

## TROPICAL COLONIC DISEASES

B K Mandal, P F Schofield

### Examples of diarrhoea causing organisms acquired in tropical countries

#### Small bowel

*Vibrio cholerae*  
Enterotoxigenic *Escherichia coli*  
*Vibrio parahaemolyticus*  
*Giardia* species  
*Cryptosporidium* species

#### Large bowel

*Entamoeba histolytica*  
*Balantidium coli*  
Enteroinvasive *E coli*  
*Clostridium difficile*  
*Schistosoma* species

#### Small bowel and large bowel

*Shigella* species  
*Salmonella* species  
*Campylobacter* species  
*Plesiomonas shigelloides*  
*Aeromonas hydrophila*  
*Yersinia enterocolita*

In this age of increasing foreign travel it is quite possible for a patient presenting with diarrhoea to be suffering from a tropically acquired infection. Unless an accurate travel history is taken the diagnosis may be delayed with a resultant increase in morbidity caused by inappropriate treatment.

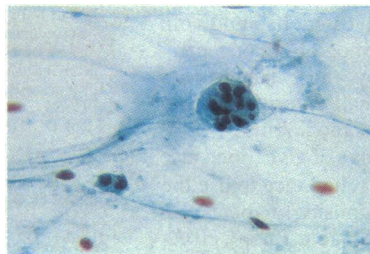
Either the small or the large bowel may be affected (and occasionally both). A good history of the nature of the diarrhoea often allows differentiation between these two sites. Small bowel diarrhoea is usually of large volume, watery, and devoid of blood and mucus whereas when the large bowel is affected the stools are of small volume, are frequent, may be associated with tenesmus, and are often bloody.

In large bowel diarrhoea, if visible blood is not present, a faecal smear will generally disclose pus cells and red blood cells. This is because whereas most small bowel diarrhoea is caused by enterotoxin producing organisms the organisms that affect the large bowel are invasive and lead to colorectal inflammation. Some organisms affect both the large and the small bowel.

### Amoebic dysentery



Barium enema radiograph in a patient with bloody mucoid diarrhoea. Two stool examinations yielded negative results but fresh endoscopic biopsy specimens proved positive for motile amoebas.



Photomicrograph of *Entamoeba histolytica* showing engulfed red blood cells (trichrome stain used; magnification  $\times 480$ ).

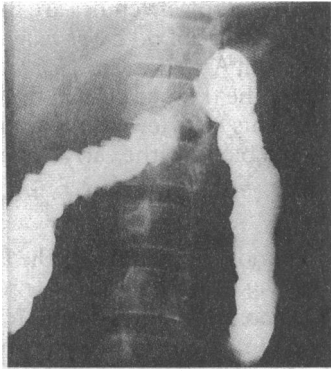
Amoebic dysentery is a relatively rare import. The clinical picture is typically that of a gradually worsening diarrhoea, which if untreated persists for a few weeks then subsides but may recur at irregular intervals. The stools are liquid, faecal, and bloody. The diagnosis may be missed unless fresh warm stools are examined promptly to show the characteristically motile amoebic trophozoites with ingested red blood cells. The amoebas stop moving on cooling and assume a round shape in stale stool specimens and thus become difficult to identify. In less severe cases the diagnosis is best achieved by prompt microscopy of the curettage material obtained during endoscopy.

Although the presence of typical amoebic ulcers with undermined edges and intervening normal mucosa will facilitate clinical diagnosis, the appearance at sigmoidoscopy is often indistinguishable from other causes of colitis— infective or non-infective. A high index of suspicion is necessary as injudicious use of corticosteroids may have disastrous consequences.

#### Treatment

Metronidazole 800 mg, three times a day for five days will usually effect a prompt clinical cure, but a luminal amoebicide such as diloxanide furoate 0.5 g, three times a day for five days is needed to eradicate the infection.

## Bacillary dysentery



Barium enema radiograph in a returning traveller with bloody diarrhoea. Sigmoidoscopy showed florid colitis. Ulcerative colitis was initially suspected because of two negative stool cultures but this third stool specimen proved positive for *Sh flexneri*.

Bacillary dysentery is caused by shigella organisms. Of the four recognised species of shigella (*Sh sonnei*, *Sh flexneri*, *Sh dysenteriae*, *Sh boydii*) *Sh sonnei* is commonest in Britain, but tropically acquired infections are usually due to *Sh flexneri* and occasionally to *Sh dysenteriae* type 1 (Shiga's bacillus). The resultant illness is usually more severe than Sonne dysentery, with numerous bloody stools and pronounced tenesmus. Dysentery caused by *Sh dysenteriae* may be complicated by the development of necrotising enterocolitis with toxic megacolon or perforation.

