ABSTRACT
There is a huge range of lower gastrointestinal conditions that could give rise to numerous forms of symptoms. The purpose of this approach is not to list and regurgitate every single one of them (that could be found in almost all standard comprehensive textbooks) but to suggest a systematic approach when examining a patient who present with associated symptoms. A few important and relevant tables and flow charts have also been added on to aid in the management.

The commonest symptoms presented to the family physician by patients with lower gastrointestinal conditions would include constipation, diarrhoea, lower abdominal pain as well as lower gastrointestinal bleeding. As such, I will be presenting the approaches as follow:

1) What to look out for in a patient with:
   a. Lower abdominal pain
   b. Chronic diarrhoea
   c. Chronic constipation

2) Symptoms and signs of lower gastrointestinal bleeding

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WHAT TO LOOK FOR IN A PATIENT WITH LOWER ABDOMINAL PAIN
This is a very common presenting symptom. It is frequently a benign symptom but could also herald serious acute pathology.

History
It is very important to elicit a detailed history as this can suggest source of abdominal pain. Pain can be categorized into:

Nature of pain
- Visceral pain – usually dull, aching though can be colicky. Often poorly localized. Arises from distension or spasm of a hollow organ (e.g. cholecystitis).
- Parietal pain – sharp, well localized. Arises from peritoneal irritation e.g. appendicitis with inflammation spread to parietal peritoneum.
- Referred pain – aching and perceived to be near the body surface.

Location
Appendicitis classically produces pain in right iliac fossa (or periumbilical pain initially). Diverticulitis usually present as left iliac fossa pain.

Pain radiation
Pancreatitis pain usually radiates to the back; ureteric pain usually radiates from loin to groin.

Onset
Viscus rupture pain (e.g. abdominal aortic aneurysm rupture) is usually abrupt and maximal from onset. Pancreatitis pain is typically gradual and steady.

Quality
Colicky (intestinal obstruction or gastroenteritis). Gnawing pain may suggest peptic ulcer disease.

Severity
Renal or biliary colic are usually of high intensity. Gastroenteritis pain is usually less marked.

Aggravating or relieving factors
Mesenteric ischaemia usually starts within one hour of eating whereas duodenal ulcer is usually relieved by food and aggravated by hunger. Pancreatitis pain is classically relieved by sitting up and leaning forward. Patient with peritonitis often lie motionless on their back.

Associated symptoms
Symptoms of weight loss, gastric outlet obstruction or change in bowel habit should be elicited from patient’s history.

Female patients
Details regarding menstrual history and, if relevant, sexual activity may be relevant.

Extra-abdominal causes of acute lower abdominal pain
Porphyria, radiculitis, Henoch Schonlein purpura, narcotic withdrawal, heat stroke.

Physical Examination

General inspection
- Is patient writhing in agony or motionless?
  – Opiate administration may alter physical findings but does not cause management errors¹
- Vital signs
- Hydration status, jaundice, pallor
**Abdominal examination**
- Inspection
- Superficial and deep palpation
  - Guarding, rigidity, rebound tenderness
  - Abdominal wall pathology (pain when sitting up)
- Percussion
- Shifting dullness
- Auscultation – bowel sounds, bruit
- Per rectal or per vaginal examination

**WHAT TO LOOK OUT FOR IN A PATIENT WITH CHRONIC DIARRHOEA**
Definition of diarrhoea is traditionally based on frequency, volume and consistency but relationship between these variables and patients’ perception is variable. American Gastroenterological Association defined chronic diarrhoea as decrease in faecal consistency for at least 4 weeks.

As with abdominal pain, there is a myriad of disorders associated with chronic diarrhoea. Again the importance of a detailed history taking as well as an adequate physical examination cannot be over-emphasised.

**WHAT TO LOOK OUT FOR IN A PATIENT WITH CHRONIC CONSTIPATION**
Usually defined as stool frequency of less than 3 times per week based on epidemiological studies in US and UK. Others may include symptoms of hard stools, small stool caliber or difficult defaecation as constipation.

Numerous diseases associated with constipation are listed in Table 4. Patients with constipation predominant or mixed pattern irritable bowel syndrome also usually experience such constipation.

**Evaluation**
Again a careful history taking and physical examination are important. A systematic review concluded that there was insufficient evidence to support the routine use of blood tests (including serum calcium and thyroid function tests), radiography or endoscopy in the routine evaluation of patients with constipation without alarm features such as haematochezia, weight loss, family history of colon cancer or inflammatory bowel disease, anaemia, positive faecal occult blood tests or acute onset of constipation in elderly patients.

