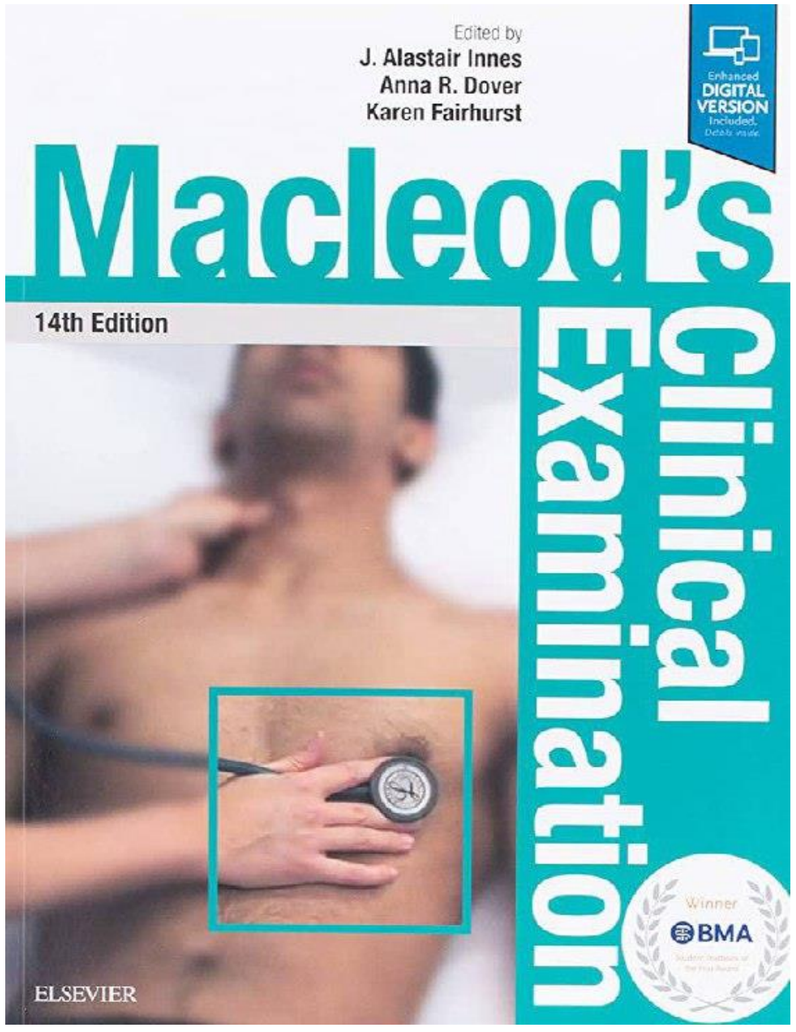


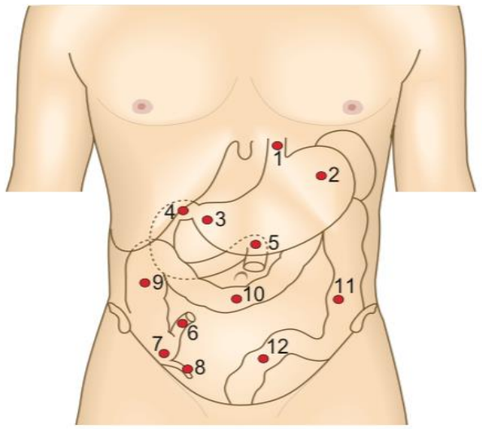
Outlines:

- Anatomy & Physiology.
- Common symptoms history.

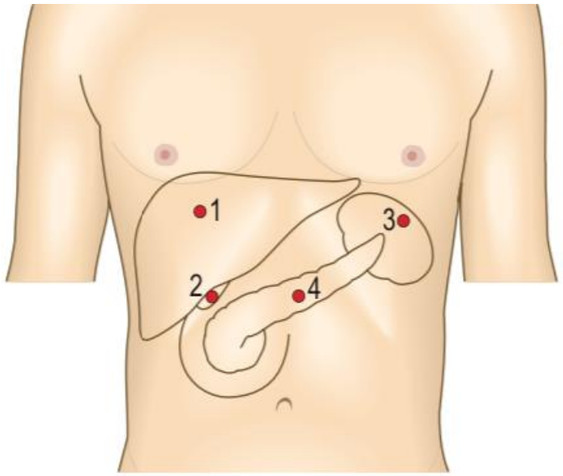
Done By: M. ALALI, MD, PH.
Introductory: Section 2, CH.6: GI History taking.
Note: This summary contains all Macleod's important notes.

For Full Material, please JOIN this WhatsApp Community:

Anatomy and physiology



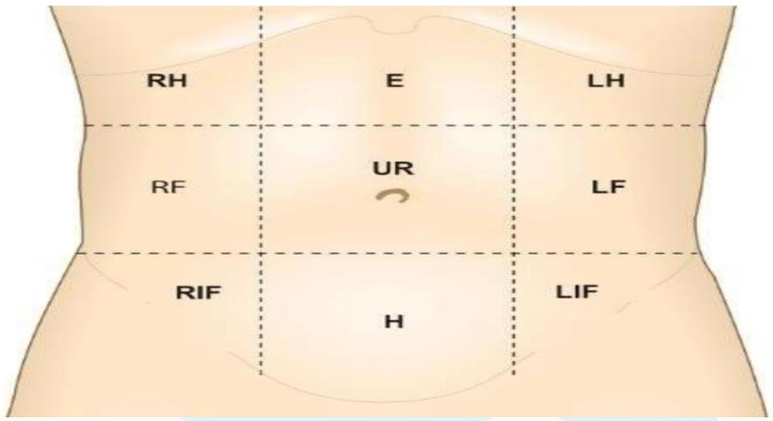
1 Oesophagus
2 Stomach
3 Pyloric antrum
4 Duodenum
5 Duodenojejunal flexure
6 Terminal ileum
7 Caecum
8 Appendix (in pelvic po:
9 Ascending colon
10 Transverse colon
11 Descending colon
12 Sigmoid colon



1 Liver
2 Gallbladder
3 Spleen
4 Pancreas

Transpyloric L1

Transtubercular L5



6.1 Surface markings of the main non-alimentary tract abdominal organs

Structure	Position
Liver	Upper border: fifth right intercostal space on full expiration Lower border: at the costal margin in the mid-clavicular line on full inspiration
Spleen	Underlies left ribs 9–11, posterior to the mid-axillary line
Gallbladder	At the intersection of the right lateral vertical plane and the costal margin, i.e. tip of the ninth costal cartilage
Pancreas	Neck of the pancreas lies at the level of L1; head lies below and right; tail lies above and left
Kidneys	Upper pole lies deep to the 12th rib posteriorly, 7 cm from the midline; the right is 2–3 cm lower than the left

The history

Common presenting symptoms:

1. Mouth symptoms.
2. Anorexia and weight loss.
3. Pain.
4. Dysphagia.
5. Nausea and vomiting.
6. Wind and flatulence.
7. Abdominal distension.
8. Altered bowel habit.
9. Bleeding.
10. Jaundice.
11. Groin swellings and lumps.

