

Multimedia

Computed tomography scanning in the prone position for a critically hypoxic patient with COVID-19

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Prone positioning is an effective strategy to improve oxygenation in patients with coronavirus disease 2019 (COVID-19). In ventilated patients requiring computed tomography (CT) imaging, stable oxygenation is a prerequisite before transfer. Here, we present the thoracic CT scan of a ventilator-dependent 45-year-old man with COVID-19 undertaken in the prone position (Fig. 1). His oxygenation was stable (PaO₂ 8–10 kPa on F_iO₂ 0.5–0.7) in the prone position, in which he spent much of the week before the scan, undertaken at day 19 of his critical care stay.

The primary indication for imaging was to exclude undetected pathologies and assess suitability for high-dose steroid treatment. The risks and benefits of undertaking the scan were discussed over several days; the patient did not tolerate supine positioning for more than around 30 min, which was felt to represent an unacceptable risk in the CT suite environment. Transfer in the prone position is itself not without risk; however, a dedicated experienced team undertook the transfer having first planned the logistics with radiology colleagues. Viewing the tracheal tube and ventilator circuit throughout the range of travel in and out of the scanner was critical.

Prone CT scans are undertaken in several conditions, notably in the awake patient when assessing interstitial lung disease [1]. With prone position CT scans, non-fibrotic areas of lung will expand or be compressed with gravity and re-positioning. The same technique has been used to study reversibility in acute lung injury [2, 3].

With appropriate planning and execution, prone positioning for CT imaging is safe and feasible, and is an option for critically hypoxic patients.

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Figure 1 Representative CT slice at the mid-thorax of a ventilator-dependent 45-year-old man with COVID-19, undertaken in the prone position. Note the CT table uppermost, above the sternum. Strikingly, the dependent consolidation is concentrated at the ventral aspect of the lungs. Bronchial dilatation can be seen within the consolidated areas. The non-dependent lung demonstrates diffuse 'ground glass' appearances with patchy ill-defined consolidation and parenchymal distortion.

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