

- 1 Colonoscopy is the gold standard when appropriate;
- 2 DNA-based molecular stool studies should be used when the risk/resources are prohibitive for colonoscopy;
- 3 Diagnostic CCE should be considered for patients who are positive on stool-based molecular screening and are unable to undergo conventional diagnostic colonoscopy.

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Conflicts of interest

The authors of this correspondence letter confirm that there are no conflicts of interest with regards to the information included in the submitted manuscript.

Ethics approval statement

The authors of this correspondence letter confirm and agree with the rigorous ethical standards associated with scientific published literature.

Patient consent statement

No patients were included in this correspondence letter, and thus, patient consent is not required for this correspondence letter to be published.

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Gas aerosol jetstreams from trocars during laparoscopic surgery – a video vignette

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Dear Editor,

Minimally invasive surgical procedures have been restricted during the COVID-19 pandemic, in part to reduce inpatient occupancy and minimize pressure on critical care and anaesthesia but also because of concern about the potential for transmission of infection via aerosols created by laparoscopy [1,2]. Viral particles have now been identified in the blood, stool [3] and peritoneal fluid [4] of infected patients, although the infectious potential of any such particles that may be carried via surgical gases is unclear.

While the main focus of guidelines to date has been on careful management of surgical smoke [5], invisible gas leaks frequently occur around and through laparoscopic trocars. In the associated video (Video S1 in the online Supporting Information) we illustrate, in a simple and reproducible way, the release of intra-abdominal aerosol that occurs as a jet stream around trocar insertion sites and during trocar instrumentation. To do this, we set up a high-fidelity pneumoperitoneum model (a fresh porcine cadaver) in our dedicated in-hospital applied research and training facility. After standard trocar placement (12 mm camera port) using the Hassan technique, CO₂ was insufflated to achieve an intra-abdominal pressure of 12 mmHg. Two other trocars (5 and 12 mm) were also inserted under direct observation off midline in the usual fashion. Thereafter, a humidifier (Aerosurgical, Aerogen, Dangan, Galway, Ireland; 1–5 µm mist) was placed in series with the insufflation channel via the Hassan trocar to fill the abdomen with humidified CO₂, thus increasing the relative visibility of the intra-abdominal gas. With the room darkened, the laparoscope light was shone perpendicular to the trocars to identify through illumination any leakage of humidified gas around and via the trocars, including during instrument insertion and removal. Gas jets were seen (and could be videoed using standard videography) and, with respect to trocar instrumentation, heard by their characteristic sound (familiar to all surgeons performing minimally invasive

surgery). This turbulent jet stream carried droplet particles into the room as vapour that could subsequently be seen wafting at head height in the operating room. Of note, no energy devices or other smoke-inducing instrumentation was used.

We present this video to vividly demonstrate the occurrence of forceful, unfiltered gas emissions during surgery separate from smoke venting and evacuation. This mechanism can also contribute to the blood and fluid splatter often seen on surgical masks and visors during minimally invasive surgery. Apart from pathogens, such leaks can also carry other pollutants into the operating room atmosphere [6–8]. We urge surgeons to be mindful of this hazard and be diligent with respect to personal protective equipment [9] alongside careful smoke management [10], including when operating on asymptomatic patients (who have so far accounted for approximately 80% of infections of healthcare professionals).

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Supporting Information

The video may be found in the online version of this article and also on the Colorectal Disease Journal YouTube and Vimeo channels:

Video S1. Gas aerosol jetstreams from trocars during laparoscopic surgery.

Laparoscopic pneumoperitoneum escape and contamination during surgery using the Airseal Insufflation System – a video vignette

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Dear Sir,

Unanticipated behaviours of the Airseal Insufflation and Access System (Conmed, Utica, NY, USA), in the public domain since 2018 [1], have recently been restated by the manufacturer [2] in the light of the COVID-19 pandemic and widespread concerns regarding aerosolization hazards during surgery [3]. Video S1 illustrates this device’s tendency for intra-abdominal gas effluvium to be continually blown into the operating room during use as well as its phenomenon of air entrainment (i.e. the tendency for room air to be sucked into the abdomen) via the device during high pressure intra-operative suctioning.

We used a combination of assessment technologies in a high-fidelity simulation model (fresh porcine cadaver) as well as during clinical surgery to examine gas flow through the Airseal 12-mm valveless trocar with