Symptoms and signs of lower gastrointestinal disease

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Abstract

Symptoms of lower gastrointestinal (GI) disease are common and frequently trigger consultation in primary and secondary care. Diarrhoea, abdominal pain and constipation are presentations of a wide range of different underlying pathologies, from chronic, benign, functional conditions to acutely life-threatening emergencies. Lower GI bleeding is often due to serious pathology and requires rational investigation based on a systematic clinical assessment. Extra-intestinal manifestations of lower GI disease can often give a clue to the underlying diagnosis. In this contribution, we review the aetiology, clinical features, investigations and management for a range of lower GI symptoms, namely diarrhoea, constipation, lower GI bleeding, bloating and abdominal pain.

Keywords abdominal pain; bloating; constipation; diarrhoea; lower GI bleeding

Diarrhoea

Definition

The strict definition of diarrhoea is stool volume of more than 200 ml per day, or a stool frequency of more than three times per day. This is widely accepted as the technical definition of diarrhoea and is frequently used in clinical studies. However, it may be of less utility in the clinical assessment of an individual patient. A simpler and less arbitrary definition is 'a decrease in consistency or increase of liquidity of stool'; this is widely accepted in clinical practice and accords well with what patients understand by 'diarrhoea'. Diarrhoea is defined as acute when it has been present for less than 4 weeks, chronic if longer. Chronic diarrhea prevalence in the developed world is approximately 5% in symptom questionnaire population studies.

Aetiology and classification

There are four mechanisms of diarrhoea:
- reduced absorption of osmotically active substances
- abnormal secretion
- inflammatory damage to the mucosa
- reduced transit time.

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Most diarrhoeal conditions result from a combination of these processes.

It is useful to classify diarrhoea as acute or chronic to narrow the differential diagnosis and allow rational investigation (Table 1).

Important clinical features

A detailed history is essential. The onset, duration, frequency, and volume of stool should be estimated. Bloody diarrhoea with pus or mucus suggests a predominantly inflammatory process. A bulky, greasy, foul-smelling stool is highly suggestive of steatorrhoea. Urgency to defaecate is a feature of proctitis, particularly when associated with blood or pus *per rectum*, as is tenesmus. Nocturnal symptoms, continuous symptoms, duration of over 3 months and significant weight loss all point to an organic rather than a functional process. Associated symptoms, such as abdominal pain, bloating, nausea and vomiting, should be sought.

A history of HIV disease or other immunosuppressant states should trigger investigation for an infective cause, including atypical organisms. Radiotherapy to the abdomen or pelvis, or previous bowel surgery can lead to bacterial overgrowth. A history of biliary or small bowel surgery raises the possibility of bile salt malabsorption. Individuals with diabetes are prone to dysmotility or bacterial overgrowth. Recent antibiotic use predisposes to *Clostridium difficile* infection. The drug history may be relevant as many commonly prescribed medications can cause diarrhea (Table 2), as can recreational drugs, such as alcohol and cocaine. A history of dietary indiscretion or foreign travel may point towards an infective cause. Anal intercourse can lead to herpes simplex virus or gonococcal proctitis. Long-standing alcohol excess may indicate an underlying pancreatic abnormality.

A family history of inflammatory bowel disease (IBD) or gastrointestinal (GI) malignancy should be sought. General examination may reveal jaundice, hepatomegaly, cachexia or extraluminal signs of GI disease that may give clues to the cause of the diarrhoea. A palpable mass may result from malignancy or Crohn's disease. Fluid status should be checked carefully, and dehydration, sepsis, peritonism or shock should be recognized and treated promptly.

Investigations

Uncomplicated acute diarrhoea requires no investigation, but simply supportive measures. Severe or prolonged symptoms should trigger stool microscopy and culture. Full blood count, erythrocyte sedimentation rate, and serum C-reactive protein and albumin should be measured. Flexible sigmoidoscopy and biopsy, and plain abdominal radiography are necessary in those patients with bloody diarrhoea, systemic disturbance or significant abdominal tenderness, and in those whose symptoms do not settle promptly.

Investigation of chronic diarrhoea is guided by the history and likely underlying diagnosis. Further blood tests include anti-endomysial or anti-tissue transglutaminase antibodies (for coeliac disease), amoebic serology, thyroid function tests (TFTs), iron studies, and serum folate and vitamin B_{12}.

Colonoscopy to exclude colonic neoplasia is almost mandatory in patients over the age of 45 with persistent diarrhoea.

