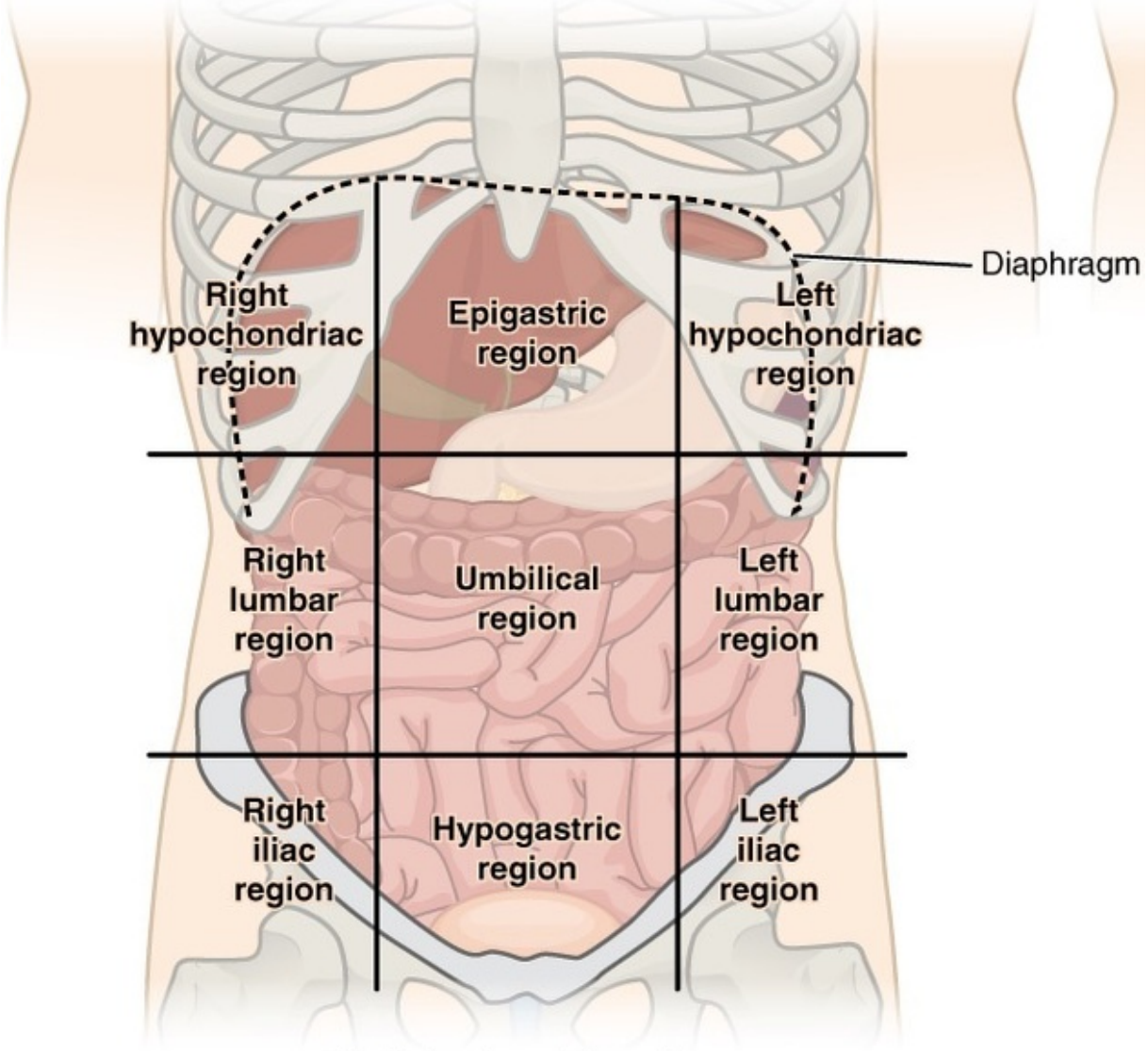