N.B:

1. Gastrointestinal symptoms are common and are often caused by functional dyspepsia and irritable bowel syndrome.

2. Symptoms suggesting a serious alternative or coexistent diagnosis include persistent vomiting, dysphagia, gastrointestinal bleeding, weight loss, painless, watery, high-volume diarrhea, nocturnal symptoms, fever and anemia.

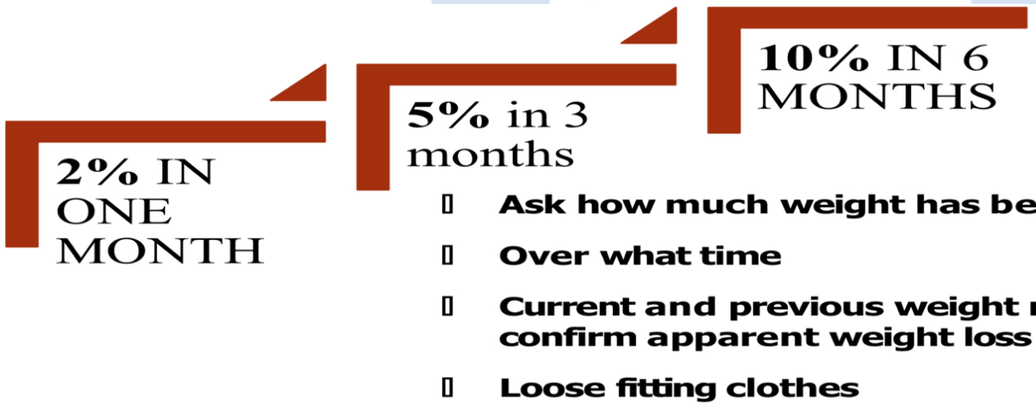
3. The risk of serious disease increases with age.

Mouth Symptoms

1. **Halitosis: Bad breath.**
2. **Dysgeusia: Altered taste sensation.**
3. **Xerostomia: Dry mouth.**
4. **Cacogeusi: A foul taste in the mouth.**

Anorexia: Anorexia is **loss of appetite and/or a lack of interest in food**. In addition to enquiring about appetite, ask 'Do you still enjoy your food?'

Weight loss (**SIGNIFICANT WEIGHT LOSS?**)



Causes of weight loss:

1. Reduced energy intake (Usually): (Dieting, loss of appetite e.g., malignancy, malabsorption, malnutrition).

2. Increased energy expenditure: (Hyperthyroidism, fever, adoption of a more energetic lifestyle).

- Energy **requirements** average **2500kcal/day for males and 2000 kcal/day for females.**
- A net calorie **deficits 1000 kcal / day** produces a weight loss of approximately **1kg/week (7000kcal≅1kg)**
- **Greater weight** loss during the **initial** stages of energy restriction arises **from salt and water loss and depletion of hepatic glycogen stores**, and not from fat loss.
- **Rapid weight loss over days** suggests **loss of body fluid as a result of vomiting, diarrhea or diuretic therapy**.

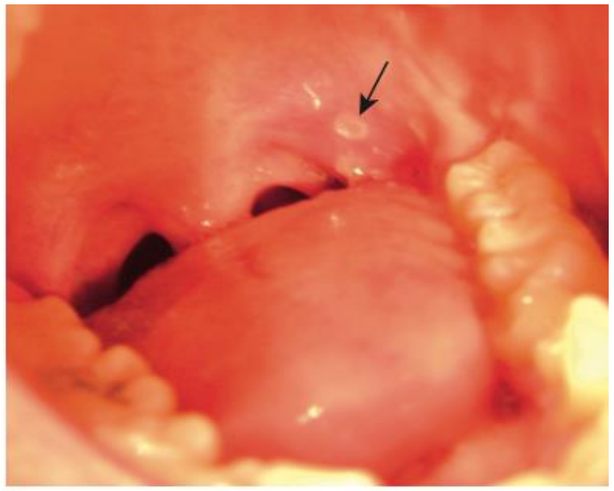
Pain

Painful Mouth

Causes of sore lips, tongue or buccal mucosa include:

- **Deficiencies**, including **iron, folate, vitamin B12 or C**.
- Dermatological disorders, including **lichen planus** (Fig. 6.3A).
- **Chemotherapy**.
- **Aphthous ulcers** (Fig. 6.3B).
- Infective stomatitis.
- **Inflammatory bowel disease and coeliac disease, associated with mouth ulcers.**

A



B

Heartburn and reflux

1. **Heartburn** is a hot, burning retrosternal discomfort which radiates upwards.
2. **Reflux** is a sour taste in the mouth from regurgitating gastric acid.
3. **Waterbrash** is the sudden appearance of fluid in the mouth due to reflex salivation as a result of GERD or, rarely, peptic ulcer disease.

• To differentiate heartburn from cardiac chest pain, ask about associated features:

1. Character of pain: burning

2. Radiation: upward

3. Precipitating factors: lying flat or bending forward

4. Associated symptoms:

• **Waterbrash** (sudden appearance of fluid in the mouth due to reflex salivation as a result of gastro-esophageal reflux disease (GERD) or, rarely, peptic ulcer disease).

• The **taste of acid appearing in the mouth** due to reflux/ regurgitation.

When heartburn is the principal symptom, **GERD is the most likely diagnosis.**

Dyspepsia

• Dyspepsia: is pain or discomfort centered in the upper abdomen.

• 'Indigestion' is a term commonly used by patients **for ill- defined symptoms from the upper gastrointestinal tract.**

• Ask about:

• Site of pain.

• Character of pain.

• Exacerbating and relieving factors, such as **food and antacid**.

• Associated symptoms, such as **nausea, belching, bloating and premature satiety.**

• Often there is no structural cause and the dyspepsia is functional. There is considerable overlap, however, **and it is impossible to diagnose functional dyspepsia on history alone without investigation**.