History taking should include a detailed drug history (if any), systemic or neurological disorders, associated alarm symptoms.

**Physical examination**
Abdominal examination might elicit abdominal distension or mass. Bowel sounds activity may be helpful to the diagnosis. Peripheral examination to exclude pallor or lymph nodes are obviously important. Per rectal examination is important to diagnose anal fissure, haemorrhoids, gaping or asymmetric anal opening, etc.

If secondary causes of constipation have been ruled out and the symptom remains unresponsive to standard treatment, referral to a gastroenterologist for a detailed workout may be appropriate and beneficial.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Onset</th>
<th>Location</th>
<th>Character</th>
<th>Description</th>
<th>Radiation</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendicitis</td>
<td>Gradual</td>
<td>Periumbilical early; RIF late</td>
<td>Diffuse early, localized late</td>
<td>Aching</td>
<td>RIF</td>
<td>Moderate</td>
</tr>
<tr>
<td>Diverticulitis</td>
<td>Gradual</td>
<td>LIF</td>
<td>Localised</td>
<td>Aching</td>
<td>None</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Mesenteric ischaemia/ infarction</td>
<td>Sudden</td>
<td>Periumbilical</td>
<td>Diffuse</td>
<td>Agonising</td>
<td>None</td>
<td>Severe</td>
</tr>
<tr>
<td>Ruptured abdominal aortic aneurysm</td>
<td>Sudden</td>
<td>Abdominal, back, flank</td>
<td>Diffuse</td>
<td>Tearing</td>
<td>Back, flank</td>
<td>Severe</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>Gradual</td>
<td>Periumbilical</td>
<td>Diffuse</td>
<td>Spasmodic</td>
<td>None</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Pelvic inflammatory disease</td>
<td>Gradual</td>
<td>Iliac fossa or pelvis</td>
<td>Localised</td>
<td>Spasmodic, aching</td>
<td>None, upper thigh</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ruptured ectopic pregnancy</td>
<td>Sudden</td>
<td>Iliac fossa or pelvic</td>
<td>Localised</td>
<td>Spasmodic, aching</td>
<td>None</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Table 1: Comparison of common causes of acute lower abdominal pain**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Location</th>
<th>Character</th>
<th>Description</th>
<th>Radiation</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendicitis</td>
<td>Terminal ileitis, Crohn’s disease, Ectopic pregnancy, tuboovarian disorders, renal disorders, right ureteric calculus, pyelonephritis, pyogenic sacroileitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left lower quadrant</td>
<td>Acute diverticulitis, infective or inflammatory colitis, pyogenic sacroileitis, tubo-ovarian disorders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diffuse abdominal pain</td>
<td>Peritonitis, appendicitis, diverticulitis, IBD, perforated peptic ulcer, haemorrhagic pancreatitis, post-operative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Flow chart 1: Evaluation and management of chronic diarrhoea

History
- Onset
  - Congenital
  - Abrupt
  - Gradual
- Pattern
  - Continuous
  - Intermittent
- Duration
  - Epidemiology
    - Travel
    - Food
    - Water
- Stool characteristics
  - Watery
  - Bloody
  - Fatty
  - Incontinence
- Abdominal pain
  - Inflammatory bowel disease
  - Irritable bowel syndrome
  - Ischemia
- Weight loss
  - Malabsorption
  - Neoplasm
- Aggravating factors
  - Diet
  - Stress
- Mitigating factors
  - Diet
  - OTC drugs
  - Rx drugs
- Previous evaluation
- Iatrogenic diarrhea
  - Drugs
  - Radiation
  - Surgery
- Factitious diarrhea
  - Laxatives
- Systemic diseases
  - Hyperthyroidism
  - Diabetes mellitus
  - Collagen-vascular diseases
  - Tumor syndromes
  - AIDS
  - Ig deficiencies

Physical examination
- General
  - Fluid balance
  - Nutrition
- Skin
  - Flushing
  - Flashes
  - Dermatographism
- Thyroid
  - Mass
- Chest
  - Wheezing
- Heart
  - Murmur
- Abdomen
  - Hepatomegaly
  - Mass
  - Ascites
  - Tenderness
- Anorectal
  - Sphincter competence
  - Fecal occult blood test
- Extremities
  - Edema

Routine laboratory tests
- Complete blood count
  - Anemia
  - Leukocytosis
- Chemistry screen
  - Fluid/electrolyte status
  - Nutritional status
  - Serum protein/globulin

Stool analysis
- Weight
- Electrolytes
- pH
- Carbohydrate malabsorption
- Fecal occult blood test
- Stool WBCs
- Fat output
- Laxative screen

