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Supplementary appendix

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Neuropathology of SARS-CoV-2: a post mortem case series

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Supplementary data

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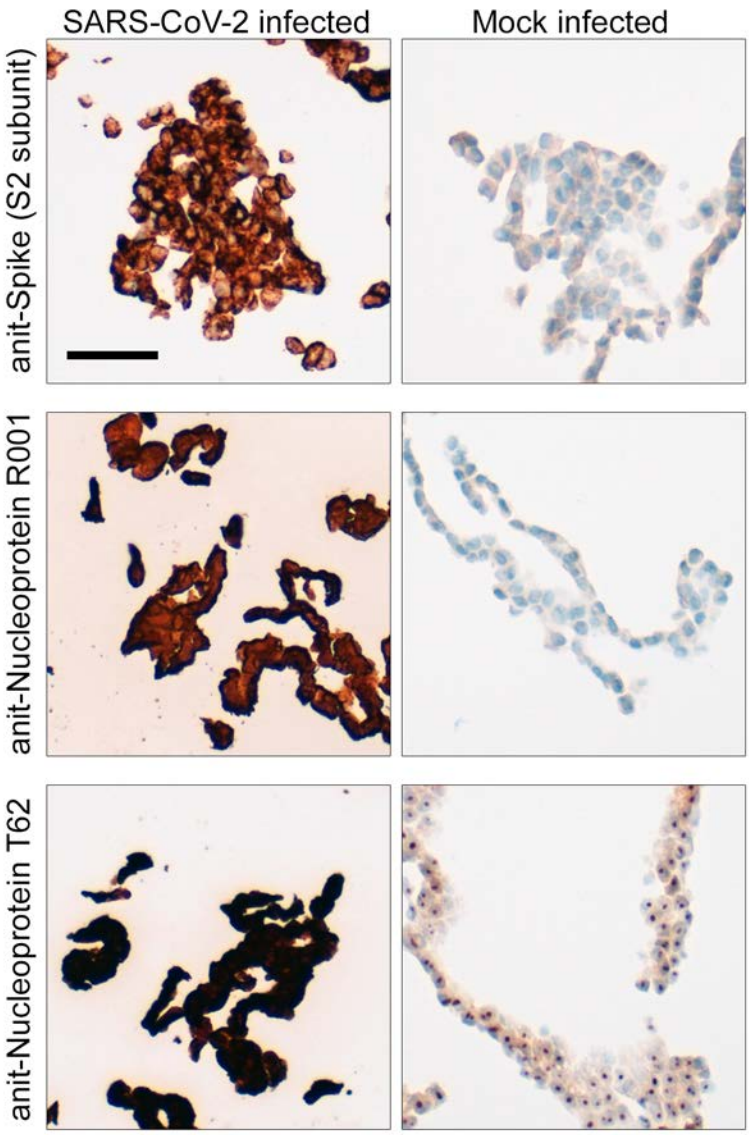
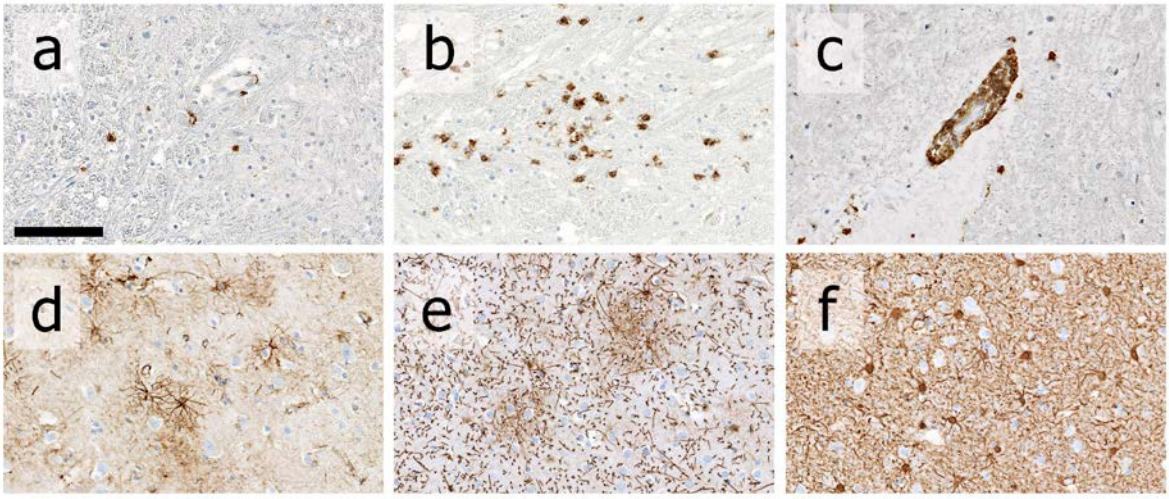
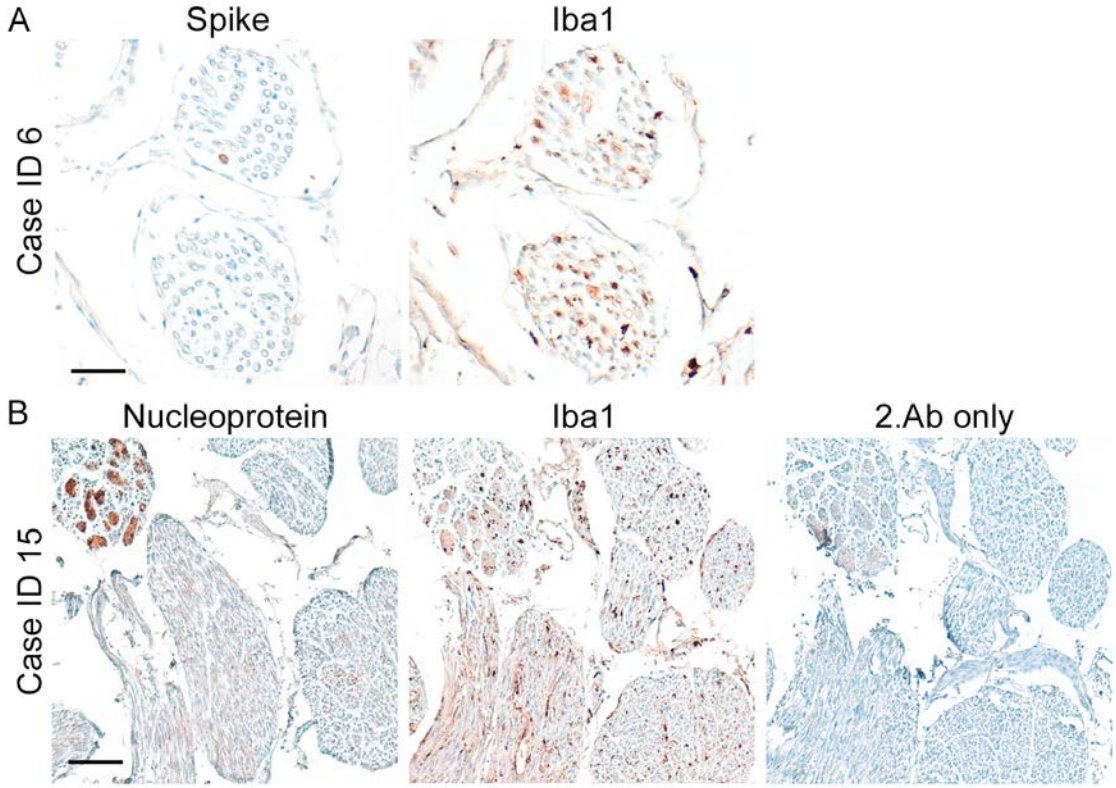
Suppl. Fig 1. Establishment of SARS-CoV-2 staining on paraffin embedded cells
Vero-cells were either infected with SARS-CoV-2 (Hamburg isolate) or mock infected, fixed in formalin, and embedded into paraffin blocks. Paraffin sections were cut and stained. Representative images of virus protein detection with anti-Spike (S2 subunit) or two different anti-nucleoprotein antibodies show highly specific staining in virus infected cells only. As expected, anti-Spike antibody displayed a subcellular staining pattern that is distinct from those of both nucleoprotein antibodies. Mock infected cells show no or only very weak background staining. Scale bar: 50 µm.



