
2) Bai HX et al. Performance of radiologists in differentiating COVID-19 from viral pneumonia on chest CT. Radiology 2020

Chest CT may be helpful in establishing diagnosis of COVID while we continue to improve our timeliness of laboratory results. It may also assist in establishing severity of illness. Patients with COVID typically have findings on chest CT characteristic of viral pneumonia. In these two studies, characteristic findings on chest CT are first described and, in the second study, compared to CT findings for non-COVID viral pneumonia.

Han et al describe their series of 108 patients with COVID-19 pneumonia in their hospital in Wuhan, China. Diagnosis was confirmed with RT-PCR in all patients. The majority of patients (65%) had multilobar disease in 2-3 lobes (22%) or 4-5 lobes (43%). The remaining patients, an appreciable 35%, had unilobar disease on CT. In patients with unilobar disease, the right lower lobe was by far most commonly involved (30/38, 79%, or 30/108 overall, 28%). The most common findings were patchy (86%), groundglass opacities (GGOs; 60%), vascular thickening (80%), and air bronchograms (48%). Lesions were commonly larger than 3cm (52%). Lesions were most commonly peripherally located (90%) or peripherally and centrally located (8%), but rarely centrally located only (2%).

Bai et al evaluated 219 chest CTs from patients with COVID and compared these to 205 chest CTs from patients with positive respiratory panel viral pneumonia other than COVID. Importantly, seven blinded radiologists from the US and China were able to effectively distinguish COVID from non-COVID based on CT alone. Discriminatory characteristics were identified; COVID pneumonia was more likely to be peripherally distributed (80% vs 57%, p<0.001), have GGOs (91% vs 68%, p<0.001), have fine reticular opacity (56% vs 22%, p<0.001), and have vascular thickening (59% vs 22%, p<0.001). In contrast, COVID pneumonia was less likely to have central and peripheral distribution (14% vs 35%, p=0.001), pleural effusion (4% vs 39%, p<0.001) or lymphadenopathy (3% vs 10%, p<0.001). This study is important in helping to distinguish this novel disease from the typical viral pneumonias that we are used to seeing.
Fig. 2—44-year-old woman with fever and fatigue. A—C, Axial (A), coronal (B), and sagittal (C) CT images of left lung show scattered ground-glass opacity with consolidation and accompanying halo sign. Largest lesion measures 1–3 cm.

Fig. 3—35-year-old man with fever, dry cough, and fatigue. A—C, Axial (A), coronal (B), and sagittal (C) CT images of right lung show multiple patchy ground-glass opacities with consolidation scattered in peripheral zone of lower lobe, poorly defined boundary, air bronchogram sign, and vascular thickening. Largest lesions are larger than 3 cm.

Fig. 4—50-year-old woman with dry cough, fatigue, and diarrhea. A—C, Axial (A), coronal (B), and sagittal (C) CT images of right lung show multiple patchy ground-glass opacities with consolidation scattered in peripheral zone of lower lobe, poorly defined boundary, vascular thickening, and crazy paving pattern. Largest lesions are larger than 3 cm.