In brief

Surgery post COVID-19

31 August 2023

Question

What is the evidence for the timing of surgery, and outcomes following surgery, for people who have COVID-19?

Summary

- The evidence for the association between a recent COVID-19 infection history and the risk of surgical complications and mortality is mixed. Study findings vary depending on factors such as the severity of the infection, surgical types, patient health status, SARS-CoV-2 variants and vaccination history.[1-12]
- A recent study (July 2023) comprising 37,354 surgical patients with a history of SARS-CoV-2 infection (including with Omicron variant) found an increased risk of adverse outcomes post-surgery associated only with moderate (hospitalised) to severe (ventilated) cases. Mild COVID-19 did not result in an increased risk of adverse postoperative outcomes at any time point.[13]
- COVID-19 vaccinations reduce the risk of postoperative adverse outcomes among patients with a recent history of SARS-CoV-2 infection.[13, 14] In a large linked-data study comprising 24 million records, the postoperative mortality rate in the era of widespread vaccination was 1.1% for surgeries conducted within two weeks of a positive SARS-CoV-2 test. Postoperative mortality reduced to 0.3% for surgery conducted two to four weeks after a positive test. That is comparable to the 0.2% of patients who had no indication of an infection.[15]
- Similarly, studies comprising patient cohorts who were infected during the Omicron period and/or were highly immunised found that preoperative COVID-19 before surgery, regardless of timing, was not associated with increased postoperative respiratory morbidity.[16] In non-critically ill patients, surgery after more than two weeks of infection did not significantly increase the risk of major complications, including mortality.[8]
- Earlier studies from pre-Omicron periods and before the availability of vaccinations, however overwhelmingly suggested an increased risk of adverse events in patients with a recent history of infection; and that elective surgical procedures should be delayed ideally four to seven weeks or longer.[7, 17-20]
- Studies have shown that children infected with COVID-19 had more favourable postoperative outcomes compared to adults.[21, 22] A retrospective cohort study found that elective surgery in children 14 days following mild COVID-19 symptoms did not increase risks of intraoperative, postoperative or postadmission complications compared to a waiting period of 28 days or more.[23] Furthermore, in children who underwent urgent or emergent surgical procedures while SARS-CoV-2 positive, postoperative respiratory complications were less common in asymptomatic children (8.7%) than symptomatic (30.8%); and more likely in children with higher disease severity and comorbidities.[24]
- Professional societies in Australia, the United States, the United Kingdom, and Canada have updated their recommendations this year (2023) to advise to proceed with surgery **two to three**

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weeks post COVID-19 infection. This advice may differ for high-risk patients or in certain circumstances.[25-29]

Guidance and recommendations

Australia

The Australian and New Zealand College of Anaesthetists have updated guidance in **May 2023** on surgical patient safety for SARS-CoV-2 (COVID-19) infection and vaccination. For most patients it is safe to proceed with surgery **two to three weeks** post COVID-19 infection, as long as no onoing symptoms are present. High risk patients should have an individualised risk assessment and shared decision making to determine optimal timing of surgery post COVID-19 infection. Those patients with history of moderate or more severe COVID-19 infection should delay non-urgent elective surgery for seven weeks.(Previous recommendation in November 2022 was to delay surgery for seven weeks).[25]

The Royal Australasian College of Surgeons (RACS) have made the following recommendations in **July 2023** for patients with a recent history of acute SARS-CoV-2 infection.

- For patients who had mild COVID-19, are asymptomatic and had returned to baseline functioning at the time of surgery, and are vaccinated, consider delaying the surgery for **two to three weeks** for major elective surgery, and until after patients' infectious period ended for minor elective surgery.
- For patients who had moderate to severe COVID-19 and continue to have persistent symptoms, consider delaying the surgery for **seven weeks or longer**, while also balancing the risk of surgery against the risks associated with delaying the surgery.[29]

The National COVID-19 Clinical Evidence Taskforce have not updated their recommendations since the last evidence brief in November 2022.[30]

United States

The American Society of Anaesthesiologists have updated their guidance in **June 2023**. The society recommends that elective surgery not occur within two weeks of a COVID-19 infection. A risk assessment should be conducted between two and seven weeks post COVID-19 infection and consider:

- age, comorbidities, and functional or frailty status of the patient
- severity of the patient's recent SARS-CoV-2 infection, ongoing symptoms and vaccination status
- complexity of surgery or surgical risk
- potential deleterious effect of delayed surgery upon the patient's health.

If the patient and the surgery are considered low risk, anesthesiologists and surgeons may, with the informed consent of, and shared decision-making with, the patient schedule the procedure between **two and seven weeks** after COVID-19 infection. Such a decision should consider whether the risk of proceeding exceeds the risk of delay. (Previous recommendation in November 2022, was delaying surgery four to twelve weeks after symptoms).[26]

United Kingdom

A multidisciplinary consensus statement from the Association of Anaesthetists, Centre for Perioperative Care, Federation of Surgical Specialty Associations, Royal College of Anaesthetists and the Royal

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College of Surgeons of England, have updated guidance in **May 2023** for the timing of surgery following SARS-CoV-2 infection and recommend:

- To avoid disease transmission, elective surgery should be avoided for two weeks after a positive SARS-CoV-2 test, unless there is a clear indication to waive this precaution.
- **After two weeks and up to seven** weeks after SARS-CoV-2 infection, surgery can proceed if the patient and surgery are low risk
- There is no benefit to delaying surgery beyond seven weeks for patients who have fully recovered or have had mild SARS-CoV-2 infection.[27] (Previous recommendation in November 2022 was to avoid planned surgery within seven weeks).

Canada

Some Canadian provinces have recently rescinded guidance related to surgery post-COVID-19 infection due to data informing the guidance based on pre-Omicron variants and lower vaccination rates. In Alberta, the provincial health service recommends for clinicians to follow guidance from the American Society of Anesthesiologists and Anesthesia Patient Safety Foundation Joint Statement on Elective Surgery and Anesthesia for Patients after COVID-19 Infection.[28]

Method

To inform this brief, PubMed and Google searches were conducted initially on 24 January 2022 using terms related to surgery and post-COVID-19 infection (and paediatrics). Updated searchers were conducted on 5 October 2022 and most recently on 6 July 2023 to check for the latest evidence. Previous version of the in-brief can be found on the ACI website.

PubMed search strategy

("COVID-19"[Title/Abstract] OR "sars-cov-2"[Title/Abstract]) AND ("infection"[Title/Abstract] OR "diagnos*"[Title/Abstract] OR "positive"[Title/Abstract]) AND ("surgery"[Title/Abstract] OR "surgical"[Title/Abstract]) AND ("time"[Title/Abstract] OR "timing"[Title/Abstract] OR "delay*"[Title/Abstract]) AND 2022/10/01:3000/12/31[Date - Publication]

416 hits on 4 August 2023.

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SHPN: (ACI) 230666 | TRIM: ACI/D22/51-08 | Edition 3

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