

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Tham, NL;Hong, MKY;Nalankilli, K;Moss, A;Faragher, IG

Title:

Going loopy: using ScopeGuide to demonstrate incarceration of a colonoscope within an inguinal hernia

Date:

2021-07-01

Citation:

Tham, N. L., Hong, M. K. Y., Nalankilli, K., Moss, A. & Faragher, I. G. (2021). Going loopy: using ScopeGuide to demonstrate incarceration of a colonoscope within an inguinal hernia. ANZ Journal of Surgery, 91 (7-8), pp.E521-E522. <https://doi.org/10.1111/ans.16525>.

Persistent Link:

<https://hdl.handle.net/11343/276785>

Going loopy: using ScopeGuide to demonstrate incarceration of a colonoscope within an inguinal hernia.

Tham NL¹, Hong MKY^{1,2}, Nalankilli K^{3,4}, Moss A^{3,4}, Faragher IG^{1,2}.

¹Footscray Hospital, Colorectal Unit, Department of Surgery, Footscray, VIC, Australia

²The University of Melbourne, Department of Surgery, Western Health, Melbourne, VIC, Australia

³Footscray Hospital, Department of Gastroenterology and Endoscopic Services, Footscray, VIC, Australia

⁴The University of Melbourne, Department of Medicine, Western Health, Melbourne, Australia

A 70 year old man underwent elective colonoscopy to investigate a positive faecal occult blood test result. Tight angulation in the sigmoid colon was found, and the adult colonoscope was changed to a paediatric colonoscope, which allowed for the angulation to be passed gently. Visualisation using the Olympus ScopeGuide 3D Navigation System demonstrated a reverse-alpha loop configuration, which could not be straightened. As there was still one-to-one forward progression, the colonoscopy was successfully completed to the caecum, however on withdrawal the loop could not be reduced and the colonoscope could not be withdrawn past 50cm from the anal verge. Inspection of the patient's groin revealed a large left sided inguinoscrotal hernia containing a palpable colonoscope (Figure 1). Attempts to manually reduce the hernia and withdraw the scope using gentle clock-wise and anti-clockwise torsion were unsuccessful, even under a general anaesthetic with muscle relaxation.

The patient underwent a midline laparotomy, which demonstrated a left sided sliding inguinoscrotal hernia containing sigmoid colon and the loop of colonoscope. Subcutaneous tissue was mobilized off the anterior rectus sheath and external oblique aponeurosis on the left to allow a combined intra-abdominal and groin approach. The internal ring was enlarged by a lateral incision to aid reduction of the hernia. Structures of the spermatic cord were separated from the herniated colon, which was then reduced en masse by combined withdrawal of the colonoscope and manual pressure. The sigmoid colon was intact - a small serosal tear was repaired. There was no communication between the peritoneal cavity and a large left sided hydrocele, which was confirmed on a post-operative ultrasound scan. Hernia repair was performed using synthetic mesh and the patient had an uneventful recovery.

Incarceration of a colonoscope within an inguinal hernia is a rare complication of colonoscopy with about 15 case reports in the literature. It occurs most commonly on withdrawal but may also occur on insertion.¹ The mechanics usually involve a hernia orifice that is wide enough to permit entry and exit of the colonoscope as well as looping, but is too small to allow full reduction of the loop and hence creates an

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: [10.1111/ans.16525](https://doi.org/10.1111/ans.16525)

obstruction on withdrawal. Multiple methods of management have been described, including manual reduction of the hernia, fluoroscopic guided withdrawal of the scope and surgical hernia repair.¹⁻⁴ Once non-operative approaches have failed, a surgical approach that allows adequate exposure of the inguinal region to assess for possible trauma and to facilitate safe enlarging of the hernia neck is required.