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Causes of acute and chronic diarrhoea

Acute	Chronic
• Infection	• Infections
○ Viral (adenovirus, norovirus, rotavirus)	○ *Giardia*
○ Bacterial (*Campylobacter*, *Escherichia coli*, *Shigella*, *Clostridium difficile*)	• Drugs (Table 2)
• Drugs	• Malabsorption
• Ischaemic colitis	○ Coeliac disease
• Inflammatory bowel disease	○ Pancreatic insufficiency
	○ Short bowel syndrome
	○ Bile salt malabsorption
	○ Bacterial overgrowth
	• Inflammatory bowel disease
	○ Ulcerative colitis
	○ Crohn's disease
	• Collagenous colitis
	• Eosinophilic colitis
	• Metabolic disease
	○ Diabetes mellitus
	○ Hyperthyroidism
	• Neoplastic
	○ Bowel cancer
	○ Pancreatic cancer
	○ Carcinoid, VIPoma, medullary cancer of the thyroid
	• Functional
	○ Irritable bowel syndrome
	○ Faecal impaction
	○ Iatrogenic anal sphincter damage
	○ Purgative abuse
	○ Idiopathic chronic diarrhoea

Table 1

Younger patients with associated red-flag features, such as weight loss, bleeding *per rectum* or anaemia, also warrant full colonoscopy to exclude colonic neoplasm or inflammatory bowel disease. In very elderly patients, or those with extensive co-morbidity, computed tomographic (CT) pneumocolonography is a less invasive test that can reliably exclude colonic neoplasm. However, it does not offer the same sensitivity for mucosal disease or very small lesions. In young patients with typical features of functional bowel disease, normal physical examination and normal blood screen, no further investigation is necessary. Measuring faecal calprotectin, a white cell protein that is elevated by intestinal inflammation and neoplasia, can further help reduce unnecessary colonoscopy in low-risk cases. Small bowel imaging, with magnetic resonance (MR) enterography or barium follow-through should be undertaken in patients with suspected small bowel disease such as Crohn's disease.

Repeat stool microscopy and culture should be sent. A 3-day stool collection can be performed and a volume of 200 ml/day (roughly equivalent to a mass of 200 g) or less is highly suggestive of a functional disorder. A sample can be sent to measure faecal elastase, to assess pancreatic exocrine function. Any suspicion of factitious diarrhoea should trigger a laxative screen.

In patients with symptoms of malabsorption, CT imaging of the pancreas may be undertaken to exclude pancreatic pathology and hydrogen methane breath testing to exclude lactose intolerance, fructose malabsorption and bacterial overgrowth.[1] The gold standard for proving steatorrhoea is the 3-day stool collection on a controlled fat intake to measure the coefficient of fat absorption. However, this test is quite unreliable if not correctly collected and is not undertaken in many hospitals because it is unpleasant for laboratory staff to perform. Most institutions now make do with pancreatic faecal elastase measurements or, where available, the ^{13}C-mixed triglyceride breath test.[2] A 23-seleno-25-homo-tauro-cholic acid (SeHCAT) scan can exclude bile salt malabsorption, an underdiagnosed cause of chronic diarrhoea. Enteropathies such as coeliac disease can be confirmed by endoscopy with duodenal biopsy. A trial of empirical treatment with, for example, pancreatic supplements or a bile salt sequestrant, may be necessary when no obvious cause is demonstrated, or when ready access to appropriate investigations is not available.

Constipation

This is a common lower GI complaint with an estimated prevalence of 2−28%. Most cases can be managed successfully with reassurance and dietary advice.

Definition

A number of symptoms can be used to define constipation, and patients will often complain of a combination of the following:
- infrequent stools (<3 per week)
- difficult passage of hard stool
- need for manual manoeuvres, including digitation of rectum and/or vagina, to aid evacuation
- sense of incomplete defecation (tenesmus)
- excessive straining or time spent on the toilet (more than 4−5 minutes).

Absolute constipation is the inability to pass stool or flatus *per rectum*, which is suggestive of bowel obstruction, particularly if accompanied by concurrent vomiting, and is a medical emergency.

Common drugs that can cause diarrhoea

- Antibiotics
- Digoxin
- Selective serotonin re-uptake inhibitors (SSRIs)
- Lithium
- Metformin
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Proton pump inhibitors (PPIs)
- Ranitidine
- Statins
- 5-Aminosalicylates (5-ASAs)

Table 2