Figure 1 Strangulated abdominal hernia. Hernia sac was opened and bowel was visualised.

Figure 2 A 10mm port was inserted, via the hernia sac opening, in the peritoneal cavity

intra-abdominally via the open hernia sac (Fig 2) after inserting a pursestring suture, to prevent a leak of CO₂. Alternatively, if the defect is small, a balloon port can be used. Pneumoperitoneum is established. A 10mm scope is used for laparoscopy of the abdominal cavity. The reduced contents are typically close to the port site. Nevertheless, a full laparoscopy and insertion of a 5mm port through the abdominal wall is recommended, in order to inspect as much of the bowel as possible.

In case of finding ischaemic bowel, there are two options: 1) to guide the loop of bowel through the hernia defect, with the use of a laparoscopic atraumatic grasper via the 5mm abdominal port, or 2) to switch to a 5mm scope and with a Babcock forceps, via the hernia site, to externalise the bowel and perform a resection and anastomosis. Some extension of the original incision may be needed.

DISCUSSION

This technique is safe and avoids unnecessary extensive laparotomies in case of accidental intraoperative reduction of a strangulated hernia content.

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How to perform safe laparoscopic extraction of surgical specimen during the COVID-19 era

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BACKGROUND

As elective and emergency laparoscopic surgery recommences after the height of COVID-19 in the UK, we note a relative dearth of practical accounts detailing how to minimise viral aerosolisation in laparoscopy. This is in the context of recent reports confirming the presence of SARS-CoV-2 in blood,¹ soft tissues² and peritoneal fluid³ of infected patients, as well as the known significant occupational pathogenicity caused by viruses contained in inhaled surgical smoke.⁴ Extraction of specimen(s) represents a point of maximal potential for viral aerosolisation; we feel that a safe routine is difficult to improvise during surgery due to the quick succession of events.

We share our experience of this process which is well-rehearsed and reproducible. The overall principles apply to all laparoscopy requiring retrieval of specimen.

TECHNIQUE

Our stepwise method is outlined in Figure 1. On procedure completion, the surgical specimen should be held securely in a retrieval bag under the extraction port (Fig 2) until capnoperitoneum can be

Figure 2 During the conclusion of laparoscopic cholecystectomy, the gallbladder is held securely inside a laparoscopic retrieval bag using a ratcheted grasper until capnoperitoneum is evacuated

evacuated to a pressure of 3mmHg via either manual suctioning or a smoke evacuation system. Surgical drains, if needed, should be pre-clamped and all port taps should be left closed.

DISCUSSION

Although seemingly straight forward, our method provides a reproducible framework to limit the release of peritoneal carbon dioxide, surgical smoke and potential aerosolisation of the SARS-CoV-2 particle at the conclusion of any laparoscopic operations requiring removal of specimen. We suggest that discussion or a 'dry-run' with theatre staff during preoperative team briefs in regard to the above steps is helpful.

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