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Research Note

Gastrointestinal helminthiasis presenting with acute diarrhoea and constipation: Report of two cases with a second pathology

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Abstract. Gastrointestinal helminthiasis in developing countries contributes to malnutrition and anemia. Diagnosis and treatment of helminthiasis, especially with low worm load is an unmet public health need in such settings. The infection may sometimes become manifest when a second pathology leads to purgation of the gastrointestinal tract. Two cases of helminthiasis are presented in which the infections only became amenable to diagnosis due to acute diarrhoea caused by giardiasis and lactulose administration. In the first case, acute giardiasis revealed *Ascaris lumbricoides* infestation, and in the second case primary helminthiasis (strongyloidiasis) was revealed by lactulose, and also led to *Vibrio cholera* bacteremia. These cases highlight the need to diagnose helminth infestations especially with low worm burdens by means of public health surveillance programmes. These cases highlight the need to diagnose helminth infestations especially with low worm burdens by means of public health surveillance programmes.

INTRODUCTION

Intestinal helminthiasis is a common disease in developing countries. Investigators have reported a high burden of intestinal helminth infections from Pakistan, albeit at a low intensity (Waqar *et al*., 2003). These infections may especially abound in the presence of specific risk factors (Ensink *et al*., 2005; Rafique *et al*., 2009). Helminth infections, even when asymptomatic contribute to malnutrition (Crompton *et al*., 2002), anemia (Ezeamama *et al*., 2005), and decreased immunity to other infections (Assefa *et al*., 2009). A high prevalence leads to a continuous cycle of increasing malnutrition, which contributes further to the incidence of several infectious and non-infectious diseases. Diagnosis and treatment of intestinal helminthiasis is therefore essential from a public health standpoint. However, the diagnosis is usually missed, due to infrequent coprological surveys, or the use of insensitive methods even when such surveys are conducted. Subsequently, helminthiasis may manifest itself when complicated by a second process resulting in diarrhea. This may confuse clinicians who may falsely attribute acute infectious diarrhoea to these helminths.

We present two cases of helminth infection which became amenable to diagnosis after a second process producing greater intestinal motility intervened. In both cases, earliest-positive tests showed helminthiasis, which was thought to be the

primary cause until a second pathology was also found.

CASE REPORTS

Case 1

A 1 year 11 month old boy presented with a 1 day history of loose motions. He had 10-15 non greasy, non bloody, large volume motions associated with 10-15 episodes of non projectile vomiting. He had become lethargic and had not passed urine throughout the day. He was taken to a general practitioner where he was hydrated and was given intravenous ceftriaxone and metronidazole.

At the peripheral clinic, the child had an episode of vomiting and the vomitus was found to have a worm in it. On examination, the child appeared dull, with moderate dehydration. He had a pulse of 137 beats per minute, blood pressure of 100/50 mm Hg, a respiratory rate of 28 breaths per minute, and a temperature of 37°C. His height was above the 95th percentile (79cm); however his weight was below the 5th percentile at 9.5kg indicating underlying malnutrition.

The worm was identified in the laboratory as *Ascaris lumbricoides*. A detailed stool examination was not possible since the diarrhea had subsided by this time. A section of the worm showed *Giardia* trophozoites attached to the cuticle. This was thought to be the cause of acute gastroenteritis and he was treated with metronidazole and later de-wormed with pyrantel pamoate.

Case 2

A 45 year old gentleman with chronic hepatitis C infection presented with a 2-day history of constipation associated with dull abdominal pain, and fever.

Physical examination revealed a tense abdomen with sluggish bowel sounds. Asterixis and pedal edema were also noticed. Lactulose was administered to relieve his ileus, after which he developed diarrhoea. Microscopic examination of the stool specimen revealed rhabditiform larvae of *Strongyloides stercoralis*. Meanwhile, a blood culture sample sent at presentation turned positive for *Vibrio cholera*. The patient left the hospital against medical advice and was lost to follow up. However, the stool cultures were followed and remained negative for any bacterial pathogens, including *Vibrio cholera*. On discharge, the patient was advised to continue albendazole and ciprofloxacin for 10 days.

Both cases detailed above relate different patients in terms of age, underlying condition at presentation, co-morbidities, and even the pathogens isolated. However, both patients hailed from a developing country, and had harboured helminth infections before presentation. This is obvious when malnutrition in the child and natural history of strongyloidiasis in the adult patient with hepatitis are considered. Although *Giardia* in the first patient and *Vibrio cholera* in the second patient were responsible for the acute gastrointestinal infections, helminths were the first pathogens to be diagnosed on routine laboratory tests. It should be emphasized that both cases could have been falsely attributed to a helminth infection if laboratory tests were not pursued further. Acute giardiasis was only diagnosed on section of *Ascaris* in the first patient, and *V. cholera* was isolated from the blood cultures only and not from the stool cultures after detection of *Strongyloides* in the second patient. It follows from these two instances that for acute gastroenteritis, when helminths are recovered, a co-infecting pathogen should be actively looked for. Vomited or defecated worms should be sectioned to look for other parasites and even cultured for cuticle-associated bacteria. Several enteric pathogens such as *Salmonella* spp. and *Shigella* spp. are known to attach to the cuticle of geohelminths (Geldreich, 1996).

The above cases also highlight the need for diagnosis and treatment of asymptomatic helminth infections in developing countries like Pakistan, especially in chronically ill or immuno-compromised patients. Since *Strongyloides* hyper-infection is known to predispose to

bacteremia, it is imperative that *Strongyloides* larvae are searched for in all subsets of patients with compromised immune function such as diabetics and cirrhotics in addition to HIV-positive individuals, transplant recipients, and patients on steroids as is currently recommended (Siddiqui & Berk, 2001).

Furthermore, sporadic occurrence of such cases indicates that worm infection is widespread in our setting. Coprological surveys to determine the prevalence of helminth infections are therefore warranted.

Helminth infections are common in resource-poor settings. Low-grade infections in the populations and especially immunocompromised and malnourished patients should be detected and treated promptly. In the absence of such surveillance systems, helminthaisis usually presents when a superimposed process creates acute diarrhoea. Co-infections by bacteria or protozoa are the most common causes of acute gastroenteritis in such patients and should be actively searched for.

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