

A Case of Symptomatic Intestinal Spirochetosis

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Background

Intestinal spirochetosis (IS) is a condition caused by one of two known organisms *Brachyspira aalborgi* and *Brachyspira pilosicoli*. They are believed to be zoonotic organisms and can be transmitted via a fecal oral route. Sexual transmission has also been postulated in view of higher prevalence in patients with HIV¹ and males who have sexual contact with males (MSM). Some studies have also found associations between IS and development of colonic polyps and even colorectal cancer^{2,3}.

The epidemiology and clinical presentation of IS is not well described or recognized. We report a case of IS occurring in a HIV negative MSM patient and describe his clinical course.

Case Presentation

Initial Presentation

A 37 year-old Caucasian male presented to the emergency department with a two month history of abdominal pain and increase in mucous discharge per rectum. This was associated with episodes of hematochezia. His symptoms of abdominal discomfort were relieved with bowel movement.

Of note, he had presented to another local hospital one month prior and was treated for constipation colic with no improvement.

Due to non-resolving symptoms, colorectal consult was sought.

Proctoscopic examination revealed 2nd degree internal haemorrhoids as well as a small anal canal polyp. In the absence of red flags, his symptoms were initially attributed to constipation or irritable bowel syndrome and the hematochezia was attributed to the haemorrhoids.

Due to persistent symptoms, the patient was also offered esophagogastroduodenoscopy (EGD) and colonoscopy. Histopathological examination confirmed the diagnosis of IS and this prompted the consult with Infectious Diseases.

History was revisited. This MSM patient had multiple partners in his lifetime. He also had a history of Gonorrhea, Chlamydia as well as Syphilis, which were adequately treated. His repeat HIV screen and Venereal Disease Research Laboratory (VDRL) antibody returned negative.

He was treated with a 10-day course of oral metronidazole with response.

The patient remained well at subsequent follow up appointments. No known recurrence of symptoms were noted.

Referral to Colorectal Surgeon

Referral to Infectious Disease Physician

Clinical Progress

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Endoscopic and Histopathological Findings

Esophagogastroduodenoscopy:

Pan-gastritis was seen. Mild to moderate gastritis was noted in the antrum with multiple antral erosions. Cold biopsies were performed from two of the erosions. Very mild to mild gastritis was also noted in the rest of the stomach. Random biopsies of the fundus, greater and lesser curve were performed. The biopsies were positive for *H. pylori*.

Colonoscopy:

Ulceration was limited to the rectum. The rest of the colonic and terminal ileal examination was normal on macroscopic examination. Random biopsies of caecum, ascending colon, transverse colon, descending colon and sigmoid colon were performed.

In the rectum, multiple discrete ulcers measuring 1-2 mm each were seen. Multiple biopsies were performed, and histopathological findings are described in **Figure 1**. Rectal biopsy for mycobacterial cultures, and TB DNA amplification returned negative.