Categorize
- Watery diarrhea
  - Secretory
  - Osmotic
- Inflammatory diarrhea
- Fatty diarrhea

Systemic diseases
- Hyperthyroidism
- Diabetes mellitus
- Collagen-vascular diseases
- Tumor syndromes
- AIDS
- Ig deficiencies
Flow chart 2: Evaluation based on various classification of chronic diarrhoea

- **Secretory diarrhea**
  - Exclude infection
    - Bacterial pathogens
      - "Standard"
      - Aeromonas
      - Plesiomonas
    - Other pathogens
      - "Standard" ova + parasites
      - Coccidia
      - Microsporidia
      - Glardia antigen
    - Exclude structural disease
      - Small-bowel radiographs
      - Sigmoidoscopy or colonoscopy with biopsy
      - CT scan of abdomen
      - Small-bowel biopsy and aspirate for quantitative culture
      - Selective testing
        - Plasma peptides
          - Gastrin
          - Calcitonin
          - VIP
          - Somatostatin
        - Urine
          - 5-HIAA
          - Metanephrines
          - Histamine
      - Cholestyramine trial for bile acid diarrhea

- **Osmotic diarrhea**
  - Stool analysis
  - Low pH
    - Carbohydrate malabsorption
  - High Mg output
    - Inadvertent ingestion
    - Laxative abuse
    - Dietary review
    - Breath H₂ test (lactose)
    - Lactase assay

- **Inflammatory diarrhea**
  - Exclude structural disease
    - Small-bowel radiographs
    - Sigmoidoscopy or colonoscopy with biopsy
    - CT scan of abdomen
    - Small-bowel biopsy
  - Exclude infection
    - Bacterial pathogens
      - "Standard"
      - Aeromonas
      - Plesiomonas
      - Tuberculosis
    - Other pathogens
      - Parasites
      - Viruses
    - Fatty diarrhea
      - Exclude structural disease
    - Fatty diarrhea
      - Exclude structural disease
      - Small-bowel radiographs
      - CT scan of abdomen
      - Small-bowel biopsy and aspirate for quantitative culture
      - Exclude pancreatic exocrine insufficiency
      - Secretin test
      - Bentiromide test
      - Stool chymotrypsin activity

- **Secretory diarrhea**
  - Exclude infection
    - Bacterial pathogens
      - "Standard"
      - Aeromonas
      - Plesiomonas
    - Other pathogens
      - "Standard" ova + parasites
      - Coccidia
      - Microsporidia
      - Glardia antigen
### Table 3: Major causes of chronic diarrhoea characterised by typical stool characteristics³

<table>
<thead>
<tr>
<th>Osmotic diarrhoea</th>
<th>Secretory diarrhoea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mg, P04, S04 ingestion</td>
<td>Laxatives abuse (non-osmotic laxatives)</td>
</tr>
<tr>
<td>Carbohydrate ingestion</td>
<td>Post cholecystectomy (from bile salts)</td>
</tr>
<tr>
<td>Congenital syndrome</td>
<td>Congenital syndrome (chloridorhoea)</td>
</tr>
<tr>
<td>Bacterial toxins</td>
<td>Lactic acidosis</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>Inflammatory bowel disease</td>
</tr>
<tr>
<td>Crohn's disease</td>
<td>Post resection diarrhoea</td>
</tr>
<tr>
<td>Small bowel bacterial overgrowth</td>
<td>Microscopic (lymphocytic) colitis</td>
</tr>
<tr>
<td>Mesenteric ischaemia</td>
<td>Diverticulitis</td>
</tr>
<tr>
<td>Malabsorption syndrome</td>
<td>Post vagotomy diarrhoea</td>
</tr>
<tr>
<td>Fatty diarrhoea</td>
<td>Post sympathectomy diarrhoea</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>Diabetic autonomic neuropathy</td>
</tr>
<tr>
<td>Malabsorption syndrome</td>
<td>Hyperthyroidism</td>
</tr>
<tr>
<td>Malabsorption syndrome</td>
<td>Irritable bowel syndrome</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>Neuroendocrine tumour</td>
</tr>
<tr>
<td>Pseudomembranous colitis</td>
<td>Gastrinoma</td>
</tr>
<tr>
<td>Invasive bacterial infections</td>
<td>Somatostatinoma</td>
</tr>
<tr>
<td>Tuberculosis, yersinosis</td>
<td>Mastocytosis</td>
</tr>
<tr>
<td>Ulcerating viral infections</td>
<td>Carcinoid syndrome</td>
</tr>
<tr>
<td>Cytomegalovirus</td>
<td>Medullary thyroid carcinoma</td>
</tr>
<tr>
<td>Herpes Simplex</td>
<td>Colon cancer</td>
</tr>
<tr>
<td>Amoebiasis, other invasive parasites</td>
<td>Lymphoma</td>
</tr>
<tr>
<td>Ischaemic colitis</td>
<td>Villous adenoma</td>
</tr>
<tr>
<td>Radiation colitis</td>
<td>Addison's disease</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>Colon cancer</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>Lymphoma</td>
</tr>
</tbody>
</table>