• Dyspepsia that is **worse with an empty stomach and eased by eating is typical of peptic ulceration**. The patient may indicate a **single localized point in the epigastrium (pointing sign), and complain of nausea and abdominal fullness that is worse after fatty or spicy meals**.

• 'Fat intolerance' is common with all causes of dyspepsia, including gallbladder disease.

Odynophagia

1. Pain upon swallowing.

2. It can be present **with or without** dysphagia, and **often precipitated by drinking hot liquids.**

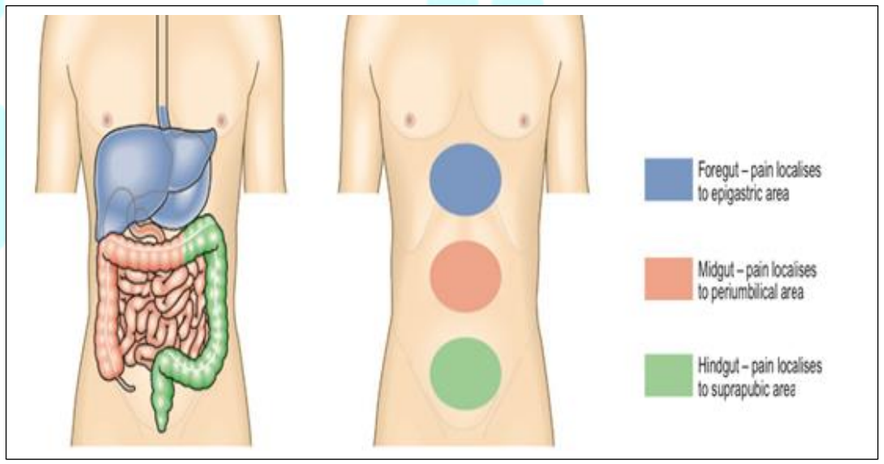
3. It **indicates** active **esophageal ulceration** or **esophagitis** from GERD or **esophageal candidiasis**.

Abdominal pain (Visceral, Somatic)

A. SITE

• Visceral abdominal pain

1. Arises from **visceral peritoneum**, distension of hollow organs, mesenteric traction or excessive smooth-muscle contraction.
2. It is **deep and poorly localized** in the **midline**.
3. It is conducted via **sympathetic splanchnic nerves**.



- **Somatic pain**

1. Arises from the **parietal peritoneum and abdominal wall.**

2. It is **lateralized and localized to the area of inflammation, and conducted via intercostal (spinal) nerves.**

3. Examples: **cholecystitis, appendicitis, diverticulitis.**

B. Onset

1. The **sudden onset** of **severe abdominal pain**, **rapidly progressing** to become generalized and constant, **suggests a hollow viscus perforation, a ruptured abdominal aortic aneurysm or mesenteric infarction.**

2. **Cecal or sigmoid volvulus** occur with **sudden abdominal pain associated with intestinal obstruction.**

C. Character

1. **Colicky pain lasts for a short time (seconds or minutes)** eases **off** and then **return**. Arises from **hollow structures** such **small and large bowel obstruction.**

2. **Dull constant vague and poorly localized** pain is **suggestive of inflammation,** e.g., **salpingitis**, **appendicitis** or **diverticulitis**.

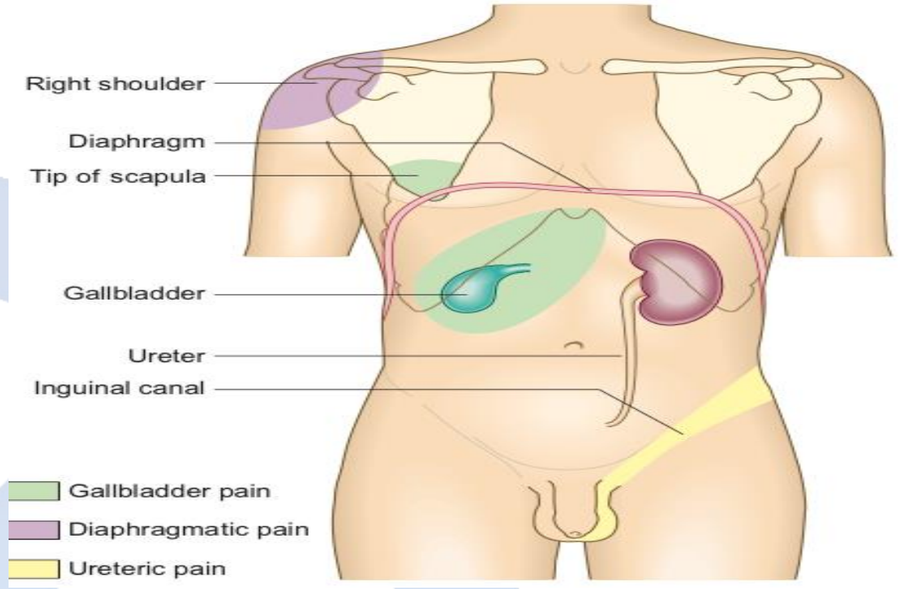
3. **Biliary colic is misnamed**, as the **pain is rarely** colicky, pain **rapidly increases to a peak and persists over period of time before gradually resolving.**

D. Radiation

• Pain from an **unpaired structure**, such as the pancreas, is midline and **radiates through to the back**.

• Pain from **paired structures**, such as renal colic, is felt on and **radiates to the affected side**.

• **Torsion of the testis** may present with **abdominal pain.** In females, consider **gynecological causes like ruptured ovarian cyst, pelvic inflammatory disease, endometriosis or ectopic pregnancy.**



• Pain radiating **from the right hypochondrium to the shoulder or interscapular region** may reflect diaphragmatic irritation, as in **acute cholecystitis.**

• Pain radiating **from the loin to the groin and genitalia** is typical of **renal colic.**

• Central upper abdominal pain **radiating through to the back,** partially **relieved by sitting forward,** suggests **pancreatitis**.

• Central abdominal pain that later **shifts into the right iliac fossa** occurs in **acute appendicitis**.

• The combination of **severe back and abdominal pain** may indicate a **ruptured or dissecting abdominal aortic aneurysm.**

E. Associated symptoms

- **Non-specific symptoms**: Anorexia, nausea and vomiting are common but may be absent even in advanced intra- abdominal disease.
- **Altered bowel habits**: IBS, CRC, Diverticular disease.
- **Breathlessness and Palpitations** – non alimentary causes (Box 6.3).
- **Tachycardia, hypotension** – sepsis or bleeding from peptic ulcer, a ruptured aortic aneurysm or an ectopic pregnancy.

