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important, false-negative rates with the currently available COVID-19 testing methods.

With appropriate use of PPE and designated COVID-19 spaces, the risk of nosocomial transmission can be kept to a minimum. Undoubtedly, some healthcare workers have been inflicted with and succumbed to COVID-19 from work-related exposure. However, the transmission rates have been very low with adequate awareness and PPE use. In a series from a large hospital in Wuhan, China, the infection rate was 0.5% among first-line healthcare workers, and the rates were higher in the early stages of the outbreak when PPE use was less stringent.<sup>3</sup> Proper

algorithms can allow us to stay safe while providing expedient care to those with acute aortic emergencies.

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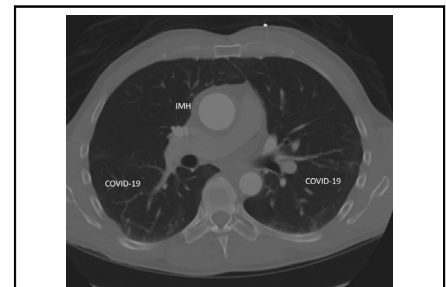


## Commentary: Managing thoracic aortic emergencies during a pandemic

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The coronavirus 2019 (COVID-19) pandemic continues to burden the health care infrastructure with unprecedented challenges. Management of acute aortic emergencies during a pandemic increases the complexity of an already resource-heavy disease.

Mehta and colleagues<sup>1</sup> propose an algorithmic approach to the triage and management of thoracic aortic emergencies during the COVID-19 pandemic. We find the algorithm



CTA showing type A intramural hematoma and pulmonary changes associated with COVID-19.

### CENTRAL MESSAGE

Developing practical guidelines for cardiac surgeons performing complex surgeries during a pandemic should aim to ensure excellent patient outcomes and a safe environment for patients and providers.

very useful, with a well-pondered balance between optimal patient care and health care personnel safety.

In general, we are following personal protective equipment and viral testing guidelines as suggested by the authors, particularly during airway manipulation. We diverge slightly in some aspects of the management. Namely, when indicated, we continue to offer patients emergent operations with no delays, usually before the COVID-19 tests have results returned. We are eagerly awaiting the arrival of a rapid, sensitive, and reliable test to avoid the additional technicalities of performing these

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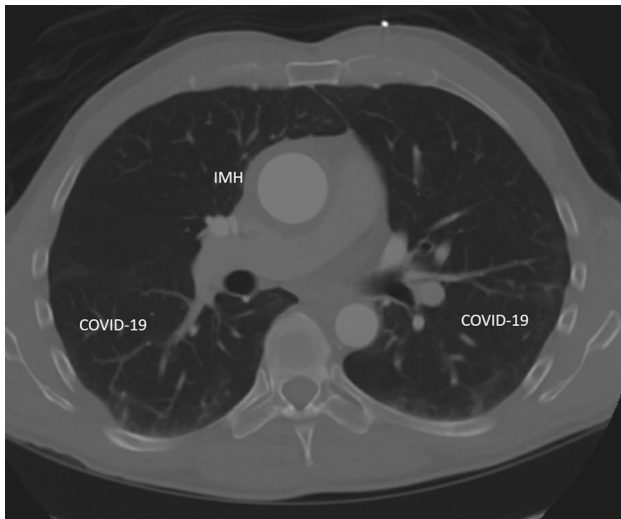
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**FIGURE 1.** Computed tomography angiography showing type A intramural hematoma (*IMH*) and pulmonary changes associated with coronavirus 2019 (*COVID-19*).

complex surgeries under COVID-19 restrictions for patients whose test results are negative. We have access to a specifically redesigned negative pressure operating room with ante and post chambers. Any prosthesis or device that could potentially be needed (eg, aortic grafts, stent-grafts, and valve prosthesis) is relocated within reach to avoid excessive in-and-out-of-room traffic. We determine the extent of the aortic reconstruction per our usual practice, regardless of COVID-19 status. We continue to rely on intraoperative transesophageal echocardiogram routinely, which we find extremely valuable in the management of these patients. Our anesthesiologists are using a designated probe, probe sleeve, and console

for all cardiac patients with positive or unknown test. Postoperatively, patients who are COVID-19 positive are transported to negative pressure rooms within the cardiothoracic intensive care unit, in the section where COVID-19–positive extracorporeal membrane oxygenation patients are housed. We believe it is important for these complex patients to be closely managed by experienced frontline cardiac intensive care unit staff.

During this pandemic, we have had the opportunity to care for several patients with proximal aortic emergencies and unknown COVID-19 status at presentation. One patient who presented with type A intramural hematoma and pulmonary findings suggestive of COVID-19 infection tested positive for the virus (Figure 1). This patient underwent a valve-sparing aortic root replacement and a hemiarch replacement and was discharged home within a week. All other patients underwent expeditious surgeries and recovered fully.

The authors' algorithm provides a practical and safe framework for cardiovascular surgeons to navigate the pitfalls of performing complex cardiovascular surgeries during a pandemic with a highly contagious and relatively lethal virus. We add that surgeons should engage their hospital systems and contribute to a reliable and sustainable redesign of the perioperative space and workflow. In our opinion, this redesign is essential to balance the challenges imposed by a viral pandemic with the continued delivery of optimal patient care.

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1. Mehta CK, Malaisrie SC, Budd AN, Okita Y, Matsuda H, Fleischman F, et al. Triage and management of aortic emergencies during the coronavirus disease 2019 (COVID-19) pandemic: a consensus document supported by the American Association for Thoracic Surgery (AATS) and Asian Society for Cardiovascular and Thoracic Surgery (ASCVTS). *J Thorac Cardiovasc Surg.* 2021;161:48-53.