Considerations for Elective Surgery in the Post-COVID-19 Patient

Mark Mankarious; Sameer Massand, MD; and John Potochny, MD

From the Penn State Hershey College of Medicine and Milton S. Hershey Medical Center, Hershey, PA.

Corresponding Author: Dr John Potochny, Division of Plastic Surgery, 500 University Drive, Hershey, PA 17033, USA.
E-mail: jpotochny@pennstatehealth.psu.edu

Disclosures: The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding: The authors received no financial support for the research, authorship, and publication of this article.

As the COVID-19 pandemic enters its second year, plastic surgeons are faced with a new challenge in offering elective surgery. Millions of Americans have had and recovered from a COVID-19 infection, and they now compose a significant portion of our patient population. Given the broad and often severe physiologic manifestations of infection, as well as the potential for long-term effects, plastic surgeons must be fully informed when offering elective surgery to patients in the convalescent phase of infection. Few clear-cut guidelines have been established by medical or surgical societies in regard to this particular challenge. As such, we present a concise summary of the relevant knowledge and existing recommendations regarding perioperative management of patients with previous COVID-19 infections.

Recent recommendations released jointly by the American Society of Anesthesiologists (ASA) and the Anesthesia Patient Safety Foundation (APSF) in March, 2021 indicate that elective surgery should be delayed four weeks from date of diagnosis for an asymptomatic patient, six weeks from end of symptoms for a non-hospitalized, symptomatic patient, eight to ten weeks for a comorbid or hospitalized patient, and twelve weeks for an intensive care patient.[1] The COVIDSurg Collaborative, meanwhile, broadly recommends waiting seven weeks based on the results of its large multi-national study of greater than 100,000 patients, and this is echoed by the American College of Cardiology.[2]

Once either of these time parameters is met, cardiopulmonary status and venous thromboembolism risk are especially relevant considerations in this patient population. Early findings of the long-term cardiopulmonary effects of COVID-19 point to prolonged physiologic change. Data from China published in January 2021 demonstrate that patients continue to have decreased pulmonary diffusion capacity and radiographic changes at six months from diagnosis.[3] This is especially true for patients with severe infection, with over half demonstrating abnormalities at six months follow up. Cardiac abnormalities have also been found in the convalescent phase. Patients who are two to three months post-infection have on average a lower left ventricle ejection fraction and higher left ventricle volume than healthy controls, and the vast majority demonstrate persistent inflammation on cardiac MRI.[4]

Thrombosis has been widely established as a culprit of mortality in acutely infected COVID-19 patients, and it has now been established as a persistent risk in the convalescent phase as well. Data reported in April 2021 demonstrate that patients remain at high risk in a ninety-day window post-discharge, indicating prolonged predisposition to thromboembolism.[5] Longer term data is not yet available.

The findings of prolonged cardiopulmonary and thrombotic risk are vital considerations in the suitability of post-COVID patients for elective surgery. Outside of the above recommendations, our search of available literature finds no specific guidelines to direct surgeons in a preoperative workup for these patients. Therefore, it is critical that plastic surgeons be aware of these persistent physiologic changes when offering elective surgery to post-COVID-19 patients and maintain a low threshold to refer for a complete preoperative workup despite waiting six or more weeks from infection.

REFERENCES

1. ASA and APSF. (2021, March 09) ASA and APSF Joint Statement on Elective Surgery and Anesthesia for Patients after COVID-19 Infection. https://www.asahq.org/about-asa/newsroom/news-releases/2021/03/asa-and-apsf-joint-statement-on-elective-surgery-and-anesthesia-for-patients-after-covid-19-infection-rv

2. COVIDSurg Collaborative, GlobalSurg Collaborative. Timing of surgery following SARS-CoV-2 infection: an international prospective cohort study. Anaesthesia. Published online March 9, 2021. doi:10.1111/anae.15458

3. Huang C, Huang L, Wang Y, et al. 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. The Lancet. 2021;397(10270):220-232. doi:10.1016/S0140-6736(20)32656-8

4. Puntmann VO, Carerj ML, Wieters I, et al. Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered From Coronavirus Disease 2019 (COVID-19). JAMA Cardiol. 2020;5(11):1265. doi:10.1001/jamacardio.2020.3557

5. Giannis D, Allen S, Tsang J, et al. Post-Discharge Thromboembolic Outcomes and Mortality of Hospitalized COVID-19 Patients: The CORE-19 Registry. Blood. Published online April 6, 2021. doi:10.1182/blood.2020010529