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CASE REPORT

Intestinal Spirochetosis in an Immunocompetent Host: A Case Report and Review of Literature

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Abstract

Intestinal spirochetosis is a very rare condition and is often known to be associated with immunodeficiency. Although its colonoscopic findings are not specific, its histopathological appearance is quite remarkable. In this case, intestinal spirochetosis with colonic polyp, unrelated to immunodeficiency, was presented.

Keywords: Colon; histology; intestinal diseases; spirochete infections.

Intestinal spirochaetosis (IS) is a very rare condition characterized by the presence of spirochetes on the surface of the colonic mucosa. The organisms responsible have been reported to be spirochetes species named Brachyspira aalborgi or Brachyspira pilosicoli[1]. Here, we aimed to present a case that in an immunocompetent patient and occurs with a preliminary diagnosis of polyps during control colonoscopy, accompanied by the literature.

Case Report

A 44-year-old male patient was admitted to our hospital due to a small amount of rectal bleeding. During the colonoscopy, a 3 mm diameter polyp was detected in the internal hemorrhoid and sigmoid colon, and the polypectomy specimen was sent to us. In microscopic examination, filamentous bacterial colonization was observed in hema-

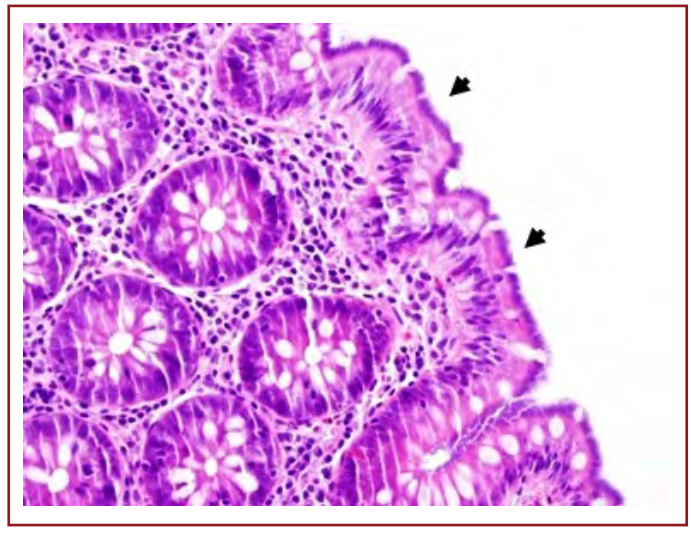

Figure 1. Bacterial colonization that exhibits a "brushed edge" like image in the apical cell membrane (H&E ×400).

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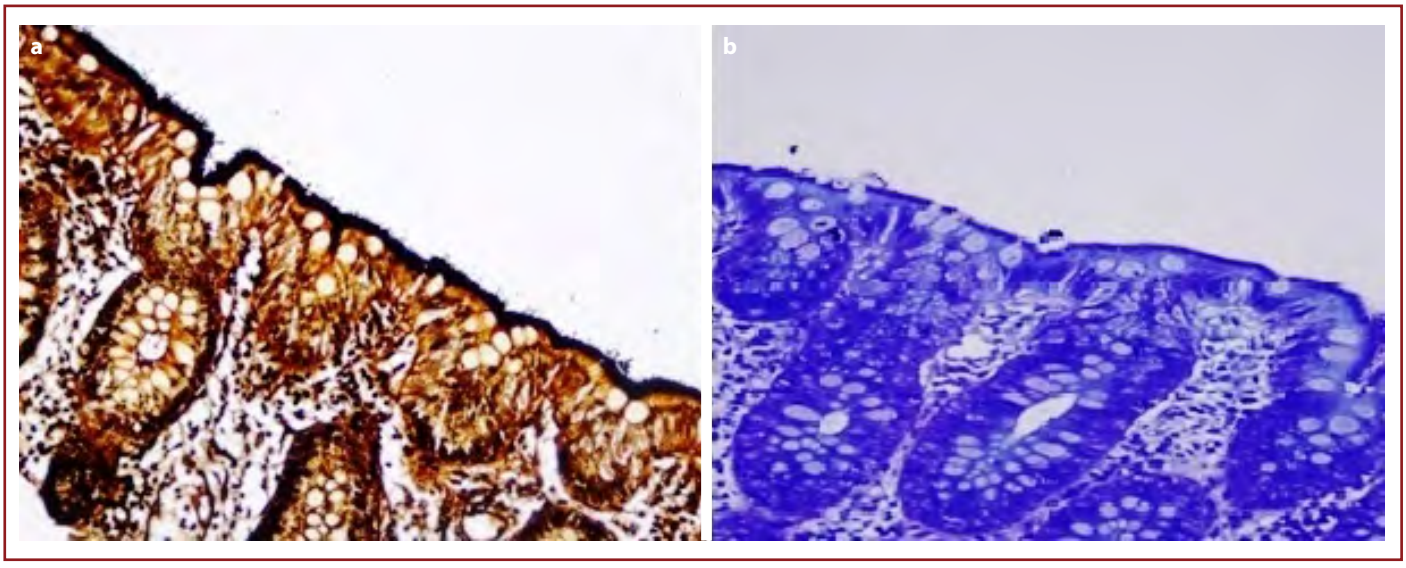

