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# COVID-19 and pneumothorax: a multicentre retrospective case series

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**Roughly 1% of patients admitted with COVID-19 develop pneumothorax. This can occur without pre-existing lung disease or mechanical ventilation. Two-thirds of patients survive, but age >70 years and acidosis are associated with poor prognosis.** <https://bit.ly/2Z1mfco>

**Cite this article as:** Martinelli AW, Ingle T, Newman J, *et al.* COVID-19 and pneumothorax: a multicentre retrospective case series. *Eur Respir J* 2020; 56: 2002697 [<https://doi.org/10.1183/13993003.02697-2020>].

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## ABSTRACT

**Introduction:** Pneumothorax and pneumomediastinum have both been noted to complicate cases of coronavirus disease 2019 (COVID-19) requiring hospital admission. We report the largest case series yet described of patients with both these pathologies (including nonventilated patients).

**Methods:** Cases were collected retrospectively from UK hospitals with inclusion criteria limited to a diagnosis of COVID-19 and the presence of either pneumothorax or pneumomediastinum. Patients included in the study presented between March and June 2020. Details obtained from the medical record included demographics, radiology, laboratory investigations, clinical management and survival.

**Results:** 71 patients from 16 centres were included in the study, of whom 60 had pneumothoraces (six with pneumomediastinum in addition) and 11 had pneumomediastinum alone. Two of these patients had two distinct episodes of pneumothorax, occurring bilaterally in sequential fashion, bringing the total number of pneumothoraces included to 62. Clinical scenarios included patients who had presented to hospital with pneumothorax, patients who had developed pneumothorax or pneumomediastinum during

their inpatient admission with COVID-19 and patients who developed their complication while intubated and ventilated, either with or without concurrent extracorporeal membrane oxygenation. Survival at 28 days was not significantly different following pneumothorax ( $63.1\pm 6.5\%$ ) or isolated pneumomediastinum ( $53.0\pm 18.7\%$ ;  $p=0.854$ ). The incidence of pneumothorax was higher in males. 28-day survival was not different between the sexes (males  $62.5\pm 7.7\%$  versus females  $68.4\pm 10.7\%$ ;  $p=0.619$ ). Patients aged  $\geq 70$  years had a significantly lower 28-day survival than younger individuals ( $\geq 70$  years  $41.7\pm 13.5\%$  survival versus  $<70$  years  $70.9\pm 6.8\%$  survival;  $p=0.018$  log-rank).

**Conclusion:** These cases suggest that pneumothorax is a complication of COVID-19. Pneumothorax does not seem to be an independent marker of poor prognosis and we encourage continuation of active treatment where clinically possible.