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Computed tomography and point-of-care ultrasound findings in 2 COVID-19 patients

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1 | CASE PRESENTATIONS

We present a comparison of computed tomography of the chest and lung ultrasound in the cases of 2 patients who tested positive for COVID-19.

Case #1 is a 60-year-old man with past medical history of asthma. Vital signs upon emergency department (ED) presentation were: blood pressure 126/82 mmHg, pulse 75 bpm, temperature 36.4˚C (97.5˚F), respirations 24/min, and SpO₂ 95%. Review of systems was positive for cough, shortness of breath, chills, fatigue, and fever. Physical examination was otherwise unremarkable. Point-of-case ultrasound (POCUS) completed before Computed Tomography (CT) showed scattered comet tail artifacts and pleural line irregularities (Figures 1 and 2). Chest CT without contrast was significant for extensive bilateral ground-glass opacities (Figure 3).

Case #2 is a 59-year-old man with past medical history of asthma and hypertension. Vital signs upon ED presentation were: blood pressure 137/89 mmHg, pulse 84 bpm, temperature 39.7˚C (103.5˚F),
**FIGURE 3** Case #1, chest CT shows ground-glass opacities

**FIGURE 4** Case #2, lung POCUS shows confluent comet tail artifact

**FIGURE 5** Case #2, lung POCUS shows pleural thickening, confluent comet tail artifacts, shredding ("Shred Sign") and sub-pleural consolidation

**FIGURE 6** Case #2, chest CT, mid-lung

**FIGURE 7** Case #2, chest CT, posterior lower lobes
respirations 23/min, and SpO₂ 98%. Review of systems was positive for cough, shortness of breath, chills, fatigue, and fever. Physical examination was remarkable for acute respiratory distress. POCUS completed before CT showed confluent comet tail artifacts with pleural thickening (Figures 4 and 5). Chest CT demonstrated diffuse peripheral, bilateral ground-glass opacities consistent with multifocal pneumonia (Figures 6 and 7).

2 | DISCUSSION

The World Health Organization declared COVID-19 an international public health emergency on January 30, 2020, and the clinical manifestations in the USA are still rapidly unfolding. Chest CT of both presented cases showed bilateral diffuse ground-glass opacities and pleural-based infiltrates, in line with recent COVID-19 imaging findings. Lung ultrasound imaging of our patients revealed that the comet tail artifacts seen in COVID-19 are patchy with areas of normal lung in between; the artifacts are associated with an irregular, thickened pleural line with punctate defects akin to “little dents.” Both of these patients ended up decompensating within 48 hours and being intubated. There are few published case series and reports to date on utilization of ultrasound in COVID-19 patients, but there are likely more to come. The benefits of POCUS in COVID-19 patients are substantial given its portability, efficiency, and the ability to reduce exposure of additional health care workers when compared to CT. In preparation for an increase in COVID-19-positive patients in the setting of saturated health care resources, POCUS shows promise as an efficacious tool in the diagnosis and management of COVID-19.

REFERENCES


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