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Commentary: Should surgeons challenge the unknown sequela of the coronavirus disease 2019 (COVID-19) virus?

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In the early 2020, the World Health Organization declared a global outbreak of the new coronavirus disease 2019 (COVID-19; severe acute respiratory syndrome coronavirus 2), and the situation was classified as an international emergency.¹ Throughout the world, health care systems were forced to adopt changes to their practices and deal with a highly contagious and lethal virus. At the forefront of this pandemic, thoracic surgeons face challenges not only in defining the indications for life-saving procedures in patients with COVID-19 but also in adopting new tactics to safely perform surgery in infected, highly contagious patients. As thoracic surgeons treat patients during this pandemic, data are being generated related to the risks and efficacy of surgical procedures in infected patients as well as in patients with sequelae of COVID-19 infection. The crude mortality rate in patients with COVID-19 can reach 4.3%.² Strikingly, the postoperative mortality rate for infected patients who undergo thoracic surgery may be 10 times greater than that of patients without COVID-19 (27% vs 2%).³ Given this scenario, the decision to proceed with elective major surgical procedures in patients infected with or recovering from COVID-19 should be, at a minimum, questioned.

In this issue of *JTCVS Techniques*, Lucchi and colleagues⁴ from the University of Pisa in Italy elegantly detail a courageous surgical repair of a tracheal stenosis that



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CENTRAL MESSAGE

Thoracic surgeons must carefully consider the indications and precautions for surgical procedures in patients with COVID-19. An excellent outcome was seen after a post-COVID-19 tracheal resection.

developed as a sequela of COVID-19. A complex cervical tracheoplasty was performed with good results in the patient, who was recovering from COVID-19 infection and underwent open tracheostomy during hospitalization for COVID-19. During the pandemic, 10% of infected patients in need of respiratory support have required invasive mechanical ventilation,⁵ and of those, 8% to 13% have undergone tracheostomy.⁶ Not surprisingly we are now dealing with increase rates of tracheal stenosis, as the orotracheal tube and the tracheostomy are known risk factors for tracheal stenosis. The authors, however, speculate that airway inflammation induced by the COVID-19 virus can also lead to laryngotracheal stenosis.⁷

Many techniques have been described to minimize tracheal manipulation and the risk of aerosolization of the virus. The percutaneous approach developed by the physician team at NYU Langone Health deserves special mention as a good and safe alternative.⁸ Although the authors suggest that meticulous surgical technique during tracheostomy might reduce the risks of stenosis as a post-tracheostomy complication, in this case, the pathology report revealed changes in the resected tracheal segment. This may explain future stigmas in the airways of patients with respiratory distress syndrome caused by COVID-19 who required mechanical ventilation.⁴

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Little is known about the duration, impact, and subsequent recovery from COVID-19. Today, we are facing an invisible enemy, an airborne pathogen that can affect the patient and the surgeon throughout the investigation and treatment period. Although major airway surgery creates an ideal environment for infection of the surgical team, tracheal stenosis can cause severe airway obstruction, and resection may be the only curative option. In this patient, aggressive screening for COVID-19 in the perioperative period and meticulous patient selection were critical to achieve good results. We can't recommend elective major airway surgery in patients with COVID-19; however, the authors have shown that it is possible to accomplish an outstanding result while taking all necessary precautions.

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