Suppl. Fig 2. Examples of immunostaining for CD8 in the lower brainstem (a: 1+, b: 2+, c: 3+) and GFAP in the frontal cortex (d: 1+ (slight: occasional reactive astroctes), e: 2+ (moderate: scattered confluent reactive astroctes), f: 3+ (severe: numerous reactive astroctes) in patients with fatal SARS-CoV-2-infection (COVID-19). Scale bar: 100 µm



Suppl. Fig 3. Staining of SARS-CoV-2 viral proteins in cranial nerves could be detected in two cases of this study. A) Spike protein was detected in one case; Scale bar: 50µm and B) nucleoprotein in another; Scale bar: 100µm. Brain macrophages/microglia as detected by Iba1 did not co-localize with positive signal in consecutive sections. Secondary antibody only control did not show relevant background signal.



Suppl. Table 1:
Histopathological analysis of microgliosis based on Iba1-immunoreactivity.

ID	upper medulla
1	severe
2	severe
3	n.d.
4	n.d.
5	severe
6	moderate
7	severe
8	severe
9	technical issues: n.d.
10	technical issues: n.d.
11	moderate / severe
12	severe
13	slight
14	moderate
15	n.d.
16	severe
17	moderate
18	severe
19	moderate
20	severe
21	severe
22	slight
23	none
24	severe
25	severe
26	none
27	severe
28	slight
29	severe
30	moderate
31	severe
32	moderate
33	moderate
34	severe