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A 33-Year-Old Male Traveller to India With Diarrhoea and Flatulence for Two Weeks

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Clinical Presentation

History

A 33-year-old man from Finland who had been backpacking in India for the previous month presents to a private doctor in Chinglepet, Tamil Nadu, with complaints of passage of loose stools (four or five episodes per day) for the past 2 weeks. He reports weight loss, anorexia, malaise, flatulence and abdominal cramping when passing stool. For the past 3 days he has had bloating and distension after intake of milk products with an urge to pass stool. He has mild nausea, but no fever. Stools were watery earlier but he went to a local pharmacy and was given ciprofloxacin, which he took for 5 days ending 2 days previously, and stools are now three or four per day, mushy, greasy and foul-smelling.

Clinical Findings

A 33-year-old man, 180 cm, 72 kg (reports a 4 kg weight loss), mild non-specific abdominal tenderness. No signs of dehydration. The rest of the examination is normal.

Laboratory Results

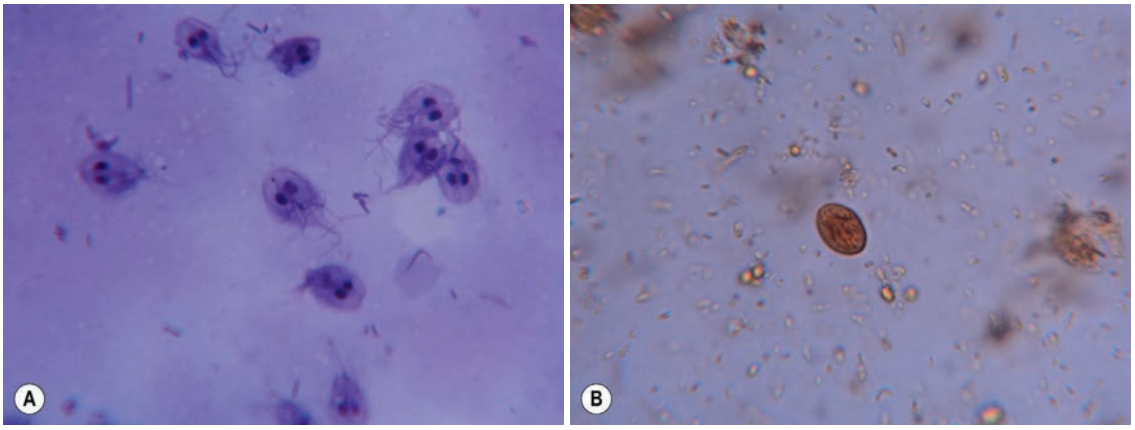
Stool for reducing substances: positive. Stool examination for enteric parasites: *Giardia* trophozoites are seen in the fresh specimen. *Giardia* cysts are detected on formol-ether concentrated specimens (Fig. 49.1).

Questions

1. What clinical features can be used to establish an aetiological diagnosis of infectious diarrhoea in the tropics?
2. What complications can result from an acute enteric infection?

Discussion

A 33-year-old Finnish traveller to India presents with passage of loose stools, four or five episodes a day for the past 2 weeks. The stools have become greasy and foul-smelling, and he has bloating and distension after consumption of milk or milk products.



• **Fig. 49.1** Fresh preparation showing trophozoites (A) and formol-ether concentration showing cysts (B) of *Giardia* species.

The presence of *Giardia* trophozoites and cysts in the stool sample is confirmatory of giardiasis. The presence of reducing substances in the stool indicates a carbohydrate malabsorption, most likely of post-infectious origin.

Answer to Question 1

What Clinical Features Can be Used to Establish an Aetiological Diagnosis of Infectious Diarrhoea in the Tropics?

In the absence of a laboratory, clinical features sometimes provide a clue to the cause of infectious diarrhoea (Table 49.1). Diarrhoea caused by small intestinal infection is typically high volume, watery and often associated with malabsorption and dehydration. Colonic involvement is more often associated with frequent small-volume stools, the presence of blood and a sensation of urgency.

Chronic diarrhoea or recurrent episodes of acute diarrhoea should prompt HIV testing.

Answer to Question 2

What Complications Can Result from an Acute Enteric Infection?

Common complications of acute enteric infections are shown in Table 49.2.

