

Minimally invasive surgery in the COVID-19 pandemic: An early single centre experience

Editor

Surgical practice has changed dramatically during last few months owing to the COVID-19 pandemic. Concern for the safety of patients and staff with concerning outcomes reported by some units worldwide has generated controversy¹. Various surgical societies published guidelines which were not in favour of minimally invasive surgery (MIS) due to the perceived risk of virus spread from aerosolisation^{2,3}.

Initial experience from China and Italy favours open surgery over laparoscopic⁴. Variability in surgical practice was noted globally due to poor understanding of how the virus is transmitted⁵. As of 15th May 2020, the global death toll from COVID-19 had passed 300,000 with nearly 4.5 million people infected worldwide. Overall, there have been 45 deaths in our hospital.

MIS has become the standard approach across several disciplines including general surgery, gynaecology and urology, in the elective and emergency setting. MIS leads to better short term outcomes including, less post-operative pain, wound infections, chest infections and shorter length of hospital stay. As open surgery is associated with an increased hospital stay, it may increase exposure to nosocomial COVID transmission, with added pressure on resources and ITU capacity. Guidelines have suggested caution with a perceived risk of virus spread through aerosol generating procedures (AGPs) including laparoscopy and robotic surgery. They have advocated a shift in practice towards open surgery and conservative management where appropriate.

The risk of virus spread with AGPs can be minimised by using ports with balloons, smaller skin incisions and

Table 1 Table showing total number of cases, done by laparoscopy/robotics and open. Covid-19 positive cases in all groups. AirSeal®(CONMED, Utica, New York, USA)

| | Robotic | Laparoscopic | Open |
|----------------------------------|---------|--------------|------|
| Total Number | 7 | 79 | 42 |
| Airseal® system | 7 | 8 | N/A |
| Standard (CO2) gas system | 0 | 71 | N/A |
| Covid-19 | 0 | 0 | 1 |
| Elective/Emergency | 7/0 | 46/33 | 35/7 |

avoiding 5 mm instruments through 10 mm ports. At the end of the laparoscopic procedure and before making an extraction site for specimen retrieval, careful evacuation of CO₂ using special filters and suction would reduce leakage of CO₂.

We report our single centre experience during this pandemic. MIS was only performed in emergency and urgent cancer patients across three specialities (Upper GI, Colorectal and Gynaecology). Patient data was collected over eight weeks period retrospectively, from 16th March to 15th May 2020. A total of 128 cases were performed of which 86 were minimally invasive, breakdown of data is shown in *Table 1*. All patients for elective surgery were self-isolated for two weeks and had COVID-19 test performed 48 hours before the procedure. Emergency surgery patient underwent PCR COVID-19 test prior to their procedure where feasible.


During the study period, there was no COVID-19 positive case reported amongst the patients in the MIS group or theatre staff. Balloon ports were used for all laparoscopic procedures. All robotic and initial eight laparoscopic cases were performed using AirSeal® (CONMED, Utica, New York, USA) system and standard CO₂ system for the others. Ultralow particulate filtration system and suction was used in all laparoscopic cases to evacuate the gas at the end of the procedure. Theatre staff including surgeons wore full PPE including fitted N95 masks with face shields when working within

2 meters of the patient. Surgeons who performed robotic surgery used 3-ply surgical mask when operating from the console.

This data would suggest that, with appropriate screening of patients and protection of theatre staff as outlined, MIS is safe and feasible. With improved test kits and shorter turn around time the screening of patients provides an additional layer of safety to perform MIS surgery. We also recommend the use of closed circuit evacuation of the smoked CO₂, or an ultralow particulate air filtration system. We believe that the risk of viral spread through MIS has been overstated and with appropriate safety measures it can be safely performed, with benefits to both the patient and healthcare providers. Patients should not be denied the clear advantages of laparoscopic surgery over open surgery during the current COVID-19 pandemic.

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