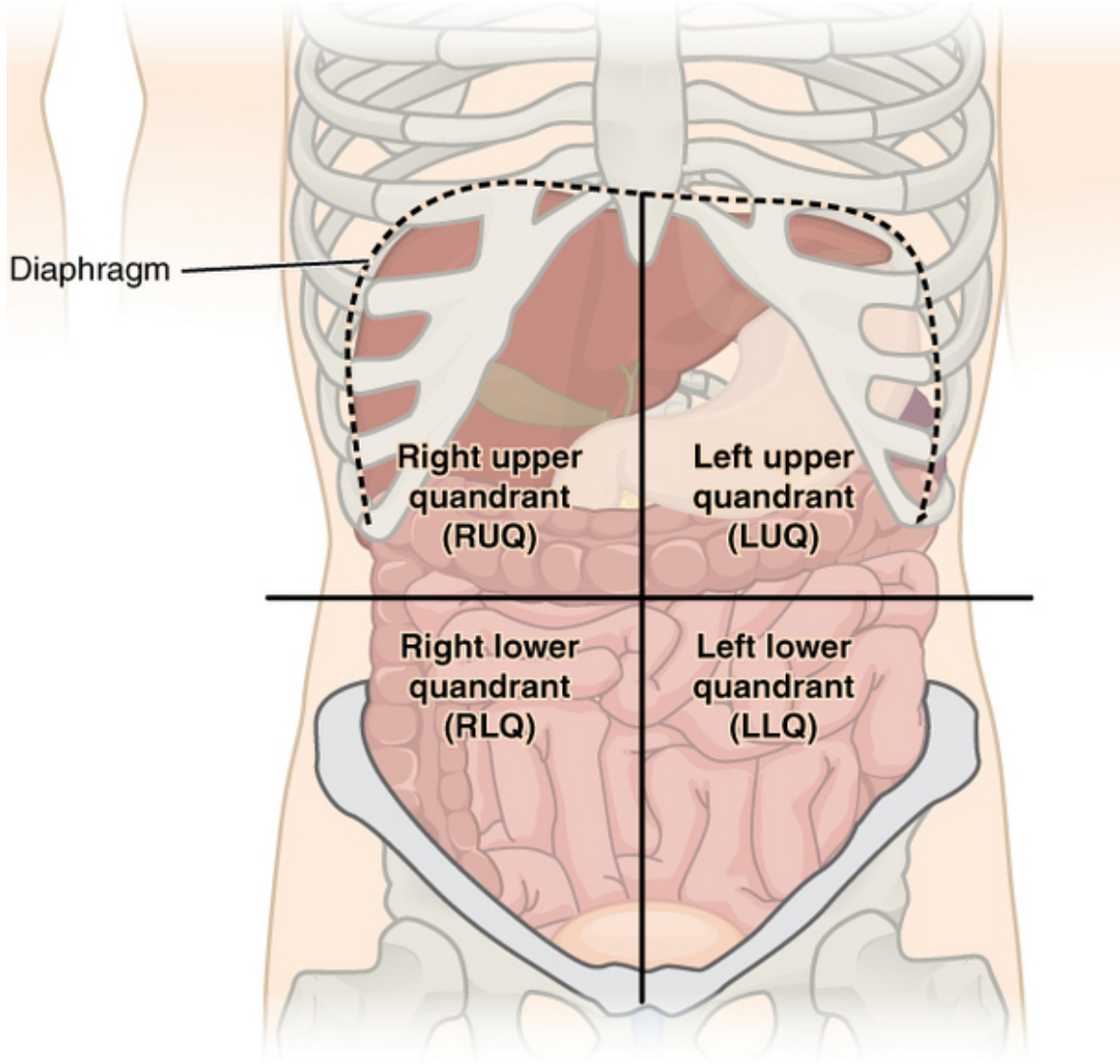
Gastrointestinal System History Taking