TABLE 49.1 Clinical Clues to Pathology and Possible Aetiological Agents of Diarrhoeal Disease

Clinical Observation	Pathophysiology	Possible Aetiology
Few, bulky or large watery stools	Small bowel, secretory	Enterotoxigenic *Escherichia coli* (ETEC), enteropathogenic *E. coli* (EPEC), *Salmonella, Vibrio parahaemolyticus, Giardia,* possibly *Shigella*
Large volume, watery diarrhoea	Small bowel, enterotoxin mediated	*Vibrio cholerae,* ETEC, *Cryptosporidium*
Many, small volume stools	Large bowel	*Shigella, Salmonella, Campylobacter, Yersinia enterocolitica, Clostridium perfringens, Entamoeba histolytica*
Tenesmus, faecal urgency, dysentery	Colitis	*E. histolytica,* enteroinvasive *E. coli* (EIEC), enterohaemorrhagic *E. coli* (EHEC), *Shigella, Campylobacter, Y. enterocolitica, Clostridioides difficile*
Associated with vomiting	Gastroenteritis or toxin mediated	Noroviruses, rotavirus in children, *Bacillus cereus, Staphylococcus aureus* (food poisoning)
Associated with fever	Mucosal invasion or in children	*E. histolytica,* EIEC, EHEC, *Shigella, Salmonella, C. difficile, Campylobacter,* viral agents
Persistent diarrhoea (>2 weeks)	Secondary malabsorption, invasion	*Giardia, Cryptosporidium, E. histolytica, Aeromonas.* In immunosuppression*: Cystoisospora belli, Cryptosporidium, Microsporidium*

TABLE 49.2 Common Complications of Acute Enteric Infections

Complication	Pathogen
Carbohydrate intolerance or malabsorption	*Giardia lamblia/intestinalis,* rotavirus and other forms of viral gastroenteritis,
Fat malabsorption	*Giardia lamblia/intestinalis*
Haemolytic uraemic syndrome	Enterohaemorrhagic *Escherichia coli* (EHEC), *Shigella dysenteriae*
Guillain–Barré syndrome	*Campylobacter jejuni*
Reactive arthritis	*Campylobacter, Salmonella, Shigella, Yersinia* spp.
Erythema nodosum	*Campylobacter, Salmonella, Shigella, Yersinia* spp
Enteritis necroticans	*Clostridium perfringens* type C
Liver abscess and other forms of extraintestinal amoebiasis	*Entamoeba histolytica*
Chronic fatigue syndrome	*Giardia lamblia/intestinalis,* particularly described from Scandinavia

The Case Continued…

The patient was given tinidazole 2 g as a single oral dose. He was advised to restrict milk and high sugar products for a period of 2 weeks. He was counselled on food and water safety when travelling and was asked to return after 3 days. On review, he stated that his stool consistency had returned to normal and the frequency had decreased, he had no nausea and his anorexia had decreased. He had eaten a local dessert the previous day without realizing that it was made of reduced milk and had experienced some bloating and discomfort, but was otherwise feeling much better.

SUMMARY BOX

Giardiasis

Giardiasis is caused by *Giardia intestinalis* (also called *G. lamblia*), a flagellate protozoan. The parasite is present throughout the world, with several species found in animals. Not all infections result in symptoms, particularly in tropical countries where local populations with constant exposure rarely develop disease.

Symptomatic giardiasis is common in travellers to regions of South and South-east Asia, Africa, the Middle East and Latin America, particularly where clean water supplies and standards of food hygiene are low.

Giardia trophozoites are found in the small intestine of humans, and these non-invasive parasites appear to cause diarrhoea by blocking the absorptive surfaces of the gut and possibly by inducing fluid secretion. The trophozoites produce an environmentally resistant form, the cyst, which is passed in stool and enters the soil, water, food, or other surfaces after bowel movements. The most common method of infection is by drinking contaminated water. However, people may also become infected through hand-to-mouth transmission. This involves eating contaminated food or touching contaminated surfaces and unknowingly swallowing the parasite. The signs and symptoms of giardiasis usually occur within 7 to 14 days of exposure. Symptoms include diarrhoea, pale greasy stools, stomach cramps, gas, nausea, vomiting, bloating, weight loss and weakness. The symptoms usually last for 1 to 2 weeks, but may last longer. Giardiasis can cause malabsorption of vitamin A, vitamin B_{12}, iron, fat and carbohydrates in up to 20–40% of patients. Malabsorption can sometimes be prolonged and take several weeks to disappear. Chronic and multiple infections in young children have been shown to cause long-term effects on growth leading to stunting. The most common treatment is administration of drugs of the nitroimidazole group, with tinidazole being the drug of choice followed by metronidazole. Tinidazole is effective as a single dose of 2g, and metronidazole 500mg is given tds for 5 to 7 days. Non-responsiveness to nitroimidazole treatment is increasingly seen, in particular in travellers to South Asia where rates can reach up to 50%. Other drugs used are e.g. quinacrine, nitazoxanide and furazolidone.

Further Reading

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3. Kaiser L, Surawicz CM. Infectious causes of chronic diarrhoea. Best Pract Res Clin Gastroenterol 2012;26(5):563–71.
4. Wright SG. Protozoan infections of the gastrointestinal tract. Infect Dis Clin North Am 2012;26(2):323–39.
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