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Case Report

PARASITIC INFECTION IN A YOUNG MAN PRESENTING WITH NON-SPECIFIC ABDOMINAL PAIN

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ABSTRACT
A 27-year-old man presented with a two-week history of central colicky abdominal pain associated with loose stools. Further history revealed that he had been exposed to contaminated waters. Stool investigation by direct wet stool smears revealed the presence of *Entamoeba histolytica* and *Blastocystis hominis* cysts. A diagnosis of amoebiasis secondary to *E. histolytica* and concurrent *B. hominis* infestation was made. We would like to emphasise the importance of clinical history including recent travel to endemic areas. Any suspicion of parasitic infection should prompt the clinician to investigate. Early diagnosis and management would prevent serious complications associated with *E. Histolytica* infection.
Keywords: Abdominal pain, diarrhoea, parasitic infection, *Entamoeba histolytica*, *Blastocystis hominis.*
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INTRODUCTION

Abdominal pain is the fifteenth most common presentation in primary care. In a young adult, the most common causes are dyspepsia, biliary colic, appendicitis, gastroenteritis and renal colic.[1] History and examination are the most important tools in making a differential diagnosis and in determining the appropriate investigations to include or exclude the diagnosis. A history of more than 14 days abdominal pain and diarrhoea should prompt the clinician to consider less common causes for persistent diarrhoea such as parasitic infection.

CASE REPORT

A 27-year-old man presented with a two-week history of central colicky abdominal pain. The pain was intermittent with bouts of increasing severity. He reported that the pain was aggravated by eating and he also suffered from feeling bloated. He reported feeling slightly feverish intermittently but his temperature was normal during clinical examination. The patient was previously fit and healthy with no previous gastrointestinal complaints.

He initially presented to an emergency department and was diagnosed with dyspepsia. He was sent home with antacids with no symptomatic relief. He then saw a general practitioner and was suspected to have parasitic infection but stool culture was not done. He was given a three-day course of low dose metronidazole. He went again to an emergency department and an X-ray was done. He was diagnosed with constipation and was prescribed some laxatives. He then presented with watery diarrhoea without any blood or mucus in the stools. He continued to have abdominal pain and diarrhoea and was seen in a specialist primary care clinic.

It was difficult to make a definitive diagnosis since the symptoms of abdominal pain and diarrhoea was vague and possibly masked by the use of laxatives and antibiotics. However, further history revealed that 20 days prior to the initial symptoms, he went to a rural area and swam in a river there. This prompted the clinician to suspect parasitic infection and ordered stool culture to be done.

On examination, his vital signs were normal. The abdomen was mildly tender around the umbilical and right iliac region. There was a possible mass felt in the right lower quadrant. Therefore, a diagnosis of an appendix mass could not be excluded. The differential diagnosis at this point was appendicitis, mesenteric adenitis, drug induced diarrhoea and parasitic intestinal infection.

Investigations were done including full blood count (FBC) and erythrocyte sedimentation rate (ESR) to look for markers that indicate infection or inflammation. Abdominal ultrasound was done to exclude an appendix mass and a stool culture ordered. He was given symptomatic advice to increase his fluid intake and to take regular analgesia. He was given a follow up appointment in one week. He was also given advice to see a

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doctor urgently if he developed acute severe abdominal pain that might be attributed to an acute appendicitis.

The FBC result revealed raised white cell count (Table 1). His ultrasound scan was reported as normal.

In the laboratory, direct wet stool smears were performed on slides by mixing a small amount of stool (about 2 gm) on the end of a wooden applicator stick with a drop of normal saline and Lugol's iodine solution. Five stool smears were prepared and examined under the light microscope using the objectives (40 X, 100 X).

Parasitological examination of five direct wet stool smears revealed the presence of *E. histolytica* and *B.hominis* cysts. Only three out of five stool smears were showed positive result (Table 2). Identification of *E. histolytica* cyst was based on the nuclear morphology. One to two nuclei appeared in the cyst with evenly arranged chromatin on the nuclear membrane and the presence of a central karyosome. *B.hominis* cyst appears thick wall, round with large central-body and multiple nuclei around the edges.

In summary, this is a 27-year-old man presented with a two weeks history of abdominal pain and watery diarrhoea. There was a possible exposure to parasites from contaminated water. His ultrasound report was normal, he had a raised white cell count and stool examination revealed the presence of cysts of *E. histolytica* and *B. hominis*. A diagnosis of amoebiasis secondary to *E. histolytica* with concurrent *B. hominis* infestation was made. He was treated with metronidazole 750 mg three times a day for ten days and a repeat stool examination was done a week post treatment. Patient was reviewed and found to be asymptomatic and stool examination results were negative.