6.3 Non-alimentary causes of abdominal pain

Disorder	Clinical features
Myocardial infarction	Epigastric pain without tenderness *Angor animi* (feeling of impending death) Hypotension Cardiac arrhythmias
Dissecting aortic aneurysm	Tearing interscapular pain *Angor animi* Hypotension Asymmetry of femoral pulses
Acute vertebral collapse	Lateralised pain restricting movement Tenderness overlying involved vertebra
Cord compression	Pain on percussion of thoracic spine Hyperaesthesia at affected dermatome with sensory loss below Spinal cord signs
Pleurisy	Lateralised pain on coughing Chest signs, e.g. pleural rub
Herpes zoster	Hyperaesthesia in dermatomal distribution Vesicular eruption
Diabetic ketoacidosis	Cramp-like pain Vomiting Air hunger Tachycardia Ketotic breath
Salpingitis or tubal pregnancy	Suprapubic and iliac fossa pain, localised tenderness Nausea, vomiting Fever
Torsion of testis/ovary	Lower abdominal pain Nausea, vomiting Localised tenderness

F. TIME:

- The initial chemical peritonitis may subside before bacterial peritonitis becomes established. **Such as Acute appendicitis: (Periumbilical (Visceral pain) -right iliac fossa (Somatic pain) – generalized (If perforated)). Occasionally, a localized appendix abscess develops, with a palpable mass and localized pain in the right iliac fossa.**
- **Silent interval:** 1-2 hours after perforation.
- **Change of pattern:** either **wrong diagnosis** or **complications happened**. In acute small bowel obstruction, a **change from typical intestinal colic to persistent pain with abdominal tenderness** suggests **intestinal ischemia**, as in **strangulated hernia**, and is an indication for **urgent surgical intervention.**
- **Abdominal pain persisting for hours or days:** suggests an **inflammatory disorder (appendicitis, cholecystitis, diverticulitis).**

G. Exacerbating and relieving factors:

- Pain due to **inflammation** is exacerbated by movement or coughing suggests. Patients tend to lie still in order not to exacerbate the pain.
- Patients with **colic** typically move around or draw their knees up towards the chest during painful spasms.

H. Severity:

- **Excruciating pain**, **poorly relieved by opioid analgesia**, suggests an **ischemic vascular** event e.g., **bowel infarction or ruptured abdominal aortic aneurysm.**
- **Severe pain** rapidly eased by potent analgesia is more typical of **acute pancreatitis or peritonitis secondary to a ruptured viscus.**

The acute abdomen

- The majority of general surgical emergencies **are patients with sudden severe abdominal pain (an 'acute abdomen').**
- **Seek additional information** from family or friends if severe pain, shock altered consciousness makes it difficult to obtain a history from the patient.
- Note **any relevant past history,** such as acute perforation in a patient with known diverticular disease.
- Causes range from **self-limiting to severe life-threatening** diseases (Box 6.4).
- **Evaluate patients rapidly, and then resuscitate critically ill patients immediately before undertaking further assessment** and surgical intervention.

6.4 Typical clinical features in patients with an 'acute abdomen'

Condition	History	Examination
Acute appendicitis	Nausea, vomiting, central abdominal pain that later shifts to right iliac fossa	Fever, tenderness, guarding or palpable mass in right iliac fossa, pelvic peritonitis on rectal examination
Perforated peptic ulcer with acute peritonitis	Vomiting at onset associated with severe acute-onset abdominal pain, previous history of dyspepsia, ulcer disease, non-steroidal anti-inflammatory drugs or glucocorticoid therapy	Shallow breathing with minimal abdominal wall movement, abdominal tenderness and guarding, board-like rigidity, abdominal distension and absent bowel sounds
Acute pancreatitis	Anorexia, nausea, vomiting, constant severe epigastric pain, previous alcohol abuse/cholelithiasis	Fever, periumbilical or loin bruising, epigastric tenderness, variable guarding, reduced or absent bowel sounds
Ruptured aortic aneurysm	Sudden onset of severe, tearing back/loin/abdominal pain, hypotension and past history of vascular disease and/or high blood pressure	Shock and hypotension, pulsatile, tender, abdominal mass, asymmetrical femoral pulses
Acute mesenteric ischaemia	Anorexia, nausea, vomiting, bloody diarrhoea, constant abdominal pain, previous history of vascular disease and/or high blood pressure	Atrial fibrillation, heart failure, asymmetrical peripheral pulses, absent bowel sounds, variable tenderness and guarding
Intestinal obstruction	Colicky central abdominal pain, nausea, vomiting and constipation	Surgical scars, hernias, mass, distension, visible peristalsis, increased bowel sounds
Ruptured ectopic pregnancy	Premenopausal female, delayed or missed menstrual period, hypotension, unilateral iliac fossa pain, pleuritic shoulder-tip pain, 'prune juice'-like vaginal discharge	Suprapubic tenderness, periumbilical bruising, pain and tenderness on vaginal examination (cervical excitation), swelling/fullness in fornix on vaginal examination
Pelvic inflammatory disease	Sexually active young female, previous history of sexually transmitted infection, recent gynaecological procedure, pregnancy or use of intrauterine contraceptive device, irregular menstruation, dyspareunia, lower or central abdominal pain, backache, pleuritic right upper quadrant pain (Fitz-Hugh–Curtis syndrome)	Fever, vaginal discharge, pelvic peritonitis causing tenderness on rectal examination, right upper quadrant tenderness (perihepatitis), pain/tenderness on vaginal examination (cervical excitation), swelling/fullness in fornix on vaginal examination

6.2 Diagnosing abdominal pain

	Disorder			
	Peptic ulcer	Biliary colic	Acute pancreatitis	Renal colic
Site	Epigastrium	Epigastrium/right hypochondrium	Epigastrium/left hypochondrium	Loin
Onset	Gradual	Rapidly increasing	Sudden	Rapidly increasing
Character	Gnawing	Constant	Constant	Constant colicky
Radiation	Into back	Below right scapula	Into back	Into genitalia and inner thigh
Associated symptoms	Non-specific	Non-specific	Non-specific	Non-specific
Timing Frequency/periodicity Special times	Remission for weeks/months Nocturnal and especially when hungry	Attacks can be enumerated Unpredictable	Attacks can be enumerated After heavy drinking	Usually a discrete episode Following periods of dehydration
Duration	½–2 hours	4–24 hours	>24 hours	4–24 hours
Exacerbating factors	Stress, spicy foods, alcohol, non-steroidal anti-inflammatory drugs	Eating – unable to eat during bouts	Alcohol Eating – unable to eat during bouts	–
Relieving factors	Food, antacids, vomiting	–	Sitting upright	–
Severity	Mild to moderate	Severe	Severe	Severe

Dysphagia

Patients with dysphagia complain that food or drink sticks when they swallow.

