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Intraoperative ultrasound of the small bowel in Crohn's disease – video vignette

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Running head: Intraoperative ultrasound in Crohn's disease.

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**ABSTRACT:** Not required for video vignette

**Keywords:** Crohn's disease, colorectal surgery, ileocaecal resection, intraoperative ultrasound, small bowel.

## **Introduction:**

A systematic and structured ultrasound scan (USS) evaluation of the entire small bowel is feasible intraoperatively during ileocolic Crohn's disease (CD) surgery as we have previously reported [1]. Our video demonstrates the ultrasound assessment performed via a 4 cm midline laparotomy used for specimen extraction, extracorporeal control of the mesentery and fashioning of the anastomosis. The right colon and terminal ileum have been fully mobilised laparoscopically with a medial approach and the main steps of the laparoscopic procedure are also demonstrated in the video, with focus on anatomical landmarks and take down of the hepatic flexure. The intraoperative USS is performed by a gastrointestinal Radiologist as part of a pilot study currently ongoing in our Department (Assessing the Feasibility and Safety of Using Intraoperative Ultrasound in Ileocolic Crohn's Disease – The IUSS CROHN Study - NCT03939117). In this multimedia article we demonstrate the application of the USS probe on the mesentery and bowel wall, documenting the site, number and length of the bowel segments affected by CD using the METRIC scoring guide (MREnterography or ultrasound in Crohn's disease) [2], evaluating features such as lymphadenopathy, thickness of the bowel mucosa and bowel wall, echogenicity of the mesenteric fat, ulceration and doppler vascular pattern. In this video vignette we have demonstrated a stepwise protocol for intraoperative small bowel USS assessment during ileocolonic CD surgery, as current intraoperative evaluation of extent and location of CD is not

standardised and left to a combination of surgeons' experience, tactile feedback and macroscopic appearance. This can result in inter observer variability affecting the intraoperative decision making and the postoperative multidisciplinary management [3].

#### **Ethics:**

Approval was obtained by the Wessex Ethics Committee. Consent was obtained from all patients participating to the study.

#### **References:**

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3. Bernell O, Lapidus A, Hellers G. Risk factors for surgery and recurrence in 907 patients with primary ileocaecal Crohn's disease. *Br J Surg*. 2000;87:1697–1701.

**Author contributions:** CV: study design, protocol development, data analysis, draft and review of manuscript, video editing and review; BR: protocol development, data analysis, manuscript review; BC: protocol development, data analysis, draft manuscript; RR data collection, protocol development; LC: video editing, data collection; HM draft and review of manuscript and video; HA protocol development, draft and review of the video

**Supplementary material:**

Video1. Intraoperative ultrasound of the small bowel in Crohn's disease