Surface Anatomy



(a) Abdominopelvic regions



(b) Abdominopelvic quandrants

Surface Anatomy, cont.

Nine abdominal regions

Horizontal planes

Lines drawn between easily palpable bony points. The horizontal planes are also of importance as they provide useful landmarks on cross-sectional imaging. The two horizontal lines are:

Transpyloric at the level of L1 vertebra

Transtubercular plane: a line uniting the two tubercles of the iliac crests, upper border of L5 vertebra and the confluence of the common iliac veins (i.e. IVC origin) lie on this plane

Vertical planes

Lines from midclavicular point to the midinguinal point.

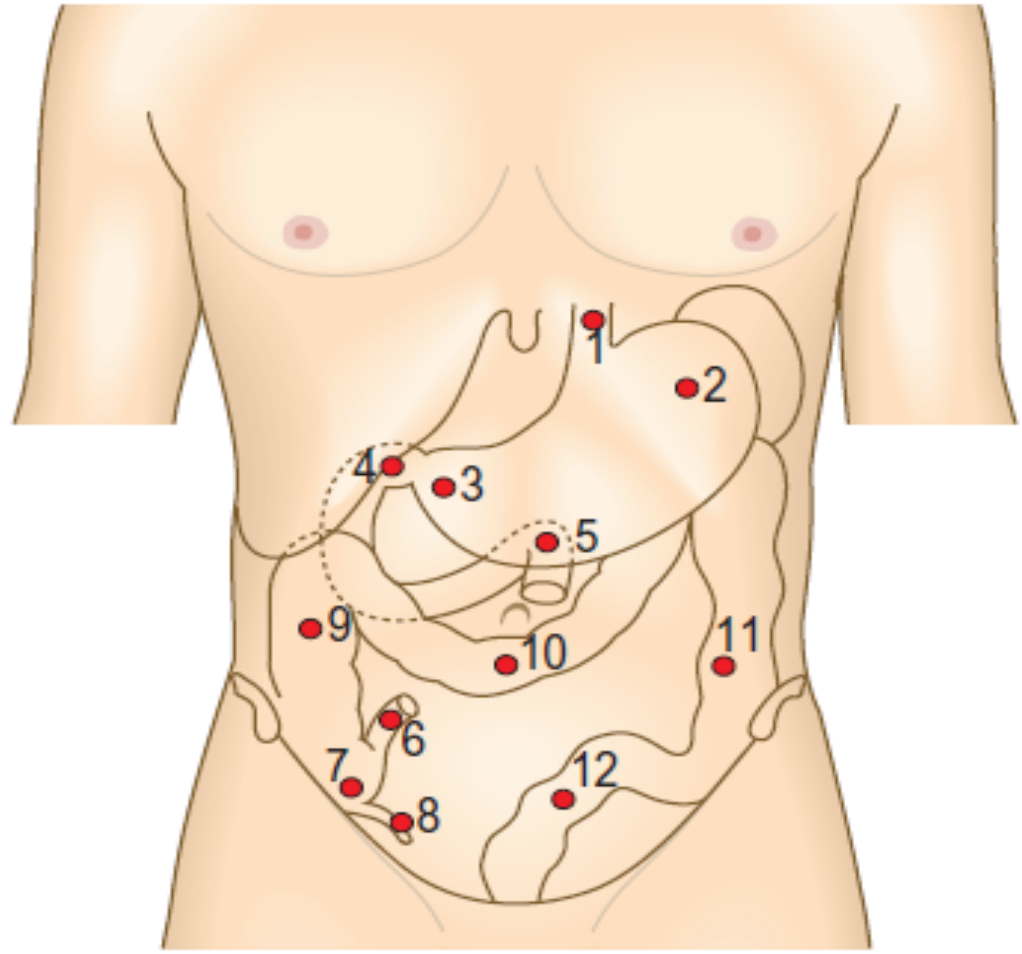
Four Quadrants

Horizontal plane: line drawn through the umbilicus.