### Table 4. Common Medical Conditions Associated With Constipation⁶

- Drug effects (See Table 6)
- Heavy metal poisoning
- Mechanical obstruction
- Myopathies
- Colon cancer
- Amyloidosis
- External compression from malignant lesion
- Scleroderma
- Strictures: diverticular or posts ischemic
- Neuropathies
- Rectocoele (if large)
- Post surgical abnormalities
- Parkinson's disease
- Megacolon
- Spinal cord injury or tumor
- Cerebrovascular disease
- Anal fissure
- Multiple sclerosis
- Metabolic conditions
- Other conditions
- Diabetes mellitus
- Depression
- Hypothyroidism
- Degenerative joint disease
- Hypercalcemia
- Autonomic neuropathy
- Hypokalemia
- Cognitive impairment
- Hypomagnesemia
- Immobility
- Uremsia
- Cardiac disease

### Table 5. Definitions of Constipation⁷

**Diagnostic criteria for functional constipation**

- At least 12 weeks, which need not be consecutive, in the preceding 12 months of two or more of the following:
  1) Straining in > 1/4 defecations
  2) Lumpy or hard stools in > 1/4 defecations
  3) Sensation of incomplete evacuation in > 1/4 defecations
  4) Sensation of anorectal obstruction/blockade in > 1/4 defecations
  5) Manual maneuvers to facilitate > 1/4 defecations (e.g., digital evacuation, support of the pelvic floor) and/or
  6) < 3 defecations/week

Loose stools are not present, and these are insufficient criteria for IBS.

### Table 6: Drugs associated with constipation⁶

- Analgesics
- Aluminum (antacids, sucralfate)
- Anticholinergics
- Neurally active agents
- Antihistamines
- Opiates
- Antispasmodics
- Antihypertensives
- Antidepressants
- Ganglionic blockers
- Antipsychotics
- Vinca alkaloids
- Cation-containing agents
- Calcium channel blockers
- Iron supplements
- SHT3 antagonists

---

³ Table 3: Major causes of chronic diarrhoea characterised by typical stool characteristics

⁴ Rome III diagnostic criteria for irritable bowel syndrome

⁵ Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.

⁶ Discomfort means an uncomfortable sensation not described as pain. In pathophysiology research and clinical trials, a pain/discomfort frequency of at least 2 days a week during screening evaluation for subject eligibility.

⁷ Diagnostic criteria for functional constipation
SYMPTOMS AND SIGNS OF LOWER GASTRO-INTESTINAL BLEEDING

These section is fairly straightforward as the cardinal symptom and sign of lower GI bleeding is per rectal passage of fresh blood.

This is unlike upper GI bleeding where patient usually present with malaena or maroon coloured stools. However, similar symptom may occasionally be noted in severe, torrential upper GIT bleeding.

If the lower gastrointestinal bleeding is severe, there may be associated symptoms of lethargy, weakness, giddiness, breathlessness or diaphoresis. Otherwise, most mild lower gastrointestinal bleeding is asymptomatic other than the passage of fresh blood.

Important associated signs of lower GI bleeding will include that of hypotension, tachycardia, diaphoresis, breathlessness, dehydration (reduced skin turgor), pallor, perianal pain or lump (anal fissure or haemorrhoids).

CONCLUSION

As mentioned earlier on, it is not the intention of this short paper to talk everything about lower GIT conditions. This will not be possible at all due to limitations here. However, I hope that these concise approaches will help to make diagnosis of lower GIT conditions easier and faster. Appropriate and early referral to emergency dept or gastroenterologist should be carried out if necessary after the initial diagnosis.

REFERENCES

6. AGA technical review on constipation. Gastroenterology Vol 119, No 6:1766-78.

LEARNING POINTS

- The commonest symptoms of patients with lower gastrointestinal conditions are:
  a. lower abdominal pain
  b. chronic diarrhoea
  c. chronic constipation
  d. passage of fresh blood per rectum

- In patients with constipation presence of alarm features warrants further investigations such as blood tests, radiography or endoscopy.