Ask about:

- **Onset:** recent or longstanding.
- **Nature**: intermittent or progressive, difficulty swallowing solids, liquids or both.
- **The level the patient feels food sticks at**
- **Any regurgitation or reflux of food or fluid.**
- **Any associated pain (odynophagia), heartburn or weight loss.**

8.7 Causes of dysphagia

Oral
- Tonsillitis, glandular fever, pharyngitis, peritonsillar abscess
- Painful mouth ulcers

Neurological
- Bulbar or pseudobulbar palsy
- Cerebrovascular accident

Neuromuscular
- Achalasia
- Pharyngeal pouch
- Myasthenia gravis
- Oesophageal dysmotility

Mechanical
- Oesophageal cancer
- Peptic oesophagitis
- Other benign strictures, e.g. after prolonged nasogastric intubation
- Extrinsic compression, e.g. lung cancer
- Systemic sclerosis

Neurological :
- liquids > solids , choking , spluttering , regurge from Nose.

Neuromuscular :
- worse for solids , improves with liquid and setting upright.

Dysmotility :
- central chest pain.

Pharyngeal pouch :
- halitosis , recurrent chest infection.

Mechanical :
- benign vs malignant , ask about associated symptoms (Such as constitutional).

Nausea/ Vomiting

Nausea is the **sensation of feeling sick.**

Vomiting is the **expulsion of gastric contents via the mouth.**

Both are associated with **pallor, sweating and hyperventilation.**

Ask about:

- **Relation to meals and timing**, such as early morning or late evening.
- **Associated symptoms,** such as dyspepsia and abdominal pain, and whether they are relieved by vomiting.
- **Color** is the vomit bile-stained (**green**), **blood**-stained or **feculent**.
- Associated **weight loss.**
- The patient's **medications**.

Suspect the cause:

1. Nausea and vomiting, particularly with abdominal pain or discomfort, suggest upper gastrointestinal disorders: example dyspepsia causes nausea without vomiting.

2. Painless vomiting: Uncomplicated peptic ulcer.

3. Projectile vomiting of large volumes of gastric content that is not bile-stained: Pyloric stenosis.

4. Bile-stained vomit: Obstruction distal to the pylorus.

5. Severe vomiting without significant pain: gastric outlet or proximal small bowel obstruction.

6. Feculent vomiting of small bowel contents (not feces): late feature of distal small bowel or colonic obstruction.

Notes:

In **peritonitis**, the **vomitus is usually small in volume but persistent.**

The **more distal the level of intestinal obstruction, the more marked the accompanying abdominal distension and colic.**

Causes of nausea and vomiting either gastrointestinal or non gastrointestinal.

Gastrointestinal causes like: Vomiting is common in gastroenteritis, cholecystitis, pancreatitis and hepatitis, it is typically preceded by nausea.

Non gastrointestinal causes:

1. Severe pain: as in renal or biliary colic or myocardial infarction.

2. Anorexia nervosa and bulimia: are eating disorders characterized by undisclosed, self-induced vomiting. In bulimia, weight is maintained or increased, unlike in anorexia nervosa, where profound weight loss is common.

3. Drugs, such as alcohol, opioids, theophyllines, digoxin, cytotoxic agents or antidepressants

4. Pregnancy.

5. Diabetic ketoacidosis.

6. Renal or liver failure.

7. Hypercalcemia.

8. Addison's disease.

9. Raised intracranial pressure (meningitis, brain tumor).

10 Vestibular disorders (labyrinthitis and Ménière's disease).

Wind and flatulence

- **Belching, excessive or offensive flatus, abdominal distension and borborygmi** (audible bowel sounds) are often called 'wind' or flatulence.
- **Belching** is due to **air swallowing (aerophagy) and has no medical significance.** It **may indicate anxiety** but sometimes **occurs in an attempt to relieve abdominal pain or discomfort, and accompanies GERD.**
- Normally, **200–2000 mL** of flatus is passed each day. Flatus is a mixture of gases derived from **swallowed** air and from colonic bacterial **fermentation** of poorly absorbed carbohydrates.

- **Excessive flatus** occurs particularly in **lactase deficiency and intestinal malabsorption.**
- **Borborygmi** result from **movement of fluid and gas along the bowel. Loud** borborygmi, **particularly if associated with colicky discomfort**, suggest **small bowel obstruction or dysmotility.**

Abdominal distention

- Abdominal girth **slowly increasing over months or years** is usually due to **obesity** but in a patient with weight loss it suggests **intra-abdominal disease.**
- The most common causes of abdominal distension are:

8.11 Causes of abdominal distension

Factor	Consider
Fat	Obesity
Flatus	Pseudo-obstruction, obstruction
Faeces	Subacute obstruction, constipation
Fluid	Ascites, tumours (especially ovarian), distended bladder
Fetus	Check date of the last menstrual period
Functional	Bloating, often associated with irritable bowel syndrome

Fig. 6.6 Abdominal distension due to ascites.

Altered Bowel Habit

Diarrhea

- **Clarify** what patients mean by diarrhea.
- They may complain **of frequent stools or of a change in consistency of the stools**.
- **Normal** frequency ranges from **three bowel movements daily to once every 3 days.**
- Steatorrhea is diarrhea associated with fat malabsorption. The stools are greasy, pale and bulky, and they float, making them difficult to flush away.

Diarrhea:

- **More than 3 times** daily or **frequent passage of loose stool**
- **Clarify: frequency vs. consistency**
- **Steatorrhea**: fat 7g/day, greasy, pale, bulky, float, difficult flush.