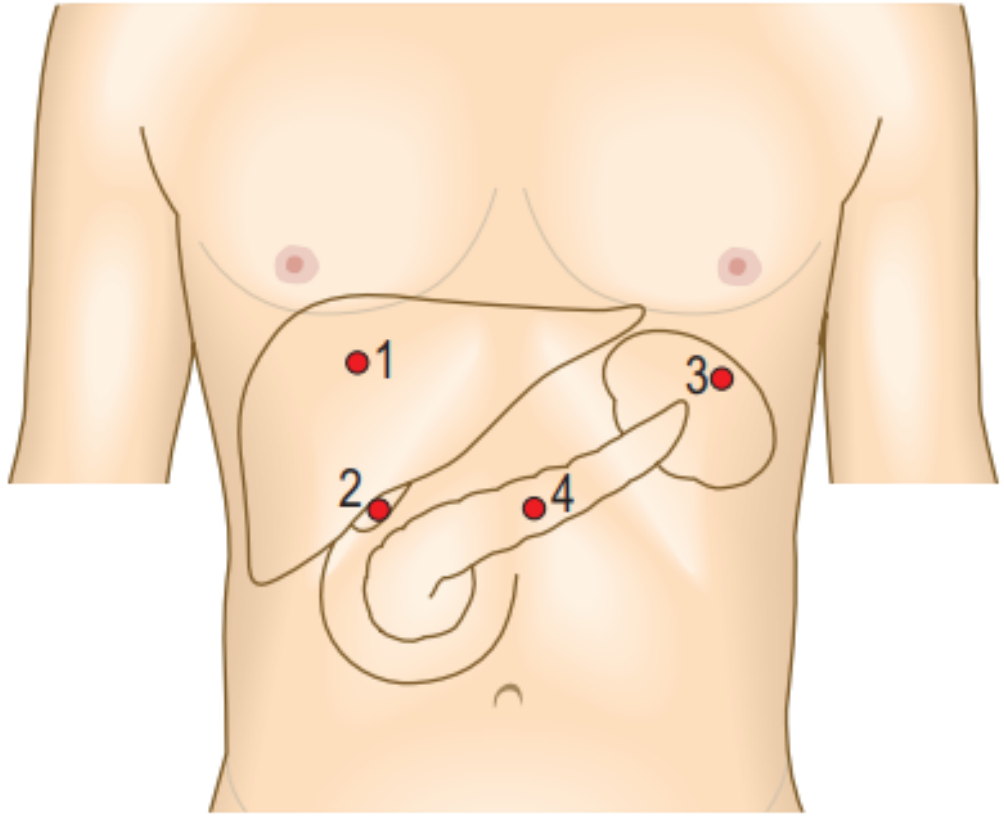
Vertical plane: midline of the body, overlying the linea alba from the xiphoid to the pubic symphysis.

Surface Anatomy, cont.

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



Surface Anatomy, cont.

