

Ileal Crohn's disease fistulating into a Meckel's diverticulum

A 23-year-old male was diagnosed with ileal Crohn's disease in a regional centre, 3 years prior to presentation to our service. He was initially commenced on medical therapy but discontinued therapy for a number of years prior to symptomatic re-presentation. He relocated to a metropolitan centre and presented with a 4-month history of postprandial abdominal pain, rectal bleeding and fevers. He had no significant previous medical history and was a non-smoker. His examination was remarkable for a tender mass in the right iliac fossa and temperatures over 38°C.

Cross-sectional imaging with magnetic resonance imaging (MRI) demonstrated an 11 cm segment of ileal inflammation, an associated ileal-ileal fistula and a 3 cm phlegmon (Fig. 1). He remained as an inpatient during this workup, with ongoing fevers, despite intravenous (IV) ceftriaxone. A colonoscopy demonstrated a fistula opening adjacent to the ileocaecal valve (ICV). The ICV was characterized by severe inflammation, ulceration and contact bleeding. There was no colonic inflammation. The terminal ileum could only be partly intubated due to the extensive inflammation. Bloods demonstrated a Haemoglobin of 107 g/L, a normal white cell count ($8.7 \times 10^9/L$) and neutrophil count ($6.23 \times 10^9/L$) and a raised C-reactive protein of 60 mg/L. The IV antibiotics were changed to

piperacillin/tazobactam and a decision was made to proceed with a laparoscopic ileo-colic resection.

Intraoperatively, an abscess cavity was found at the right pelvic side wall, walled off by sigmoid colon. There was no apparent sigmoid colon fistula and the sigmoid was further evaluated with a per-rectal air test under water. He was found to have a Meckel's diverticulum (MD), with a suspected fistula close to the base of the MD (Fig. 2). Thus, the MD was incorporated into the ileocolic resection. Post-operatively he made an excellent recovery and was discharged home Day 3 post-operatively, with no complications.

The anatomical pathology report revealed ileal mucosal ulceration and transmural active chronic inflammation. A chronic abscess cavity was present adjacent to the small bowel wall, with inflammation and fibrosis extending to the serosal surface. Gastric body mucosa and pancreatic acinar tissue were seen within the diverticulum, confirming a MD. At the base of the MD, a fistula was confirmed between the inflamed ileum and the uninflamed MD (Fig. 3).

This is the first known report of Crohn's disease fistulating into a MD. MD is a true diverticulum and results from failure of closure of the vitello-intestinal duct.¹ MD is known for the 'Rule of Two's': present in 2% of the population, lying 2 feet from the ICV, 2 in. long, 2:1 male to female ratio and two types of potential ectopic tissue – gastric and pancreatic.¹ Crohn's disease is an inflammatory condition of the gastrointestinal tract, which has a number of extra-intestinal manifestations. As with this patient, it typically presents in late adolescence, and can affect any section of the gastrointestinal tract, however in 50% of patients the terminal ileum is involved.² The Vienna classification of Crohn's disease recognizes three

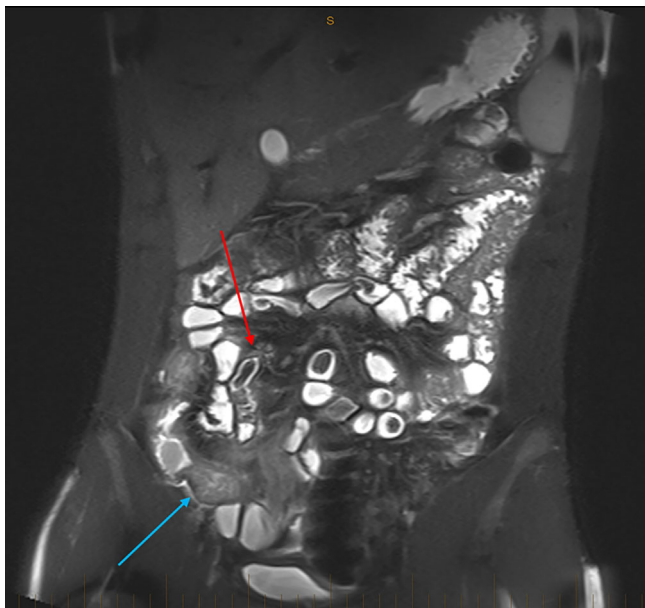


Fig. 1. Magnetic resonance enterography (MRE) coronal image. Blue arrow demonstrates inflamed terminal ileum, adherent to right pelvic side wall consistent with intraoperative findings. Red arrow indicates the tip of Meckel's diverticulum.

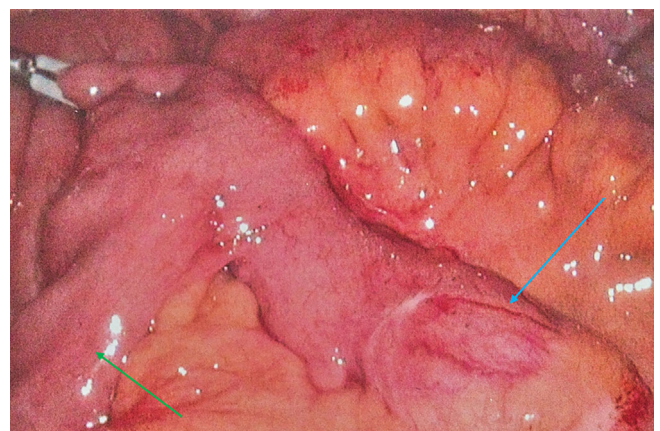


Fig. 2. Intraoperative photo demonstrating Meckel's diverticulum (MD) (blue arrow), limbs of small bowel indicated by green arrow and grasper. The fistula site is at the base of the MD.



Fig. 3. Histological specimen of ileocolic resection with Meckel's diverticulum. Blue arrow indicates site of fistula into the base of Meckel's diverticulum.

described phenotypes of the disease: (i) inflammatory; (ii) stricturing and (iii) penetrating (fistulating) disease.³ The prevalence of MD in Crohn's disease is reported to be similar to the population prevalence.⁴


This report illustrates that a MD can be seen in patients with other pathology such as Crohn's disease. Furthermore, Crohn's disease has the possibility to fistulate into an MD when present. The common teaching in Crohn's disease is to minimize the amount of small bowel resected,⁵ as further surgery is expected in the future. An MD with ectopic gastric tissue has the potential to secrete acid and lead to ileal ulceration. The effect of that acid on a nearby and newly constructed anastomosis is unknown. In this case, it was necessary to include the MD in the resection as a consequence of the fistula and to see only a single anastomosis.

Acknowledgment

Open access publishing facilitated by The University of Queensland, as part of the Wiley - The University of Queensland agreement via the Council of Australian University Librarians.


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Dr Andrew Philip Zammit is the recipient of a research scholarship – the Professor Philip Walker Research Scholarship. This images for surgeons paper is not based on previous communication to a society or a meeting.

doi: 10.1111/ans.17572