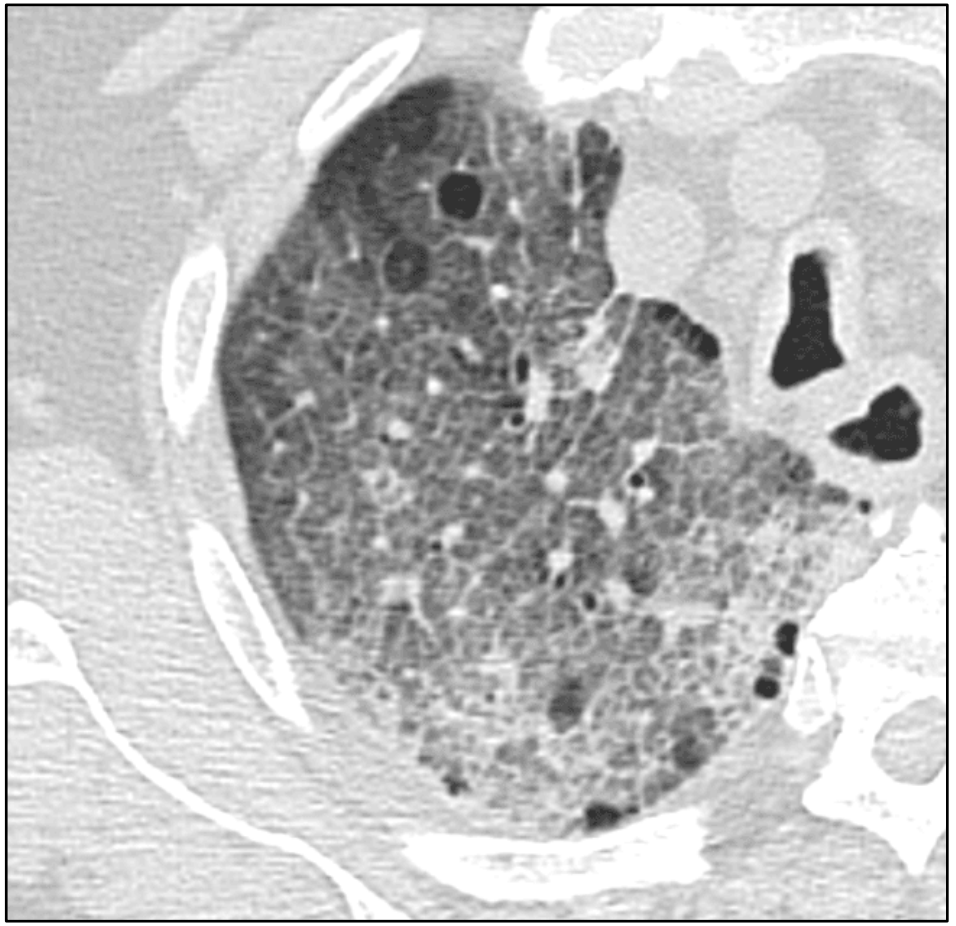


Septal thickening + GGO → crazy-paving pattern



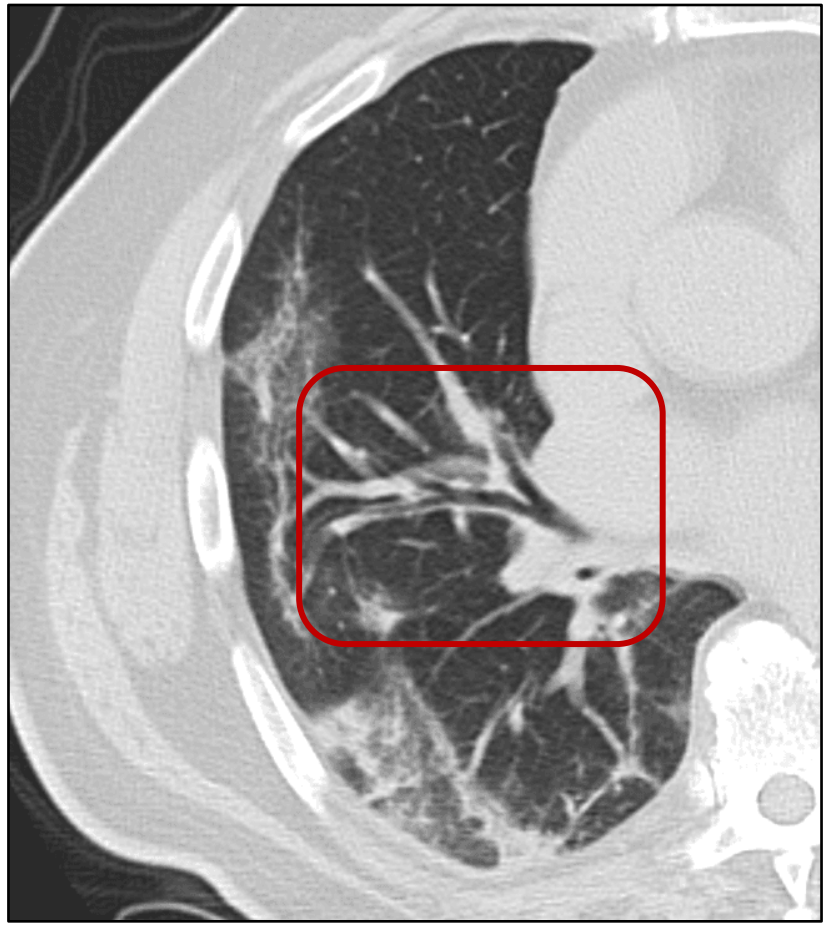
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Bronchial dilatation + wall thickening





Bronchial dilatation + wall thickening



The Important –ve CT Findings

1. Pleural effusion (0%)
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3. Lung nodule (0%)
4. Specific zonal predominance (variable, upper/basal/diffuse distribution each 33.3%)

Why imaging is important

- There have been reports of cases with serial –ve PCR test results ending up +ve later
  - Typical CT findings in combination of suspicious clinical findings probably warrant management as potential carriers even if PCR tests show –ve results
- Community outbreak is inevitable
  - Some outpatient/ routine scans may be performed for other indications
  - If typical nCoV CT findings are seen, these reports require early attention and possible further investigations ASAP

What’s next for Radiology

- Progress CT findings for different clinical courses including improving, worsening, critical cases
- Follow-up CT findings for patients with prior infection to monitor pulmonary sequalae
- Work in close collaboration with clinicians down the road

Special thanks

- To our PMH Infectious Disease team members who are working under great risk in managing the isolated patients and providing us with invaluable clinical information