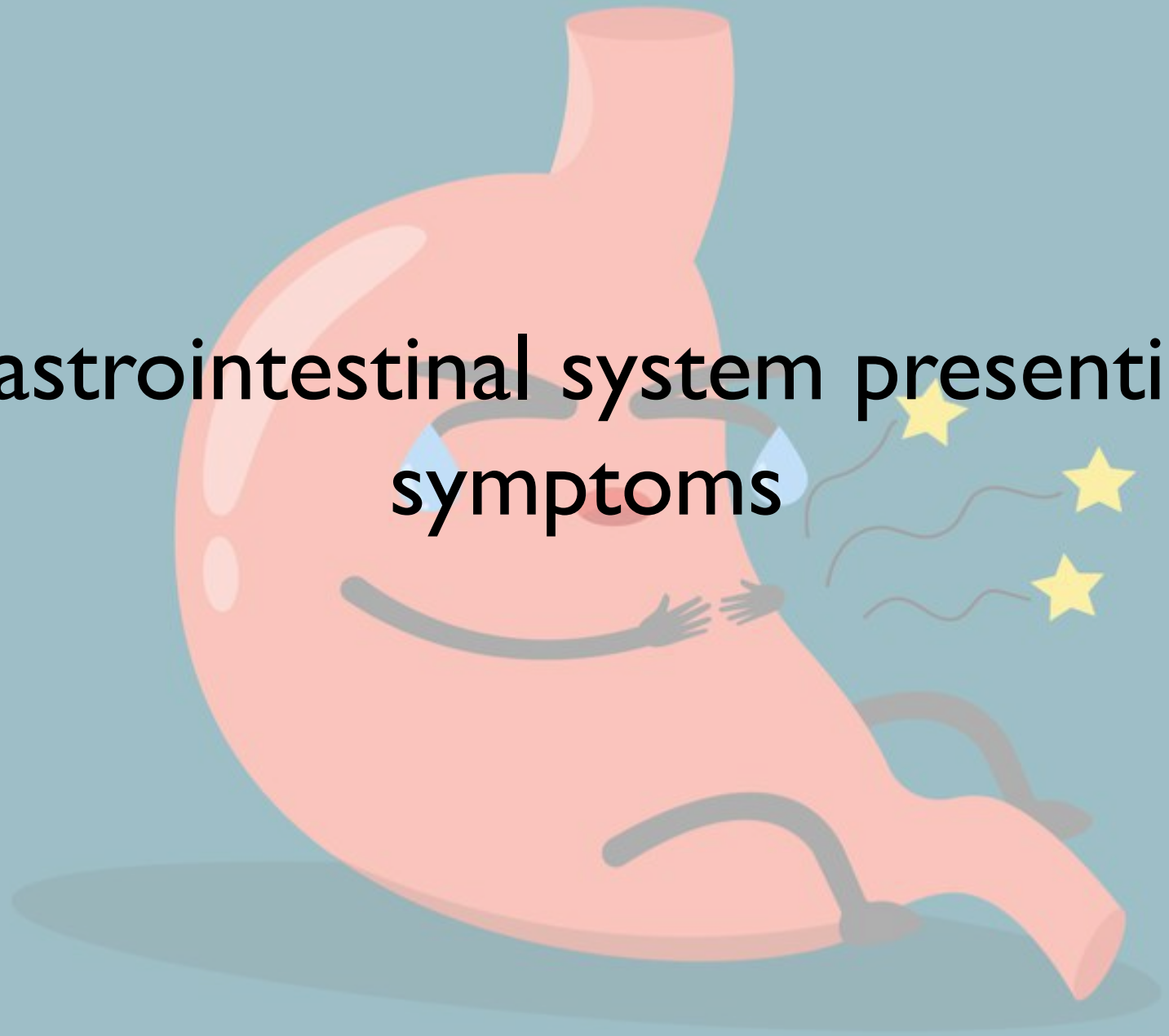


1 Liver
2 Gallbladder
3 Spleen
4 Pancreas

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

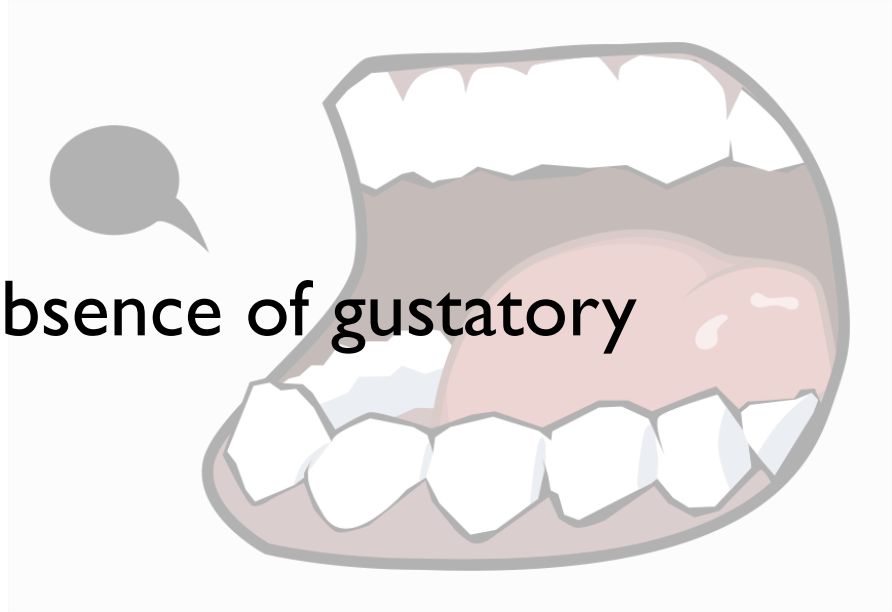
Structure	Position
Liver	Upper border: fifth right intercostal space on full expiration Lower border: at the costal margin in the mid-clavicular line on full inspiration
Spleen	Underlies left ribs 9–11, posterior to the mid-axillary line
Gallbladder	At the intersection of the Right midclavicular line 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

Gastrointestinal system presenting symptoms



Mouth Symptoms

- Halitosis: Bad breath; gingival, dental or pharyngeal infection