The Olympus ScopeGuide 3D Navigation System is a magnetic endoscopic imaging (MEI) system, which consists of electromagnetic coils within the length of the colonoscope, which generate a pulsed emission of a low-intensity magnetic field. These are detected by a receiver dish placed near the patient's abdomen, and the magnetic pulses are used to calculate and generate a real-time three dimensional image of the configuration of the colonoscope. Meta-analysis suggests that MEI compared to standard colonoscopy may increase caecal intubation rates and shorten time to caecal intubation, however it is not widely available technology.^{5,6} It permits identification of loop formation during colonoscopy, however will not differentiate between a reducible or irreducible loop as this is based on tactile feedback on scope insertion and withdrawal.

During colonoscopy in the left lateral position, the inguinal regions are not visible to the endoscopist. A history of inguinal hernia should be elicited before the procedure. To avoid incarceration of the colonoscope, difficulty navigating the colonoscope through the sigmoid colon should raise suspicion of an inguinal hernia. Manual reduction of herniae prior to passage of the colonoscope through the sigmoid colon might prevent this complication.

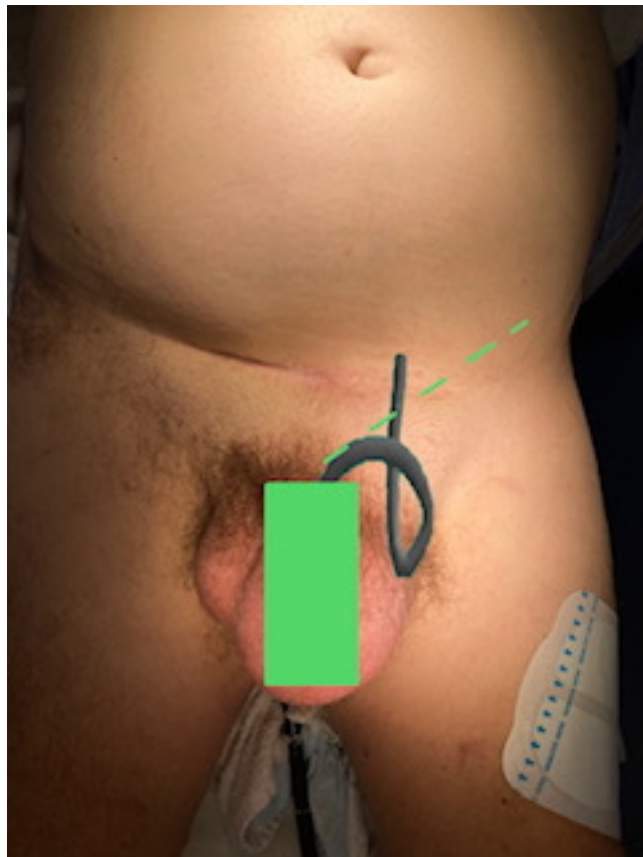
References

1. Tan VP, Lee YT, Poon JT. Incarceration of a colonoscope in an inguinal hernia: case report and literature review. *World J Gastrointest Endosc* 2013; 5: 304-7.
2. Kume K, Yoshikawa I, Harada M. A rare complication: incarceration of a colonoscope in an inguinal hernia. *Endoscopy* 2009; 41 (Suppl 2): E172.
3. Fan CS, Soon MS. Colonoscope incarceration in an inguinal hernia. *Endoscopy* 2007; 39 (Suppl 1): E185.
4. Punnam SR, Rideout, D. Incarcerated inguinal hernia during colonoscopy. *Am J of Gastroenterology*. 2003; 98 (9): S128-129
5. Chen Y et al. Magnetic endoscopic imaging vs standard colonoscopy: Meta-analysis of randomized controlled trials. *World J Gastroenterol*. 2013 Nov 7; 19(41): 7197-7204.
6. Mark-Christensen A, Brandsborg S, Iversen L. Magnetic endoscopic imaging as an adjuvant to elective colonoscopy: a systematic review and meta-analysis of randomized controlled trials. *Endoscopy*. 2015 Mar; 47(3):251-61.

Figure 1

Image depicts ScopeGuide picture superimposed on patient, with looped colonoscope within hernia neck. Green dotted line marks inguinal ligament.





ANS_16525_Figure 1 superimposed image.jpg