DISCUSSION

Blastocystis hominis is commonly found in asymptomatic individuals. This parasite is not considered as a pathogen but may sometimes produce symptoms of diarrhoea in some individuals.[2] It is thought that *B. hominis* is found alongside more pathogenic organisms such as *E. histolytica* and it is advisable to look for other organisms when parasitic infection is suspected.

Entamoeba histolytica is known for its pathogenesis in the human gut. Infection caused by *E. histolytica* is known as amoebiasis. *E. histolytica* is one of the most common parasites responsible for the majority of intestinal diseases in man.[3,4] A prevalence study conducted in Kuala Lumpur found that out of the 246 stool sample, 0.4% was positive for *E. histolytica*.[5]

The pathogenesis of *E. histolytica* begins with the ingestion of the parasite cyst. The trophozoite emerges from the ingested cyst in the stomach and duodenum, dividing rapidly and passing into the caecum. These trophozoites may invade the intestinal epithelium causing symptoms to its host.

Table 1: Full blood count result

Full blood count	Results	Reference values
Haemoglobin (Hb)	18.1	13-18 g/dL
Red blood cell (RBC)	5.72	3.8-5.3 x 10^6/µL
Haemoglobin concentration	34.7	32-36 g/dL
Mean corpuscular volume	91.3	80-100 fL
Mean corpuscular haemoglobin	31.6	27-32 pg
Red blood cell distribution width	12.40	10-16.5%
White blood cell (WBC)	22.0	4-9 x 10^3/µL
Granulocyte	75.5	42-85%
Monocyte	2.4	0-9%
Lymphocyte	22.1	11-49%
Platelet	331	120-380 x 10^3/µL
Erythrocyte sedimentation rate (ESR)	6.0	0-15 mm in first hour

Table 2: Detection of *E. histolytica* and *B. hominis* cysts in five stool smears

Smear no.	*E. histolytica*	*B. hominis*
1	+	Nil
2	+	+
3	+	+
4	Nil	Nil
5	Nil	+

The clinical presentation of amoebic infection may vary widely. Careful history including onset of diarrhoea, history of travel, source of drinking water and systemic review is important. Patients may present four days post-exposure or up to a year later. Symptoms range from mild to severe diarrhoea, abdominal cramps, fever, nausea, vomiting and flatulence or chronic presentation such as weeks of abdominal cramps, general discomfort, anorexia, weight loss and malaise. Severe symptoms of bloody diarrhoea and dehydration may occur with amoebic dysentery.

The most common extra-intestinal infection is amoebic hepatitis or liver abscess.[6] More rare extra-intestinal sites include the peritoneum, pericardium, brain or genitourinary tract. Acute appendicitis caused by *E. histolytica* is a rare complication with a few cases reported in Japan.[7]

The diagnosis of this patient was based on stool culture examination under the microscope. This is a common technique used in the laboratory. However, it is poor in distinguishing between *Entamoeba histolytica* and *Entamoeba dispar*.[8] *E. dispar* is a commensal and the two are genetically different. Newer methods using enzyme-linked immunosorbent assay (ELISA) technique or stool polymerase chain reaction (PCR) technique are better at detecting *E. histolytica*.[8] However, these techniques are used mainly in research and non-endemic areas. The role for better and more accurate investigation techniques in areas that are endemic is an important public health discussion.

The treatment for *E. histolytica* is a nitroimidazole derivative such as metronidazole, tinnidazole and ornidazole. However, metronidazole is commonly used due to its availability. It is also a treatment for *B. hominis*. Luminal agents such as diloxanide are used in chronic or severe infections to prevent complications.[8] However, it is not widely available. A newer thiazolide anti-infective agent, nitazoxanide, is shown to work against *E. histolytica* but is still unavailable in many countries.[9]

The patient is treated with a higher dose of metronidazole 750 mg three times a day for 10 days. This is important to ensure eradication of the infection and to avoid chronic infection or complications.

We suspected that the patient contracted *E. histolytica* and *B. hominis* from swallowing contaminated water whilst swimming in the local river. Despite a non-specific presentation, any degree of suspicion of parasitic infection should prompt the clinical to investigate the patient. Although this patient presented with mild symptoms but amoebiasis can potentially be serious. Early diagnosis and treatment is recommended.

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Recent use of antibiotics promotes the occurrence of antibiotic resistance in patient

Costelloe C, Metcalfe C, Lovering A, Mant D, Hay AD. Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis. *BMJ.* 2010;340:c2096.
http://www.bmj.com/content/340/bmj.c2096.full.pdf

This systematic review of 24 studies concluded that individuals prescribed an antibiotic in primary care for a respiratory or urinary infection develop bacterial resistance to that antibiotic. The effect is greatest in the month immediately after treatment but may persist for up to 12 months.