- Xerostomia: Subjective sensation of dryness in the mouth.
  - Diabetes, dehydration, salivary gland dysfunction
- Dysgeusia: altered sense of taste
  - Intra-oral infection, zinc deficiency
- Cacogeusia: A sensation of bad taste in absence of gustatory stimuli
  - Amyloidosis

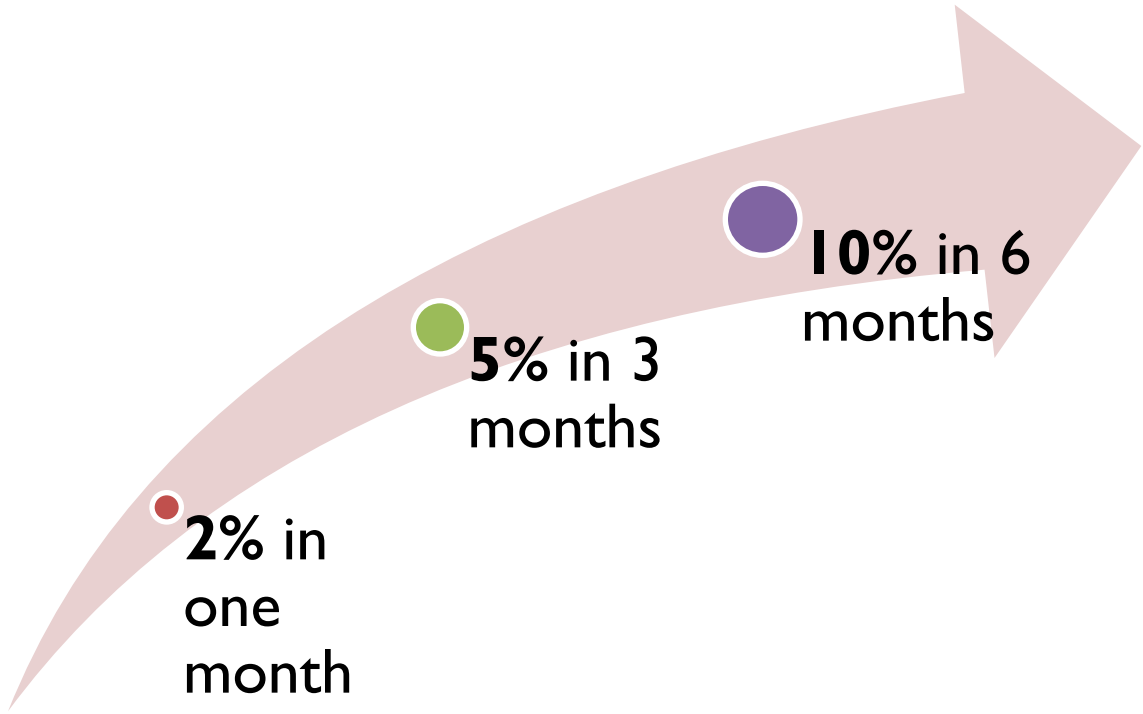


Anorexia And Weight Loss

- Anorexia: loss of appetite and/or lack of interest in food.
  "Are you abstaining from food intake to avoid abdominal pain or because you have no appetite?"
- Weight loss: 3 parts if documented: How much was lost, duration, intentional or not?
- If not documented, has their clothes become loose fitting?

