Special Session

Intestinal spirochetosis

LUIS ROBERTO MANZIONE NADAL[1], SIDNEY ROBERTO NADAL[2]

[1]4th year resident in General Surgery at Hospital do Servidor Público Estadual - São Paulo (SP), Brazil; Titular in the Brazilian Society of Coloproctology (TSBCP). [2]Associate Professor at the Department of Surgery at the School of Medical Sciences of Santa Casa de São Paulo – São Paulo (SP), Brazil; Supervisor of the technical team of Proctology at Instituto de Infectologia Emílio Ribas – São Paulo (SP), Brazil; TSBCP.

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ABSTRACT: The intestinal spirochetosis (IS) is a histologically defined by the presence of spirochetal microorganisms connected to the apical cell membrane of the colorectal epithelium. The disease is caused by a heterogeneous group of bacteria. In humans, *Brachyspira aalborgi* and *Brachyspira pilosicoli* are prevalent. The incidence ranges from 1% in developed countries to 34% in poorer areas. It affects 62.5% of colonized areas, as well as men who have intercourse with men (MSM) and those with the human immunodeficiency virus (HIV) infected. Clinical significance of such colonization is still not clear. Most infected people are asymptomatic. At the presence of gastrointestinal symptoms, treatment with metronidazole is effective. Due to unknown reasons, MSM and HIV-positive men are more likely to be symptomatic. *Treponema pallidum* infection must be excluded, since this agent may cause serious and permanent complications, and because the treatment is different.

Keywords: spirochaetales infections; colitis, microscopic; intestinal bacterial invasion; HIV infections.

The Acquired Immunodeficiency Syndrome (AIDS) brought a new set of conditions created by previously known opportunistic agents, in some cases considered as commensal or saprophytes[1], to the clinical practice. In the coloproctological service, we are faced with diarrheas of obscure etiological diagnosis, and sometimes of complex control. The colonoscopy, important test in these cases, and the colonic mucosa biopsies are essential to treat these patients[2]. The cytomegalovirus, the herpes virus and, recently, bacteria from the *Spirochaetaceae* family, as well as the one that causes syphilis, are some of these findings. Recognizing these agents and the proper treatment ensures a better quality of life for the patient.

First acknowledged by van Leeuvenhoek in the 17th century, and described in 1967 by Harland and Lee, as cited in literature[3], the intestinal spirochetosis is defined as the colonization of the colon mucosal and the appendix apical membrane by gram-negative bacteria of the *Spirochaetaceae* family, usually *Brachyspira aalborgi* and *Brachyspira pilosicoli*[3-6]. The genders *Leptospira* and *Treponema*, in the same family, have histological similarities, but important differences concerning DNA and RNA[3].

The microorganism spreads by the fecal-oral route, and colonization depends on sanitation, diet, behavior and immunological status. Chronic fecal stasis also favors multiplication[3,4]. Fecal colonization with spirochaeta, however, is not common[3,5] in the population, and its incidence ranges from 1% in developed countries to 34% in the developing countries, affecting up to 62.5% of men who have intercourse with HIV positive men[3,5]. There seems to be no relation between the degree of immunodeficiency and the extension of the infection[3]. The increased incidence in this specific population suggests the sexual transmission of the agents[3], besides the previously described routes.

The method of choice for diagnosis is the colorectal mucosa biopsy[4]. The colonoscopic appearance varies from normal to moderate edema, erythema, erosions or small ulcers[4]. Hematoxylin eosin staining shows a thick layer or basophilic organisms covering the mucous surface, thus generating a false brush border[3]. There is rarely the invasion of the lamina propria. Colonization is not associated with a significant inflammation. Microorganisms can be revealed by using the periodic acid-Schiff

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(PAS), Giemsa, Crocotts and silver[4]. Immunohistochemical tests with anti-*Treponema pallidum* antibodies, which present a cross reaction with *Brachyspira spp*, have been used to identify the agent[7]. The polymerase chain reaction (PCR) and *in situ* hybridization detect bacteria in the stool and in the biopsy specimens.

Generally, it is asymptomatic and detected by the colorectal mucosa biopsy[3-7]. A few patients present with aqueous diarrhea, weight loss, abdominal pain and rectal bleeding. The increased incidence of spirochaeta was observed in appendicectomy specimens of patients who had typical symptoms and signs of acute appendicitis, however, with no inflammation at histopathological evaluation[4].

The clinical significance of intestinal spirochetosis is little known, and widely reported in veterinary studies. Bacteria of the *Spirochaetaceae* family are considered as commensal in humans, and are usually incidentally found in intestinal mucosal biopsies, thus not being related to the referred symptoms[3]. However, asymptomatic patients can be safely followed-up, but the symptomatic and immunodepressed ones can be treated with metronidazole 500 mg three times a day, or clarithromycin 800 mg every day, for ten days. Most report relief of symptoms and recurrence is rare[3,4].

Secondary syphilis may cause similar symptoms. The intestinal mucosa biopsy shows granulomatous colitis[7]. Personal history can show unprotected sex and other forms of the disease in the skin (roseola syphilitica) or anogenital lesions (primary or secondary). Syphilis is known as the "great impersonator", and may simulate different impacts on all the organs and systems[7]. Proper diagnosis, treatment and follow-up prevent complications. For the HIV-positive patients, it causes the increase of viral load and the decrease of T CD4 lymphocytes, which are reversed after treatment with penicillin[8].

Colitis caused by spirochaeta is rare, but should be part of the differential diagnosis of infectious diarrhea in immunocompromised patients, especially among those who have anal sex. Secondary syphilis with colorectal location should be ruled out for presenting similar symptoms, because the treatment is different and the complications of the untreated disease are severe, permanent and disabling.

RESUMO: A espiroquetose intestinal está definida histologicamente como a presença de micro-organismos da família *spirochetaceae* ligadas ao ápice das células do epitélio cólico. A doença pode ser provocada por um grupo heterogêneo de bactérias. Em humanos, a *Brachyspira aalborgi* e a *Brachyspira pilosicoli* predominam. A incidência varia desde 1%, nos países desenvolvidos, até 34% nas áreas mais pobres, atingindo taxas de colonização de 62,5%, em homens que fazem sexo com homens (HSH) e vírus da imunodeficiência humana (HIV) positivo. O significado clínico dessa colonização ainda é incerto e a maioria dos infectados permanece assintomática. Quando há sintomas gastrointestinais, o tratamento com metronidazol é efetivo. Por razões desconhecidas, HSH positivos para o HIV, apresentam mais infestação sintomática. A infecção pelo *Treponema pallidum* dever ser excluída, pois os tratamentos são diferentes e as complicações por essa última são mais graves e definitivas.

Palavras-chave: infecções por spirochaetales; colite microscópica; invasão bacteriana intestinal; infecções por HIV.

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Correspondence to:
Luis Roberto Manzione Nadal
Rua Mateus Grou, 130 – Pinheiros
CEP 05415-040 – São Paulo (SP), Brazil
E-mail: clinicamn@gmail.com