

LETTER TO THE EDITOR**Total water exchange colonoscopy to mitigate infection risks due to aerosolization during colonoscopy**

Dear Editor,

In considering strategies to reduce disease transmission during the COVID-19 pandemic, the topic of aerosolization and dispersion of SARS-CoV-2 during colonoscopy is an area of particular interest. Since colonoscopies constitute the bulk of workload for most endoscopy practices, the postponement of procedures during the pandemic has dramatically cut into revenue streams and delayed services to patients. A recent Danish study¹ suggested plausible harmful impacts for delaying colonoscopy in patients with a positive fecal immunochemical test. Therefore, re-establishing timely access to colonoscopy, when conditions allow, is important and resuming the safe delivery of care will require multiple strategies.

SARS-CoV-2 transmission by aerosol generated at the time of colonoscopy is speculative, but is of concern. Aerosol formation is believed to occur with traditional gas (air or CO₂) insufflation when a patient passes flatus; and flatus is known to disseminate bacteria to nearby surroundings.² Additionally, modern colonoscopes generate aerosol and microdroplets by their design and function, with leakage at the valves and ports, facilitated by insertion and removal of instruments through the endoscope channel and by pressure gradients created by inflating the colon and suction of gas. The resulting aerosol is suspected to increase the risk of viral transmission to patients and staff through airborne dispersion. Although the risk of aerosolization of viral particles in fecal matter during colonoscopy has not been clearly defined, fecal-oral transmission is possible since SARS-CoV-2 has been detected in colonic biopsy and fecal specimens.³

Therefore, avoidance of aerosol during colonoscopy may be one worthwhile approach to consider to help mitigate suspected infection risks, but this requires elimination of gas insufflation. How is this possible? We propose total water exchange colonoscopy (TWEC)^{4,5} to eliminate gas insufflation. With TWEC, the air button remains off during the procedure and water exchange (WE)⁶ is continued for the entire exam. With a transparent cap attached to the tip of the colonoscope, water is infused to distend the lumen, dirty water with residual stool and air

pockets are removed with suction until the cecum is reached.⁷ Upon cecal intubation, WE is continued during withdrawal. The entire procedure, including polyp removal,⁸ is performed without gas, and aerosolization may be minimized. Flatus is not observed with TWEC. Rarely, a very small proportion of patients experience liquid incontinence if the colonoscopist fails to adhere to strict principles of WE, aiming for net equivalence of water infused and water removed at all stages. Despite the lack of quantifiable data regarding reduction in aerosolization, TWEC (avoiding gas insufflation) seems to be a logical, cost-conscious, and easily implemented safeguard to consider in addition to more widely accepted protective measures.

The COVID-19 pandemic has reduced colonoscopy volume globally to abysmally low levels. It is an opportune, if not wanted, time to learn new skills that may play a role in helping to keep patients, staff, and ourselves safe and healthy. Total water exchange colonoscopy may just fit the bill.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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