Ask about:

- **Onset of diarrhea**: acute, chronic or intermittent
- **Stool:** • Frequency. • Volume. • Color. • Consistency: watery, unformed or semisolid. • Contents: red blood, mucus or pus.
- **Associated features:** urgency, fecal incontinence or tenesmus (the sensation of needing to defecate, although the rectum is empty), abdominal pain, vomiting, sleep disturbance.
- **Recent travel and where to.**
- **Recent medication,** in particular any antibiotics.
- **High-volume diarrhea** (>1 L per day) occurs when stool water content is increased (the principal site of physiological water absorption being the colon) and may be:
  1. **Secretory,** due to intestinal **inflammation**, as in **infection** or **inflammatory bowel disease**.
  2. **Osmotic**, due to **malabsorption**, **drugs** (as in laxative abuse) or **motility disorders** (autonomic neuropathy, particularly in diabetes).
- **If the patient fasts (sleeping), osmotic diarrhea stops but secretory diarrhea persists.**

Causes of high-volume diarrhea:

- **Infective gastroenteritis – most common, Norovirus/ Salmonella/C.diff, if>4weeks chronic (Giardia, Amebic).**
- **IBD (Bloody).**

- **Colonic ischemia (Bloody).**
- **Colon cancer right sided.**
- **Thyrotoxicosis (secretory/ steatorrhea) and weight loss.**
- **Celiac disease (Steatorrhea).**
- **Chronic pancreatitis (Steatorrhea).**
- **Cystic fibrosis (Steatorrhea).**

Causes of low-volume diarrhea:

- **Associated with irritable bowel syndrome.**
- **Abdominal pain, bloating, dyspepsia and non-alimentary symptoms commonly accompany irritable bowel symptoms.**

Rome IV IBS Diagnostic Criteria

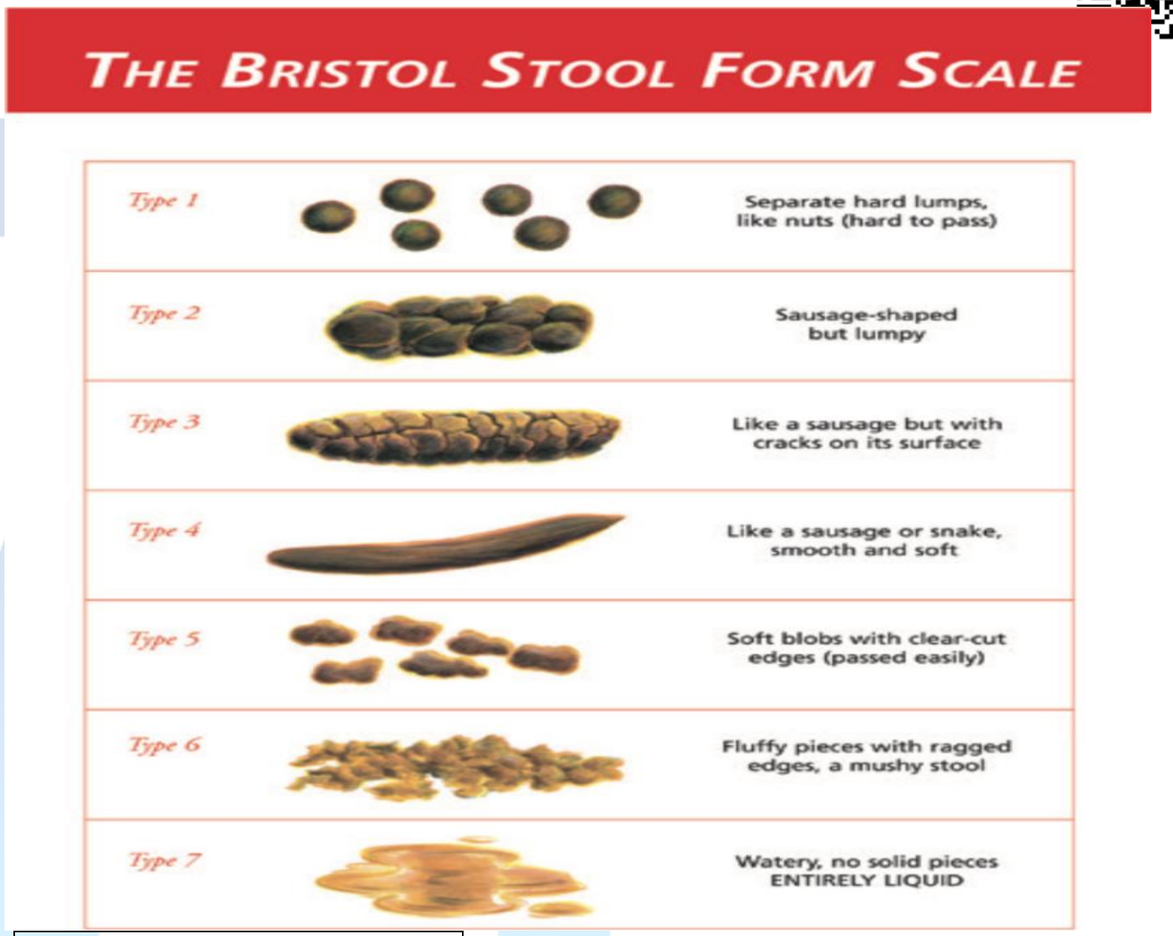
IBS is defined as recurrent abdominal pain, on average, at least 1 day per week in the last 3 months, associated with 2 or more of the following criteria:

- Related to defecation
- Associated with a change in stool frequency
- Associated with a change in stool form (appearance)

Constipation

- **Less than once in three days**
- **Clarify** what the patient means by constipation. Use the Bristol stool form scale **(Fig. 6.7) to describe the stools. Constipation is the infrequent passage of hard stools.**
- **Ask about:**
  1. **Onset:** lifelong or of recent onset
  2. **Stool frequency:** how often the patient moves their bowels each week and how much time is spent straining at stool.
  3. **Shape of the stool:** for example, **pellet**-like
  4. **Associated symptoms,** such as **abdominal pain**, **anal pain** on **defecation or rectal bleeding**.

5. Drugs that may cause constipation.



Constipation may be due to:

- **Lack of dietary fiber, impaired colonic motility, mechanical intestinal obstruction, impaired rectal sensation or anorectal dysfunction impairing the process of defecation.**
- Constipation is common **in irritable bowel syndrome**.
- Other important causes include **colorectal cancer, hypothyroidism hypercalcemia, drugs (opiates, iron) and immobility (Parkinson's disease, stroke**).
- **Absolute constipation** (no flatus or bowel movements) suggests **intestinal obstruction** and is usually **associated with pain, vomiting and distension.**
- **Fecal impaction can occasionally present as overflow diarrhea.**

Tenesmus: feeling of incomplete evacuation, suggests **rectal inflammation or cancer** (the sensation of needing to defecate although the rectum is empty).

