Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

A Combination of Type A Aortic Dissection and COVID-19: Operative Mortality of 33%?

To the Editor:

We read with great interest the collection of case reports on type A aortic dissection (TAAD) in patients with confirmed or suspected coronavirus disease 2019 (COVID-19) infection.[1-3] Two patients tested positive for COVID-19 postoperatively, and the third patient was diagnosed based on computed tomographic scan findings. Because these patients were not tested for COVID-19 at presentation, it is unclear whether precautions were taken perioperatively.

From these case reports, we learned that the outcomes of TAAD patients with COVID-19 can be highly variable. Despite an uncomplicated operation, the patient who presented with a low-grade fever, possibly due to COVID-19, eventually died of pulmonary complications postoperatively. Pulmonary issues developed in another patient with no apparent COVID-19 symptoms after an uneventful operation, but the patient was able to recover with appropriate management. The third patient had an uncomplicated hospital course, although the operation seemed to be technically challenging.

We would like to congratulate the authors' surgical success and their heroic efforts in saving these patients' lives that were simultaneously endangered by TAAD and COVID-19. These cases also reflect a learning process in these unprecedented times, including lack of fundamental knowledge about COVID-19 and resources, such as testing availability, in the early days of the pandemic. Although we are better prepared now due to access to more optimal resources, it is still imperative to develop a protocol on how to risk-stratify these patients to prevent unnecessary hazard and to formulate care plans. Our protocol is as following:

1. All patients should be suspected to be COVID-19 positive until proven otherwise and screened for all COVID-19 relative risks (recent travel, contact, symptoms, and prior COVID-19 test result, if available).
2. Blood work should be reviewed, paying attention to white blood cell and lymphocyte count, C-reactive protein, and erythrocyte sedimentation rate.
3. Computed tomographic scans of the chest, including the lungs, should be reviewed. Certain pulmonary abnormalities, such as infiltrates or consolidation, or both, could indicate higher suspicion for COVID-19.
4. All patients should undergo rapid COVID-19 test in a timely fashion. A positive test result may not exclude the patient from an operation, but rather help avoid stress and facilitate early treatment.

The mortality rate is significantly increased in COVID-19 patients undergoing operations.[4] However, the effect of COVID-19 on the mortality rate in cardiac surgery patients is unclear. We can speculate that cardiopulmonary bypass raises mortality and morbidity in these patients, but the extent of its impact needs to be determined. Our knowledge about COVID-19 is still evolving. Akgul and colleagues[3] described their patient with TAAD in the context of COVID-19 infection had a markedly thickened aortic wall which they suspected for inflammatory aortopathy as a result of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viremia. This correlation between COVID-19 and TAAD, yet thought provoking, remains a question about whether it is evidence-based or just guilt by association.

Debra Hwang, MD
Yong Zhan, MD

Division of Cardiac Surgery
The CardioVascular Center, Tufts Medical Center
Tufts University School of Medicine
800 Washington St, #266
Boston, MA 02111
email: yzhan@tuftsmedicalcenter.org

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Early Detection and Therapy Is the Key for the Management of Type A Aortic Dissection With COVID-19

Reply
To the Editor:

We thank Drs Hwang and Zhan[1] for their letter in response to our article[2] regarding the management of patients with dual diagnoses of acute type A aortic dissection and coronavirus disease 2019 (COVID-19). We completely agree with their comments in the letter.

Our first patient with type A aortic dissection and COVID-19 was seen at the very beginning of the pandemic back in mid-March 2020. In light of the possible dismal mortality and the higher-than-expected number of asymptomatic COVID-19 carriers, we started advocating testing all type A dissection patients for COVID-19 and confirming negative results before performing any surgical repair.

Presently, this upfront COVID-19 testing appears fairly common in the United States. In this context, however, operating surgeons must be mindful for the possibility of false-negative results. The false-negative rate can be up to 30%, which can lead to fatal clinical course.[3] The sensitivity depends on the prevalence of the disease, the precise reverse transcriptase-polymerase chain reaction assay, the type or quality of the specimen, and the duration or severity of illness. Furthermore, many surgeons might think a negative computed tomographic scan for typical radiographic features suffices as a screening for COVID-19 rather than waiting for reverse transcriptase-polymerase chain reaction results. However, it did not seem to be helpful in the presence of type A aortic dissection, and its positive predictive value for detecting COVID-19 was low based on our recent study collaborating with major aortic centers in Wuhan and Changsha.[4] Those typical COVID-19 pneumonia findings appeared surprisingly common in type A dissection patients. At arrival, 33% demonstrated simultaneous pulmonary computed tomographic lesions.