

**Title Page**

**Title: Crohn's disease involving ileal conduit: a case report**

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**Abstract (included in the word count – 250 words maximum) \*Required for Original Article/Systematic Review Article. Unstructured (no headings) abstract is required for Narrative Review Article.**

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**Main Text (included in the word count) \*Images for Surgeons should be divided by the following sub-headings:-**

### **Case Report**

We report a case of a thirty-five-year-old female who presented with bilateral ureteric obstruction and a small bowel obstruction secondary to Crohn's disease fistulating into an ileal conduit.

The patient was born with bladder exstrophy and at the age of four had an ileal conduit formed. Until the age of sixteen she underwent several further laparotomies including two revisions of the ileal conduit. She had later undergone two caesarean sections and a tubal ligation. Aside from her diagnosis of Crohn's disease, there was no other significant history. She continued to smoke.

Crohn's disease of the terminal ileum was first diagnosed at age 25. At the time, given her history of multiple laparotomies and having already sacrificed small bowel for the ileal conduit, a decision was made to pursue medical management. She was managed with azathioprine, and was intermittently prescribed prednisolone for occasional flare-ups.

Complications from her ileal Crohn's disease first became apparent at age 30 when she presented with a small bowel obstruction. Imaging at that time also showed dilated ureters, although the upper urinary tracts were well preserved. A colonoscopy showed a tight ileal stricture, which could not be dilated. Her symptoms resolved with the introduction of infliximab.

At age 34, one year prior to this presentation, she developed a urinary tract infection, caused by *Proteus mirabilis* and *Klebsiella pneumoniae*. A conduitogram showed a stenotic segment of conduit with a dilated proximal conduit and bilateral dilated ureters. Radioisotope renography (MAG3 study) showed no significant obstruction of either ureter, with likely scarring of the kidneys but good function.

At age 35, the decision was made to undergo a resection of the ileal Crohn's disease with the plan of refashioning the ileal conduit. Whilst awaiting this operation, she presented to hospital with uro-sepsis. Imaging showed right-sided hydronephrosis and a right nephrostomy was inserted. She subsequently developed small bowel obstruction and remained as an inpatient, optimising her nutrition with total parenteral nutrition until the time of her operation (Figure 1).

A combined operation with colorectal and urological surgeons was then undertaken. A midline laparotomy was performed. Operative findings were a 15cm segment of ileal Crohn's disease,

10cm from the ileocaecal valve causing a partial small bowel obstruction (Figure 2). A fistula had developed between the ileal Crohn's disease and the mid segment of the ileal conduit. Surrounding inflammation was contributing to bilateral ureteric obstruction. The remainder of the small intestine and colon was normal. The diseased segment of ileum was dissected off the ileal conduit and an ileocaecal resection was performed with a stapled functional end-to-end anastomosis.

Urological exploration revealed a phlegmon and a fistula compressing the left ureter in the region of the ileal-ureteric anastomosis. The conduit had developed significant redundancy to allow partial resection. The proximal conduit and both ureters were resected with the phlegmon. Both ureters were then re-anastomosed to the remaining conduit with a Bricker's anastomosis over stents. Blood supply of the conduit mesentery was preserved.

The post-operative course was relatively unremarkable and she was discharged on the eleventh post-operative day.

Histopathology showed Crohn's disease in the segment of ileum, with stricture formation and fistulation to the ileal conduit. The resected segment of ileal conduit showed focal ulceration and inflammatory changes but without evidence of infiltrating Crohn's disease.

### **Discussion**

Crohn's disease complicating an ileal conduit is a rare entity. To the best of our knowledge, this is the first case of Crohn's disease developing in an adjacent segment of ileum and fistulating in to the ileal conduit. There have been three previous case reports of Crohn's disease developing within an ileal conduit, two of which required resection and one of which was treated with steroids (1-3).

In this case, while the patient's terminal ileum was severely affected by Crohn's disease, the ileal conduit itself had minimal direct infiltration with Crohn's disease but extensive indirect involvement. This illustrates the general principle that while the primary site of disease in Crohn's may be severely affected, the areas into which fistulation occur are less diseased than the primary site.

**Acknowledgments (If any):**

Nil

**Disclosure Statement**

Nil

**References (Vancouver Referencing style - included in the word count for Original Articles, Review Articles, Perspectives and Practical Non-technical Skill for Surgeons.)**

1. McLaughlin TC. Crohn's disease developing in an ileal conduit. *The Journal of urology*. 1981;125(3):420-1.
2. Pitts WR, Jr. Re: Crohn's disease developing in ileal conduit. *The Journal of urology*. 1982;127(3):554.
3. Walser EM, Kopecky KK, Rowland R. Diffuse ileal conduit stenosis from Crohn's disease. *Urologic radiology*. 1990;12(3):160-2.

**Figure Legends (If any - List up figure number and its caption.)**

Figure 1: Axial CT section of patient during admission, showing conduit and collection  
Figure 2: Segment of ileum, showing instrument into fistula

**List of Supporting Information (If any - List up materials to be published online only.)**  
**\*Number them as Doc S1, Table S1 or Figure S1. The numbering should re-start from S1 even if main document contains tables/figures.**

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**Tables (If any -included in the word count – each table counted as 250 words. 3 tables equal 750 words.)**

**Figures (If any -included in the word count – each figure counted as 250 words. 4 figures equal 1,000 words.)**

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**\*If supporting document includes References, they should be provided in this file. Reference numbering should re-start from 1.**

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## References

1. McLaughlin TC. Crohn's disease developing in an ileal conduit. The Journal of urology. 1981;125(3):420-1.
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