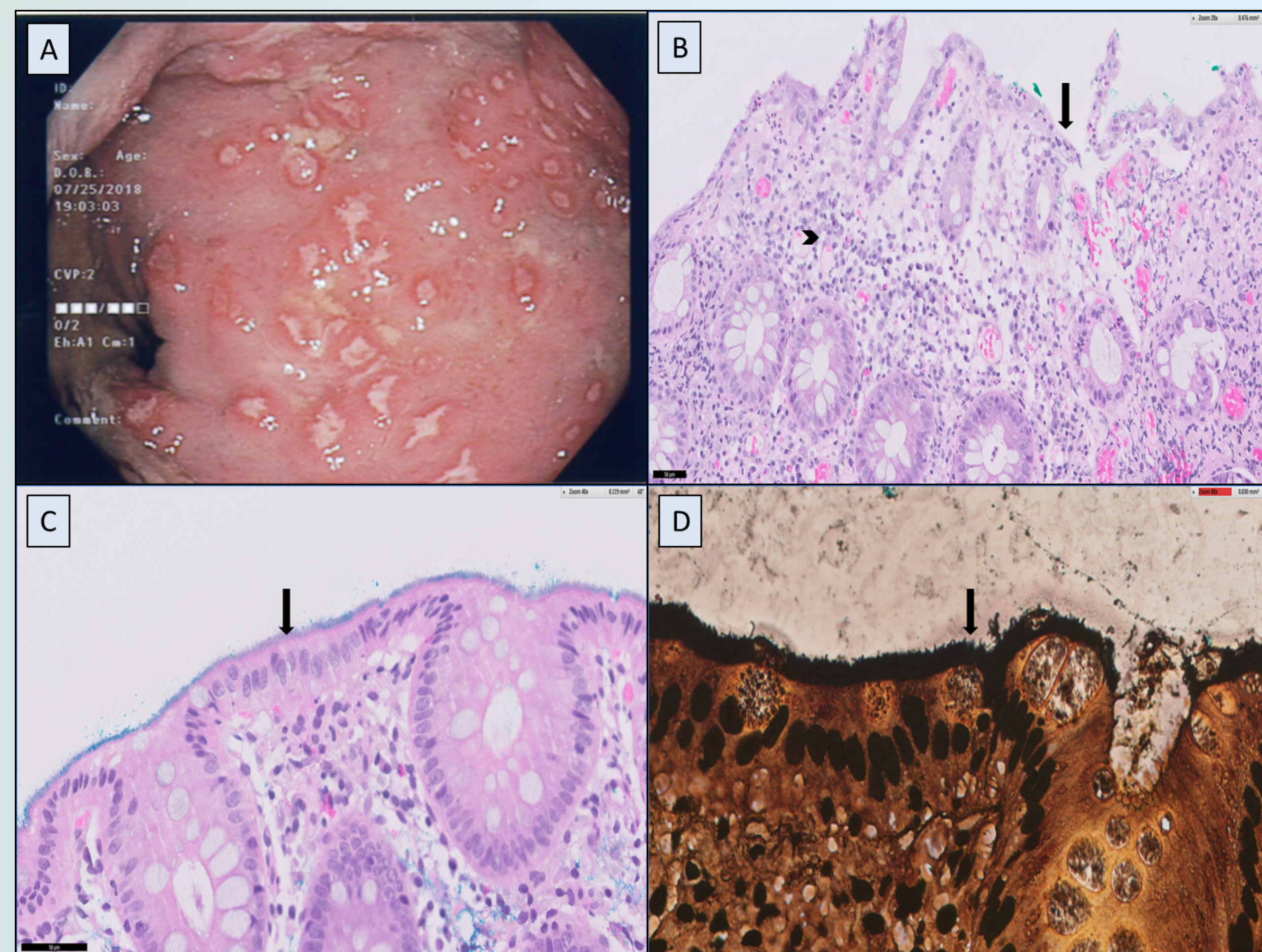


Figure 1: Colonoscopic and Histopathological Findings.

Multiple discrete ulcers measuring 1-2mm each were seen only in the rectum (Panel A); hematoxylin and eosin stained sections of the rectal biopsies showed moderate acute proctitis (Panel B, arrow) with prominent plasma cells (Panel B, arrowhead). Random biopsies of the cecum, ascending colon, transverse colon and descending colon were also performed. In the biopsy taken from the proximal colon, a basophilic carpet of spirochetes was seen on the epithelial surface, mimicking a false brush border (Panel C, arrow). These spirochetes were better visualized on Warthin-Starry stain (Panel D, arrow).

16s RNA gene sequencing of the biopsy specimens were confirmatory for *Brachyspira aalborgi*

Discussion

□ IS, a form of infectious colitis, is described more commonly in the HIV and MSM population, alluding to the possibility that is sexually transmitted¹.

□ Patients with symptomatic IS commonly present with abdominal pain, diarrhea and per-rectal bleeding. Others may present with constipation, vomiting, mucoid stools and even features of appendicitis⁷. A significant proportion of patients can also be asymptomatic. On the other end of the spectrum, there are also reported cases of invasive spirochetosis, mostly occurring in immunocompromised individuals⁸.

□ Presenting symptoms of IS are non-specific. Endoscopic findings also do not differentiate IS from other causes of colitis. Endoscopic findings are often normal and colonic ulcerations are less common compared to other causes of infectious colitis⁵. Occasionally, erythema, polypoid lesions or mucosal erosions may be seen⁶.

□ IS is diagnosed on histopathological examination - the presence of a layer of spirochetes attached by one cell end to the colorectal epithelium is suggestive. The dense layer of spirochetes on the colorectal epithelium also gives rise to the classical description of a “false brush border”. While the two species of spirochetes are not differentiable histologically, use of PCR allows speciation of the culprit spirochete⁴.

□ The treatment of choice for IS is metronidazole. In a study comparing the efficacy of metronidazole to other antibiotics, (penicillin, doxycycline, neomycin, lincomycin, bacitracin, piperacillin and trimethoprim sulphamethoxazole), a greater proportion of patients had symptom improvement with metronidazole⁷.