Antibiotics are indicated for severe shigella dysentery. The organisms are often resistant to commonly used antibiotics such as ampicillin and co-trimoxazole. One of the 4-quinolones, ciprofloxacin, is the drug of choice in adults, but in children 4-quinolones are not generally used because of their propensity to cause damage to cartilage in growing animals (this has not been reported in humans). Nalidixic acid or other antibiotics may be used instead but guidance about sensitivity of the bacteria is important. Rarely patients require an operation for perforative disease.

## Salmonella and campylobacter enterocolitis



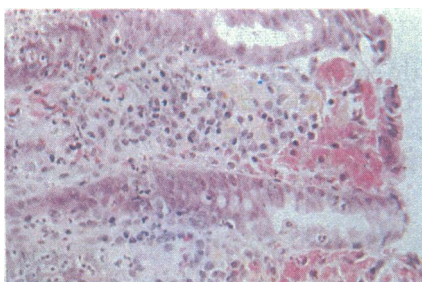
Megacolon in a patient with salmonella colitis.

Salmonella and campylobacter organisms are common causes of bacterial diarrhoea worldwide and may affect a traveller to a tropical country. The illness begins abruptly with fever, headache, vomiting, and colicky abdominal pain and the passage of large volume, watery, often bloodstained stools, but at times the motions are frankly bloody owing to prominent colonic involvement. Ileocaecal involvement may mimic appendicitis. The presence of toxic dilatation or segmental colitis may confuse the diagnosis by suggesting underlying non-specific inflammatory bowel disease.

Sigmoidoscopy has limited discriminatory value in differentiating infective colitis from inflammatory bowel disease. Early rectal biopsy may not be helpful in distinguishing between infective colitis and the initial presentation of inflammatory bowel disease as the histological features associated with ulcerative colitis are often clearly seen only after some weeks. Repeat biopsy 6-10 weeks after the onset of symptoms, however, will usually clarify the diagnostic dilemma as by this time either the appearances will have resolved or features of chronicity will have become apparent.

### Histological features in acute and chronic colitis

	Acute colitis	Chronic ulcerative colitis
Cellular infiltrate		
Polymorphs	++	±
Mononuclear	±	++
Distortion of crypts	-	++
Mucus depletion	±	++



Histological slide of a rectal biopsy specimen in a patient with campylobacter colitis (haematoxylin and eosin stain used; magnification  $\times 75$ ).

### Treatment

Antibiotics are not usually indicated for salmonella or campylobacter infections. The illnesses are short lived and usually settling by the time of bacteriological diagnosis. However, bacteraemia often complicates salmonella infections in elderly people and young children and these patients should receive antibiotics. Patients with severe colitis should also be treated. For salmonellosis ciprofloxacin is the drug of choice in adults but in children a third generation cephalosporin such as cefotaxime may be used.

In cases of campylobacteriosis erythromycin is the drug of choice. Ciprofloxacin is useful in eradicating the organisms in carriers of salmonella.



# Schistosomiasis

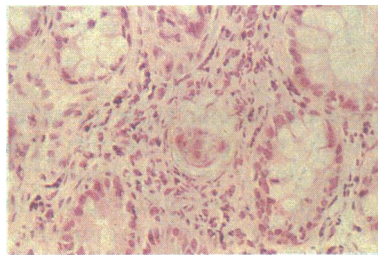
The diagnosis of intestinal schistosomiasis is based on showing the presence of eggs in faeces or in rectal biopsy specimens

There are three common schistosoma organisms. *Schistosoma haematobium* affects the bladder, but the large bowel venules are the preferred site for laying eggs by the adult females of both *Sch mansonii*, prevalent in Africa, the Caribbean, and South America, and *Sch japonicum* prevalent in large parts of south east Asia. The trapped eggs in the tissues lead to granulomatous reaction. Most patients have few or no symptoms, though some may have mild diarrhoea with blood in the early stages.



*Schistosoma mansoni* eggs in faeces. Note the typical lateral spine (magnification  $\times 480$ ).

In severe infection granulomas in the large bowel mucosa may develop into visible polyps, which may ulcerate and produce dysentery-like symptoms later. In longstanding and recurrent infections the liver becomes enlarged from the large number of eggs reaching it through the portal circulation. This ultimately leads to hepatic fibrosis, portal hypertension, and splenomegaly.



Histological slide of a rectal biopsy specimen in a patient with *Schistosoma mansoni* infection showing a trapped egg (haematoxylin and eosin stain used; magnification  $\times 75$ ).

### Treatment

Praziquantel is effective in all forms of schistosomiasis and is the treatment of choice. It is given as a single dose of 40 mg/kg.

