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Infectious causes of chronic diarrhoea



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A B S T R A C T

Infections are an uncommon cause of chronic diarrhoea. Parasites are most likely, including protozoa like giardia, cryptosporidia and cyclospora. Bacteria are unlikely to cause chronic diarrhoea in immunocompetent individuals with the possible exception of *Yersinia*, *Plesiomonas* and *Aeromonas*. Infectious diarrhoea can trigger other causes of chronic diarrhoea, including inflammatory bowel disease, irritable bowel syndrome and “Brainerd-type” diarrhoea. A thorough evaluation should detect most infections causing chronic diarrhoea.

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Introduction

While most infectious diarrhoeas are acute (defined as less than two weeks) or persistent (defined as lasting between two and four weeks), some can cause chronic diarrhoea, defined as a diarrhoea lasting longer than four weeks. Parasitic infections are the most common cause, although many parasitic infections can be asymptomatic. Chronic bacterial infections are less common. Chronic fungal and viral infections are very uncommon in immunocompetent individuals. In this paper, we review parasites that cause chronic diarrhoea, both protozoa and helminths, we also review chronic diarrhoea of presumed infectious causes, including tropical sprue and “Brainerd” diarrhoea as well as post-infectious irritable bowel syndrome.

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Parasites

Protozoa

Amoebae

There are many amoebae that may infect humans; while some are pathogenic, others are not. *Entamoeba histolytica* is the best known invasive pathogen which is usually acquired through the fecal-oral route, such as drinking contaminated water, but can also be transmitted per rectum. Typical symptoms are abdominal pain and diarrhoea [1]. The organism predominantly affects the right colon, with both a luminal phase and a tissue phase.

Among the other amoebae, *Dientamoeba fragilis* is likely to be pathogenic also. The nonpathogenic amoebae include: *Entamoeba dispar*, *Entamoeba coli*, *Entamoeba hartmanii*, *Endolimax nana* and *Iodamoeba buetschlii*. Although *E. dispar* may appear indistinguishable from *E. histolytica* on microscopic stool exam, these two can be differentiated based on the presence of phagocytosed red blood cells in the cytoplasm, which indicate the pathogenic nature of the amoebae. Moreover, the serologic response is only present with *E. histolytica* secondary to its invasive nature, and not with *E. dispar*. The diagnosis of pathogenic amoebae is usually made by stool examination, but serology can also be helpful. Colonoscopy with biopsy of the ulcers may show the organisms as well. PCR is an emerging tool [3]. Treatment of both luminal and tissue phases is necessary [2].

Giardia lamblia

Giardia is a world-wide, water-borne protozoa. Well publicized epidemics have been reported in a Colorado ski resort and St. Petersburg, Russia, due to the contaminated drinking water. Symptoms can be nonspecific and include vague abdominal pain, bloating, and chronic diarrhoea which may result in malabsorption. The best diagnostic test is stool giardia antigen, as stool examination for ova and parasites has a lower yield. Rarely duodenal aspirate or duodenal biopsy will be needed for diagnosis. Patients with IgA deficiency are more likely to develop chronic infection. This can easily be tested for by measuring serum IgA levels.

Cyclospora

Although it was first reported in stool samples of individuals in Papua, New Guinea, *Cyclospora cayatenensis* (also called “blue-green algae”) is present worldwide. It also has been reported as a cause of traveller's diarrhoea in Nepal [4]. In the United States, *Cyclospora* epidemics have been associated with imported raspberries (Guatemala) and basil (Thailand). Transmission is via the fecal-oral route. Typical symptoms are watery diarrhoea, abdominal cramps, fever, malaise, weight loss, as well as heartburn. Diagnosis is made by stool exam.

Cryptosporidia cayatenensis

Cryptosporidia, a water-borne parasite, which was first described as an infectious agent, affecting humans in 1976, gained a wide-spread recognition in 1980 during an epidemic in those who were exposed to infected cattle, and then as a virulent untreatable cause of profuse watery diarrhoea in patients with Acquired Immune Deficiency Syndrome, (now known as Human Immunodeficiency Virus (HIV) infection [5]. There was no effective treatment for this infection until the recent approval of nitazoxanide therapy in the paediatric population.

Cystoisosporia

Cystoisosporiasis belli, (formerly known as *Isoospora belli*), has been recognized as a cause of chronic, but self-limited tropical watery diarrhoea in individuals in tropical countries. The chronic diarrhoea is more common in patients with immunosuppression. Although it is more common in tropical and subtropical areas, it has been reported worldwide. Transmission is via the fecal-oral route, but oral-anal transmission can occur. The oocysts passed in the stool are immature, and will become infective after being outside the host for several days [6,7]. It is often associated with eosinophilia. Oocysts can be detected in acid-fast stained stools.

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