Figure 2. (a) Warthin–Starry silver stain (×400) and **(b)** Giemsa stain (×400) highlighted filamentous organisms.

toxylene and eosin (H&E) painted sections, which formed a basophilic zone along the surface epithelium of the colon mucosa, displaying a "brushed edge" like image (Fig. 1). It was observed that bacteria monitored only on the surface did not reach the lamina propria. In a study with Warthin–Starry and Giemsa, it was observed that the zone described in the surface epithelium was specifically painted and diagnosed with IS (Figs. 2a and b).

Chronic disease, long-term history of diarrhea, and atypical sexual intercourse were not found in the patient's resume. Laboratory tests are within normal limits and no signs of anemia were found. Anti-RPR and anti-HIV tests were both negative in the patient who had no complaints other than rectal bleeding. It was decided that the patient should be followed up without antibiotic treatment because the bleeding complaint does not continue and does not have additional symptoms.

Discussion

Spirochetes can be classified into three families: Spirochaetaceae (Borrelia, Spirochaeta, Spironema, and Treponema), Leptospiraceae (Leptonema and Leptospira), and Brachyspiraceae (Brachyspira and Serpulina)[2]. Two members of the family Brachyspiraceae, B. aalborgi, and B. pilosicoli can be transmitted through the fecal-oral route. Furthermore, B. Pilosicoli is a zoonotic bacterium and can also be transmitted to humans by touching or eating the flesh of the infected animal[3].

The prevalence of IS is between 2.5% and 32%, although it can vary depending on diagnostic methods and geographical localization[4]. It is reported around 2–7% in Western countries, while in India and other Asian countries, this rate is increasing. The highest prevalence was reported in HIV-positive homosexual men (30–60%)[1,4].

Although IS primarily seen in the colon, it has also been reported in the stomach and small intestine[4]. As in our case, most cases are detected incidentally during colonoscopy. Its clinical and prognostic significance is controversial. Due to the lack of a relationship between IS and gastrointestinal symptoms, the recent theory is that there is a commensal relationship between humans and IS, in which man is the host, and that Spirochetes are a member of normal flora[5]. Despite this, spirochetes can be pathogenic and invasive, depending on the host's immune system or the micro-organism's virulence. In symptomatic cases, it often presents with chronic watery diarrhea and abdominal pain. Although most cases are mild, some may be invasive and fatal[4,5].

Colonoscopic findings are not specific; polypoid lesions, erythematous area, or normal mucosa can be monitored[6]. However, the fact that it is encountered as a polyp, as in our case, raises the question of whether there is a relationship between IS and a colonic polyp. A retrospective study conducted by Omori and colleagues found that the incidence of IS was higher in sessile serrated adenomas/polyps (SSA/P) and suggested that there may be a potential relationship between IS and SSA/P[7]. A similar study conducted in Italy also reported a relationship between IS and hyperplastic/adenomatous polyps[8].

The role of endoscopic examination in the diagnosis of IS is limited, and the mucous membrane can be monitored normally. In H&E stained sections, the colonic mucosa is

identified by the formation of a basophilic zone, about 3–4 microns thick, similar to a "brush edge," on the surface epithelium. The mucous membrane is usually of normal appearance. Warthin Starry, Giemsa, or antitreponemal antibodies can be used to confirm the diagnosis.

The treatment decision is made based on the presence of clinical symptoms. Metronidazole therapy is useful in symptomatic patients, while observation is sufficient in asymptomatic patients[4].

Conclusion

Although IS is often seen in people with immunodeficiency, it can be observed in people with normal immunity as in our case. It can clinically mimic the symptoms of malignancy, for example, it can give signs of rectal bleeding, tenesmus, or mucous discharge as a clinical picture[9]. Colonoscopic examination may not show specific findings, and histopathological examination is required for diagnosis. It should be kept in mind during clinical examination because it can give clinically different symptoms, even the potential of some cases to be invasive and fatal and symptomatic cases to respond to metronidazole therapy. Our case was presented to raise awareness of this condition, which is not often encountered in both clinical and pathology practice.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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