## Rare infective colitides

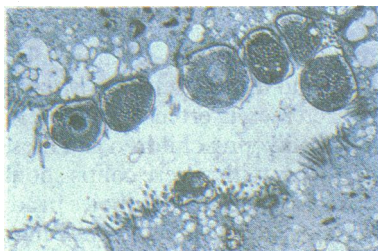
### Causes of infective colitis

- Salmonella* species
- Shigella* species
- Campylobacter* species
- Entamoeba histolytica*
- Balantidium coli*
- Enterohaemorrhagic *Escherichia coli*
- Enteroinvasive *Escherichia coli*
- Clostridium difficile*
- Plesiomonas shigelloides*
- Aeromonas hydrophila*
- Yersinia enterocolitica*
- Mycobacterium tuberculosis*
- Gonococci
- Chlamydia* species
- Cytomegalovirus
- Herpes simplex virus

*Yersinia enterocolitica* is a fairly common cause of acute diarrhoea in many parts of the world, including the tropics, but is quite uncommon in Britain. Enteritis or ileitis are the usual manifestations, but colonic inflammation may be present. The diagnosis is made by isolating the organism from the faeces or by showing there are antibodies to it in the serum.

Certain strains of *Escherichia coli* are invasive and may produce a dysentery-like picture. Their prevalence in the tropics is unclear.

*Plesiomonas shigelloides* and *Aeromonas hydrophila* have recently joined the growing list of organisms known to be capable of producing colitis and can be contracted in the tropics as well as in temperate climates.



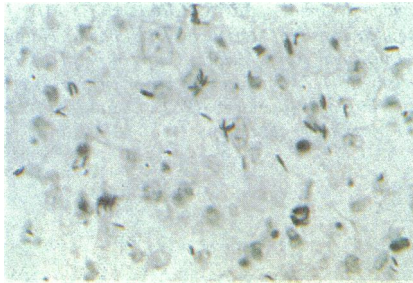
Electron micrograph of a rectal biopsy specimen in a patient with cryptosporidial diarrhoea. The organisms are on the cell surface (magnification  $\times 5500$ ).

*Cryptosporidium* has also recently emerged as a common cause of diarrhoea worldwide. They are protozoa which primarily affect the small intestine, causing watery diarrhoea, but may also be seen in rectal biopsy specimens.

*Balantidium coli* is a common parasite of animals which may rarely produce ulcerative colonic disease in humans.



Barium enema radiograph in a patient with hypertrophic ileocaecal tuberculosis. Note the shortening of the ascending colon and the dilated ileum.



Black and white photomicrograph of tuberculosis caecum. Organisms are shown as black rods (Ziehl-Neelsen stain used)—they would be red in a colour reproduction.



Barium enema radiograph showing carcinoma of the colon. This patient presented with diarrhoea after foreign travel and hence was suspected of having a tropical infection.

### *Tuberculosis*

Tuberculosis must be suspected in Asians with abdominal pain and chronic diarrhoea. It most commonly affects the ileocaecum and requires differentiation from Crohn's disease. The rectum may be affected and the disease may present as an ischiorectal abscess or ulcerative proctocolitis.

### *Chagas' disease*

Chagas' disease is endemic in Brazil and in other areas of South America. The parasites destroy the ganglion cells of the gut, resulting in enteromegaly, in particular megaesophagus and megacolon. Chronic progressive dysphagia and constipation are the usual manifestations and are often present for several years before the typical dilatation occurs.

The heart is commonly affected, leading to cardiomegaly and arrhythmia, which may result in sudden death.

### *Lymphogranuloma venereum*

Lymphogranuloma venereum is a sexually transmitted disease, prevalent in the tropics and subtropics, caused by chlamydia group A organisms. Genital ulcers and associated painful inguinal glands, which may suppurate, are the usual presenting features, but proctitis may develop later and produce fibrotic rectal strictures. Formation of a perirectal abscess or a fistula may complicate the picture.

The diagnosis is usually made by serological testing or isolation of the organism, or both. Tetracycline controls the infection but surgery may be necessary in patients with chronic disease with suppurative or fibrotic complications.

### *Differential diagnosis*

Relapse of diarrhoea in a returned traveller may be due to colitis caused by *Clostridium difficile* after taking antibiotics while abroad either as prophylaxis or for treating traveller's diarrhoea.

It should not be forgotten that diarrhoea in patients returning from the tropics may have non-infective causes. Each year we see examples of carcinoma of the colon, ulcerative colitis, Crohn's disease, and diverticulitis presenting as diarrhoea after foreign travel. Furthermore, the presence of an infective organism may be a concurrent event. In patients with persisting bloody diarrhoea underlying inflammatory bowel disease should be considered.

We thank Dr G C Cook for providing the photomicrograph of *Ent histolytica* and the picture of *Sch mansonii* eggs.

Dr B K Mandal is consultant physician, department of infectious diseases and tropical medicine, Monsall Hospital, Manchester, and Mr P F Schofield is consultant surgeon, Withington Hospital, Manchester.

The ABC of Colorectal Diseases has been edited by Mr D J Jones and Professor M H Irving, department of general surgery, Hope Hospital, Salford.