Royal Australasian College of Surgeons

Preoperative screening and testing for COVID-19 during Victoria's second wave

Preoperative screening for clinical and epidemiological risk factors has been an important component of perioperative care during the coronavirus disease 2019 (COVID-19) pandemic. In March and April 2020, Victoria developed a screening checklist to identify patients at risk of COVID-19.[1,2] This checklist was intended to protect patients undergoing surgery and minimise the risk of spreading COVID-19 to perioperative teams. The use of this checklist was evaluated during April and May, on the back of Victoria's first COVID-19 wave. All 152 (7%) of 2197 patients screening positive returned a negative swab result for coronavirus disease when tested by reverse transcription polymerase chain reaction (RT-PCR). However, actual documentation of the use of the screening questionnaire was under 75%, suggesting use of the screening checklist alone might fail to protect some patients and their perioperative healthcare workers (HCWs).[3]

Evidence from overseas has suggested there is a considerable morbidity and mortality risk facing patients undergoing surgery with co-existent severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection,[4] particularly when the patient has cancer.[5] The evidence from the limited number of studies published in 2020 suggests a mortality following elective surgery of 18%, and over 25% in those undergoing emergency procedures.[4] Although these rates were not experienced during the first or second COVID-19 waves in Victoria, there is insufficient local Victorian evidence due to the relatively low numbers of cases that have undergone surgery with concurrent SARS-CoV-2. It is to be hoped that the Victorian perioperative sector will document its collective experience of surgical morbidity in patients with SARS-CoV-2 infection more fully in the coming months.

In June 2020, whilst the second Victorian wave of COVID-19 was emerging, other Australian States and Territories were experiencing almost no cases of local (community) transmission. A multicentre Australian study conducted in 11 hospitals across four States (including Victoria) over 6 weeks from the beginning of June, evaluated the results of intraoperative nasopharyngeal swabs and serology from 3010 elective surgery patients. No swab returned RT-PCR positive results (Bayesian estimated prevalence of active infection 0.02%), but positive IgG serology was found in 15, five of which were strongly positive (Bayesian estimated seroprevalence, 0.16%).[16] This provides important evidence that when the community prevalence is low, routine preoperative RT-PCR testing on asymptomatic, screened negative patients, is unlikely to provide further reassurance.

However in July 2020, some local government areas (LGAs) in metropolitan Melbourne were experiencing a daily incidence of over 20/100 000, with community prevalence rates of 100–1000 per 100 000 population. This issue of the journal, also reports the results of preoperative testing for eight Victorian hospitals, which included in their catchment a number of high incidence LGAs during the peak of the July–August second COVID-19 wave. The rate of one in 833 (0.12%) elective surgery cases represents four asymptomatic patients in a cohort of 4965.[6] Of the other four patients testing positive, one was symptomatic and had their surgery postponed, whilst three asymptomatic patients with a preoperative negative RT-PCR who developed symptoms in the post-operative period then tested positive, but suffered no complications. Other countries, far worse afflicted by their waves of coronavirus disease than Victoria, have reported rates of preoperative testing exceeding 1%.[8]

There are three reasons to identify which patients being admitted to hospital for elective surgery have coronavirus disease. The first is to minimize their risk of morbidity and mortality in the post-operative period. Second, to safeguard nursing, anaesthesia and surgical teams as well as other HCWs from infection and/or furlough through the wearing of appropriate personal protective equipment. The Victorian second wave resulted in 3573 clinically facing HCWs infected, including 210 medical practitioners and 1352 nurses or midwives.[9] Almost three quarters of infections (n = 2604) were acquired in the workplace, although aerosol-generating behaviours in poorly ventilated wards proved higher risk than aerosol-generating procedures performed in the operating theatre which has 20–40 air changes per hour.[10] Nurses, anaesthetists and surgeons were certainly infected in the course of their work during Victoria's second wave, despite none being in the preoperative testing cohort reported by the eight Victorian hospitals.[6] There were also 596 non-clinical staff infected, 343 (58%) of them were acquired in the workplace.[8] The third risk is to other patients who may contract coronavirus disease in hospital by coming into contact with infected patients.

The perioperative response to the COVID-19 pandemic needs to ensure that, when faced with a surge in cases, there are a number of controls to protect patients and HCWs, and that each is done well, rather than relying on one single defence. The preoperative screening checklist is the first line of defence, but it is not always done perfectly.[3] For this reason, when Victoria was facing its second wave, the Minister of Health introduced preoperative RT-PCR testing for all Victorians undergoing emergency and elective surgery under general anaesthetic. Testing prior to elective surgery was to be conducted within 7 days of surgery, with post-testing self-isolation a third line of defence. Although the study published by

Myles *et al*. was focused on elective surgery, emergency patients were also tested throughout Victoria.[6] As these represent a different type of patient, the results of preoperative testing for emergency patients will certainly help inform the future response.

In November 2020, the COVIDSurg collaborative reported their findings from an international cohort study – preoperative testing for elective cancer surgery significantly reduced the rate of postoperative pulmonary complications from 4.2% (no preoperative test, $n = 6482$) to 2.8% (with preoperative test, $n = 1481$).[11] They stratified healthcare providers into high risk and low risk based on 25/100 000 case notifications over a 14-day period. Hospitals in high-risk areas reported a lower complication rate with preoperative testing for both major and minor procedures. Even hospitals serving low-risk communities had a significantly reduced risk of complications with preoperative RT-PCR testing following major but not minor surgery.