Anesmus: **difficulty to empty the rectum despite straining** due to **paradoxical contraction of puborectalis muscle.**

Obstipation: suggests **intestinal obstruction**

Bleeding

Hematemesis: is the **vomiting of blood**.

Ask about:

- **Color**: is the vomitus **fresh red blood** or **dark brown**, resembling **coffee grounds?**
- **Onset**: was hematemesis **preceded by intense retching or was blood staining apparent in the first vomit?**
- **History of dyspepsia, peptic ulceration, gastrointestinal bleeding or liver disease.**
- **Alcohol, non-steroidal anti-inflammatory drugs (NSAIDs) and glucocorticoid ingestion.**
- If the source of bleeding is **above the gastro-esophageal sphincter,** as with esophageal varices, **fresh blood may well up** in the mouth, as well as **being actively vomited**.
- With a lower esophageal mucosal tear due to the trauma of forceful retching **(Mallory–Weiss syndrome)**, **fresh blood appears only after the patient has vomited forcefully several times.**

Melena: Is the **passage of tarry, shiny black stools with a characteristic odor and results from upper gastrointestinal bleeding.**

- **Distinguish** this from the **matt black stools associated with oral iron or bismuth therapy.**
- **Peptic ulceration (gastric or duodenal) is the most common cause of upper gastrointestinal bleeding** and can manifest with **melena, hematemesis or both.**
- **Excessive alcohol ingestion** may cause hematemesis from **erosive gastritis, Mallory–Weiss tear** or **bleeding esophagogastric varices in cirrhotic patients**.
- **Esophageal or gastric cancer and gastric Angioectasias** (Dieulafoy lesion) are rare causes of upper gastrointestinal bleeding.
- **The Rockall and Blatchford scores** are used to **assess the risk in gastrointestinal bleeding** (Box 6.5). A **profound upper gastrointestinal bleed may lead to the passage of purple stool or, rarely, fresh blood.**

6.5 Prediction of the risk of mortality in patients with upper gastrointestinal bleeding: Rockall score

Criterion	Score
Age	
<60 years	0
60–79 years	1
>80 years	2
Shock	
None	0
Pulse >100 beats per minute and systolic blood pressure >100 mmHg	1
Systolic blood pressure <100 mmHg	2
Comorbidity	
None	0
Heart failure, ischaemic heart disease or other major illness	2
Renal failure or disseminated malignancy	3
Endoscopic findings	
Mallory–Weiss tear and no visible bleeding	0
All other diagnoses	1
Upper gastrointestinal malignancy	2
Major stigmata of recent haemorrhage	
None	0
Visible bleeding vessel/adherent clot	2
Total score	
Pre-endoscopy (maximum score = 7)	Score 4 = 14% mortality pre-endoscopy
Post-endoscopy (maximum score = 11)	Score 8+ = 25% mortality post-endoscopy

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Rectal bleeding

- Establish whether the blood **is mixed with stool, coats the surface of otherwise normal stool or is seen on the toilet paper or in the pan.**
- **Fresh rectal bleeding (hematochezia) usually indicates a disorder in the anal canal, rectum or colon. During severe upper gastrointestinal bleeding,** however, blood may pass through the intestine unaltered, **causing fresh rectal bleeding.**

- Haemorrhoids
- Anal fissure
- Colorectal polyps
- Colorectal cancer
- Inflammatory bowel disease
- Ischaemic colitis
- Complicated diverticular disease
- Vascular malformation

Jaundice

- Jaundice is a **yellowish discoloration of the skin, sclera** (Fig. 6.8) and **mucous membranes caused by hyperbilirubinemia** (Box 6.6).

* There is no absolute level at which jaundice is clinically detected but, in good light, **most clinicians will recognize jaundice when bilirubin levels exceed 50 µmol/L (2.92 mg/dL).**

Ask about:

- **Associated symptoms**: abdominal pain, fever, weight loss, itching.
- **Color of stools (normal or pale) and urine (normal or dark).**
- **Alcohol intake.**
- **Travel history and immunizations.**
- **Use of illicit or intravenous drugs.**
- **Sexual history.**
- **Previous blood transfusions.**
- **Recently prescribed drugs.**

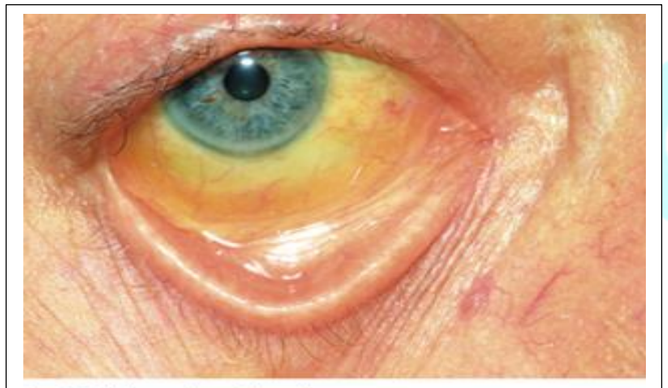


Fig. 6.8 Yellow sclera of jaundice.

6.6 Common causes of jaundice

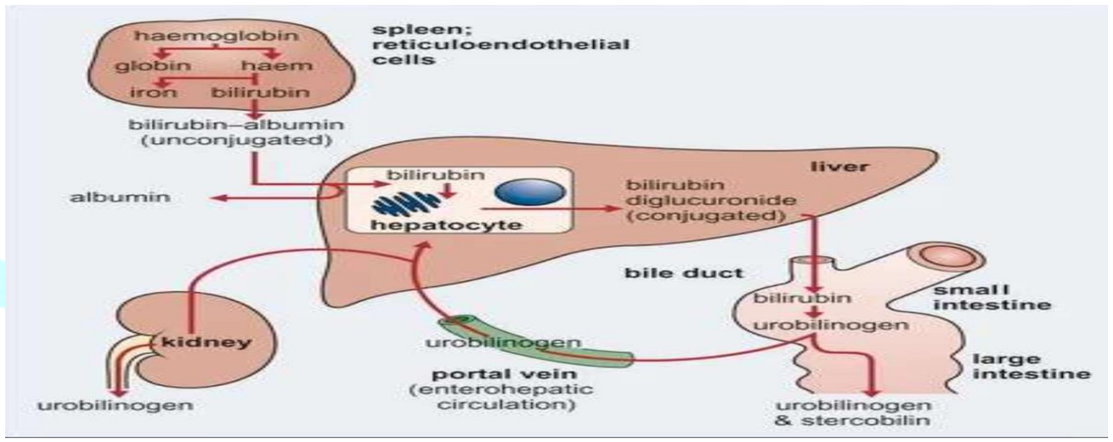
Increased bilirubin production

- Haemolysis (unconjugated hyperbilirubinaemia)

