



## Pulmonary embolism and Sars-Cov-2 infection: A new indication for surgical pulmonary endarterectomy?



The day after. Sars-Cov-2 is a novel RNA virus that is raging the world since the last months of 2019 causing hundreds of thousands of deaths among over than 2 million infected people. The strengths of this microorganism are the long incubation period and the high percentage of asymptomatic patients that allow the virus to be widely in the population. In symptomatic patients, COVID-19 shows a high variability in clinical presentation: sometimes patients can develop only mild symptoms such as cold, cough, gastro-intestinal disorders, fever, skin rushes or ageusia/dysgeusia, whereas other patients have a severe interstitial pneumonia that can require hospitalization or intensive care unit stay. According to the last clinical and autoptical findings, COVID-19 pneumonia is associated with massive pulmonary micro embolism and pulmonary infarction caused by a wide thrombotic response to the infection.<sup>1</sup> In the acute setting, this usually causes a progressive lung failure but, over time, the patients can develop a severe cardiac and multiorgan failure. For these reasons, many centres around the world are currently using anticoagulant therapy and extracorporeal membrane oxygenation support to help the patients to overcome the critical phase.<sup>2</sup> This strategy is proving to be very effective in COVID-19 patients, but the real question is what kind of sequelae these people will have. Probably, a wide pulmonary embolism and a strong inflammatory response will cause a chronic pulmonary hypertension that could increase long-term mortality and morbidity of survivors. Nowadays, chronic pulmonary embolism can be effectively treated with medical therapy but in some limited cases it can require a surgical treatment.<sup>3</sup> Surgery for chronic pulmonary embolism is a very rare but challenging situation because it requires long surgical times and sometimes the need to deep hypothermia and circulatory arrest.<sup>4</sup> In the regard, however, COVID-19 could have created a wide population that will develop pulmonary hypertension due to the fibrosis and chronic embolism and that might need a surgical treatment in the next years. Ongoing trials are showing that heparin treatment is proving to reduce ICU hospitalization and respiratory symptoms. For these reasons, we encourage the early treatment with anticoagulant therapy to prevent the massive pulmonary micro embolisms in order to reduce

morbidity and mortality of COVID-19 patients and to avoid a such complex and high risk surgical procedures in survivors. Further studies, from this point of view, could be food for thoughts.

### Declaration of Competing Interest

No conflict of interest, disclosures or funding to declare.

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