RT-PCR testing remains the gold standard,[12] although the result needs to be interpreted with an appreciation of the risk of false-negative and false-positive rates.[13] With swab RT-PCR tests, false negatives occur in 2–29% (sensitivity of 71–98%), in part influenced by viral load and sampling technique. With asymptomatic testing, false positives become more likely than true positives when the community prevalence is low, which is why preoperative testing, particularly when combined with self-isolation before surgery, is unlikely to be of value when community prevalence falls below 1/10 000. The requirement for self-isolation adds an additional financial and social burden to the patient awaiting elective surgery. When the risk is low, Myles *et al*. appropriately recommend a screening checklist should be sufficient to identify patients with clinical or epidemiological risk factors for SARS-CoV-2, and who should then be tested. The screening checklist has also been updated to include a question on previous SARS-CoV-2 infection,[14] and the need to consider the possible clinical impact of 'long COVID' on any planned surgery[15] including giving consideration to delaying the procedure.[16] If further waves of COVID-19 occur in the future, then peroperative testing and self-isolation can easily be added by health services as additional safefguards for surgical patients and healthcare workers as part of theescalation response (which needs to be rapid) to a rise in community prevalence.

Author Contributions

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Staging rectal cancer in 2020

Successful management of curable rectal cancer relies on accurate staging, appropriate and effective treatments and conscientious follow-up. While this was once the sole responsibility of the surgeon, in most centres, it is now the multidisciplinary team (MDT) that guides staging and therapy. The stakes are high because overtreatment (unnecessary chemotherapy and radiation) may have a significant impact on function, and predispose the patient to intra- and post-operative complications. On the other hand, undertreatment (withholding chemotherapy and radiation when they were indicated) may result in recurrent disease and may mean that the opportunity for cure is gone forever. Successful management of rectal cancer has become more relevant because of its increasing incidence in people younger than 50 years. This is what makes the study of rectal cancer staging so important. Accurate staging leads to appropriate therapy; the start of a successful outcome.

In this issue of the journal, the article by Ang *et al.*[1] from Wollongong Hospital describes the accuracy of staging rectal cancer by magnetic resonance imaging (MRI) from 2006 to 2019. Over the 14 years of the study, the unit treated an average of 50 cases of rectal cancer per year. However, only an average of eight cases per year were included in this paper. The relatively low number of cases; the time interval over which they were seen; and the changes in knowledge, technology and standards that occurred over this time are significant weaknesses of the study.

The study aimed to assess the accuracy of MRI in the staging of patients with rectal cancer and so limited their patients to those who underwent MRI staging and then surgery without neoadjuvant chemoradiotherapy. The endpoints of the study highlight the important information to be obtained from rectal MRI. This includes the proximity of malignant tissue to the rectal fascia propria, the degree of its spread through the rectal wall and the status of local and regional lymph nodes. The importance of a template form of reporting for radiologists is stressed by its absence in most cases, and by the lack of complete information in these patients.

MRI performed best when predicting the relationship of the cancer to the nearest circumferential radial margin (the fascia propria of the rectum). The fascia serves as a plane along which the rectum and mesorectum are dissected, and preserving the integrity of the fascia is key to minimizing local recurrence. Sometimes, the cancer extends close to the circumferential margin and this is a clear indication for neoadjuvant chemoradiation. This is MRI at its most useful; being able to observe the cancer and describing its relationship not only to the rectal wall, but also to the fascia propria of the rectum. On the other hand, MRI is not great for differentiating between true T1/T2 cancers and very early T3 lesions. The 'T' status of a rectal cancer is particularly important for low lying lesions where the rectal mesentery tends to peter out and even small amounts of transmural spread can challenge margins. Endorectal ultrasound can be useful in illustrating T stage in ultra-low lesions but a sensitive rectal examination performed under anaesthesia can detect tethering that would indicate neoadjuvant therapy.

MRI is also challenged in predicting the status of local or regional lymph nodes. I have always thought that neoadjuvant radiation is given to help achieve local control of locally advanced rectal cancers, and the chemotherapy is mostly to sensitize cells to the radiation. The presence of likely positive lymph nodes is more a prognostic factor for distal spread and is an indication for consolidation followed by adjuvant chemotherapy.

The study by Ang *et al.*[1] does us a service by reminding us of the importance of preoperative staging of rectal cancer and the rationale behind it. Nothing is said about the MDT and this is a shame, as MDTs have become important determinants of quality and of good outcomes.[2] However, the guiding light for rectal cancer treatment must remain the primacy of cure. In general, it is better to be comprehensive than conservative. For low rectal cancers that could be T3, this means neoadjuvant chemoradiation, but for mid to upper rectal cancers with a clear margin in the surrounding mesentery, radiation can be eschewed. For patients with clearly positive nodes, I still prefer neoadjuvant chemoradiation, but those for whom nodal involvement is in doubt and the T stage is early may be spared the rays.

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