



Review of COVID-19-related post mortems submitted through the RCPATH portal

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This document contains the findings of an RCPATH-led review of post-mortem reports submitted to the College via our post-mortem portal. It is accompanied by a findings dataset, which can be found on the RCPATH website at www.rcpath.org/profession/coronavirus-resource-hub/covid-19-post-mortem-portal.html (member login required to download).

Please share the findings in this document and the dataset with your clinical colleagues, as we have produced this resource at their request.

The following key points are taken from very preliminary data based on a limited number of reports received. We are receiving more post-mortem reports all the time, which we will add in batches to our portal dataset. The more reports we can include, the better the quality of data we can assimilate. The data has not yet been formally interrogated. This will occur in due course when we feel all reports available have been submitted.

Please continue to submit your reports and ask your colleagues to do the same.

Key points

- These data support the prevailing picture that if a patient is not elderly, risk factors such as obesity, autoimmune disease (especially if on biological agents), cirrhosis and psychiatric disease seem an important determinant of poor outcome. It is important to note that with psychiatric disease the circumstances surrounding the death are perhaps more likely to lead to a post-mortem examination by the coroner than in non-psychiatric deaths, so there needs to be clarification of this data.
- Cough, fever, myalgia and shortness of breath appear to be important alerting signs/symptoms for the possibility of COVID-19 infection at autopsy. Myalgia is the least commonly reported. About 20% of patients had none of the above listed, but it is unclear if this is due to omission or exclusion.
- Looking only at those with an invasive autopsy and particularly at those who died in hospital:
 - Of the 17 in-hospital autopsied cases, 2 had opportunistic mycoses. Any underlying link between these cases - eg ECMO is being investigated.
 - No myocarditis has yet been reported.

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- More than 40% of autopsies in which histology was examined showed microvascular thrombi, frequently involving multiple organs, especially the lungs, heart and kidneys. Vasculitis was very rare.
- 23% of autopsies showed fatty liver macroscopically
- The following diagnoses were deemed to have caused or contributed to death (in addition to COVID-19), in reducing order of frequency:
 - type II diabetes (32%)
 - ischaemic heart disease (32%)
 - hypertension (20%)
 - COPD/emphysema/OSA (17%)
 - bacterial/fungal infection (8%)
 - dementia (7%)
 - stroke (7%)
 - chronic liver disease (5%)
 - increased BMI (3%)
 - malignancy (2%)
- COVID-19 testing at autopsy shows enough positivity to be worth doing routinely (local testing capacity allowing). The virus can be detected by post-mortem swab up to 28 days after death.
- The changes of hyaline membranes and/or interstitial lymphocytic infiltrate are the most frequent histopathological findings within the lungs (each present in >80%; either/or in 94%; both in 66%).
- Thrombosis is well documented in many papers and is seen in some cases reported here, though perhaps less than would be expected. However, the sample size is small and it will be interesting to see if the incidence of this finding alters with a larger pool of cases.