Impaired bilirubin excretion

- Congenital:
  - Gilbert's syndrome (unconjugated)
- Hepatocellular:
  - Viral hepatitis
  - Cirrhosis
  - Drugs
  - Autoimmune hepatitis
- Intrahepatic cholestasis:
  - Drugs
  - Primary biliary cirrhosis
- Extrahepatic cholestas s:
  - Gallstones
  - Cancer: pancreas, cholangiocarcinoma

1. **Unconjugated bilirubin is insoluble and binds to plasma albumin;** it is therefore **not filtered by the renal glomeruli**. In jaundice from **unconjugated hyperbilirubinemia, the urine is a normal color (acholuric jaundice; Box 6.7).**
2. **Bilirubin is conjugated to form bilirubin diglucuronide in the liver and excreted in bile, producing its characteristic green color. In conjugated hyperbilirubinemia, the urine is dark brown due to the presence of bilirubin diglucuronide.** In the colon, conjugated bilirubin is metabolized by bacteria to stercobilinogen and stercobilin, which contribute to the brown color of stool. Stercobilinogen is absorbed from the bowel and excreted in the urine as urobilinogen, a colorless, water-soluble compound.



6.7 Urine and stool analysis in jaundice

	Urine			Stools
	Colour	Bilirubin	Urobilinogen	Colour
Unconjugated	Normal	–	++++	Normal
Hepatocellular	Dark	++	++	Normal
Obstructive	Dark	++++	–	Pale

Pre-hepatic jaundice (Unconjugated):

In hemolytic disorders, anemic pallor combined with jaundice may produce a pale lemon complexion. The stools and urine are normal in color. **Gilbert's syndrome is common and causes unconjugated hyperbilirubinemia**. Serum liver enzyme concentrations are normal and jaundice is mild (plasma bilirubin <100 µmol/L (5.85 mg/dL)) but increases during prolonged fasting or intercurrent febrile illness.

Hepatic jaundice (Both):

- **Hepatocellular disease causes hyperbilirubinaemia** that is **both unconjugated and conjugated**. Conjugated bilirubin leads **to dark brown urine. The stools are normal in color.**

Post-hepatic/cholestatic jaundice (Conjugated):

- In biliary obstruction, conjugated bilirubin in the bile does not reach the intestine, so the stools are pale.
- Obstructive jaundice **may be accompanied by pruritus (generalized itch) due to skin deposition of bile salts**.
- Obstructive jaundice with **abdominal pain** is usually due to **gallstones**; if **fever or rigors** also occur (Charcot's triad), **ascending cholangitis is likely.**
- **Painless obstructive jaundice** suggests **malignant biliary obstruction**, as in **cholangiocarcinoma or cancer of the head of the pancreas**.
- Obstructive jaundice can be due **to intrahepatic as well as extrahepatic cholestasis**, as **in primary biliary cirrhosis**, certain **hepatotoxic drug**.

Ask about:

- **Associated pain.**
- **Precipitating/exacerbating factors**, such as straining due to chronic constipation, chronic cough, heavy manual labor and relationship with micturition.
- **Timing:** when the symptoms are worse.

Hernias:

- **Are common causes of groin** lumps and frequently present with **dull, dragging discomfort (rather than acute pain), which is often exacerbated by straining and after long periods of standing or activity.**
- **Patients can often manually reduce the hernia by applying gentle pressure over the swelling or by lying flat.**
- Other causes of groin swellings **include lymph nodes, skin and subcutaneous lumps and, less commonly, saphena varix** (a varicosity of the long saphenous vein), **hydrocele of the spermatic cord, undescended testis, femoral aneurysm and psoas abscess**.

Past history

- History of a **similar problem** may suggest the diagnosis: for example, bleeding peptic ulcer or inflammatory bowel disease.
- **Primary biliary cirrhosis and autoimmune hepatitis are associated with thyroid disease.**
- **(NAFLD) is associated with diabetes and obesity.**

Drug history

6.8 Examples of drug-induced gastrointestinal conditions

Symptom	Drug
Weight gain	Oral glucocorticoids
Dyspepsia and gastrointestinal bleeding	Aspirin Non-steroidal anti-inflammatory drugs
Nausea	Many drugs, including selective serotonin reuptake inhibitor antidepressants
Diarrhoea (pseudomembranous colitis)	Antibiotics Proton pump inhibitors
Constipation	Opioids
Jaundice: hepatitis	Paracetamol (overdose) Pyrazinamide Rifampicin Isoniazid
Jaundice: cholestatic	Flucloxacillin Chlorpromazine Co-amoxiclav
Liver fibrosis	Methotrexate

Family history

- **Inflammatory bowel disease** is more common in patients with a family history of either Crohn's disease or ulcerative colitis.
- **Colorectal cancer** in a first-degree relative increases the risk of colorectal cancer and polyps.
- **Peptic ulcer disease** is familial but this may be due to environmental factors e.g., transmission of Helicobacter pylori infection.
- **Gilbert's syndrome** is an **autosomal dominant** condition.
- **Haemochromatosis** and **Wilson's disease are autosomal recessive disorders.**
- **Autoimmune diseases**, particularly thyroid disease, are common in **relatives of those with primary biliary cirrhosis and autoimmune hepatitis**.
- **A family history of diabetes** is frequently seen in the context of NAFLD.

Social history

Dietary history and food intolerance

- **Assess the intake of calories and sources of essential nutrients**. For guidance, there are 9 kcal per g of fat and 4 kcal per g of carbohydrates and protein.
- **Patients with irritable bowel syndrome** often report specific food intolerances, including wheat, dairy products and others. Painless diarrhea may indicate high alcohol intake, lactose intolerance or coeliac disease.

Alcohol consumption.

Smoking: risk of esophageal cancer, colorectal cancer, Crohn's disease and peptic ulcer, while patients with ulcerative colitis are less likely to smoke.

Stress: Irritable bowel syndrome and dyspepsia foreign travel.

Risk factors for liver disease

- **IV drug abuse.**
- **Tattoos.**
- **Foreign travel.**
- **Blood transfusion.**
- **Homosexuality.**
- **Multiple sexual partners.**
- **History of hepatitis B or C.**