Weight loss

- Reduced intake vs. increased energy expenditure
- GI diseases that cause weight loss: chronic inflammatory diseases and malabsorptive disorders (e.g. IBD, celiac disease), malignancies.



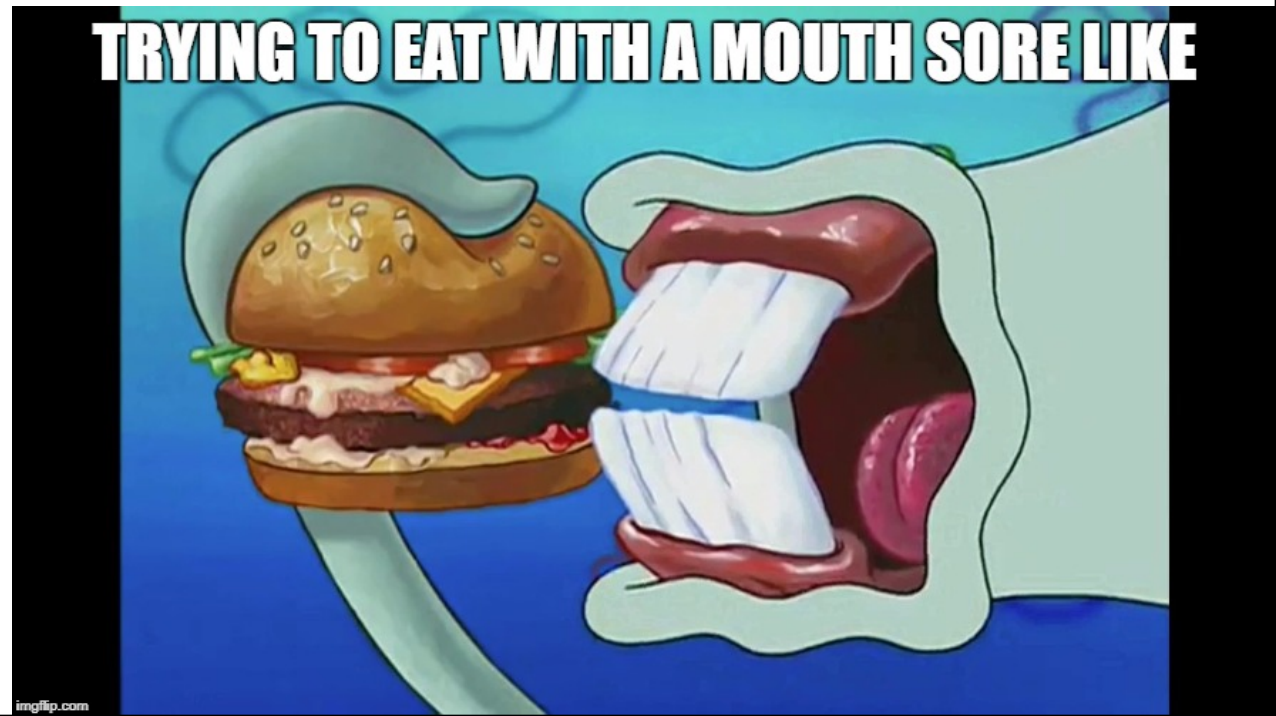
Weight loss, cont.

- A net calorie deficit of 1000 kcal/day produces a weight loss of approximately 1 kg/week .
- 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.

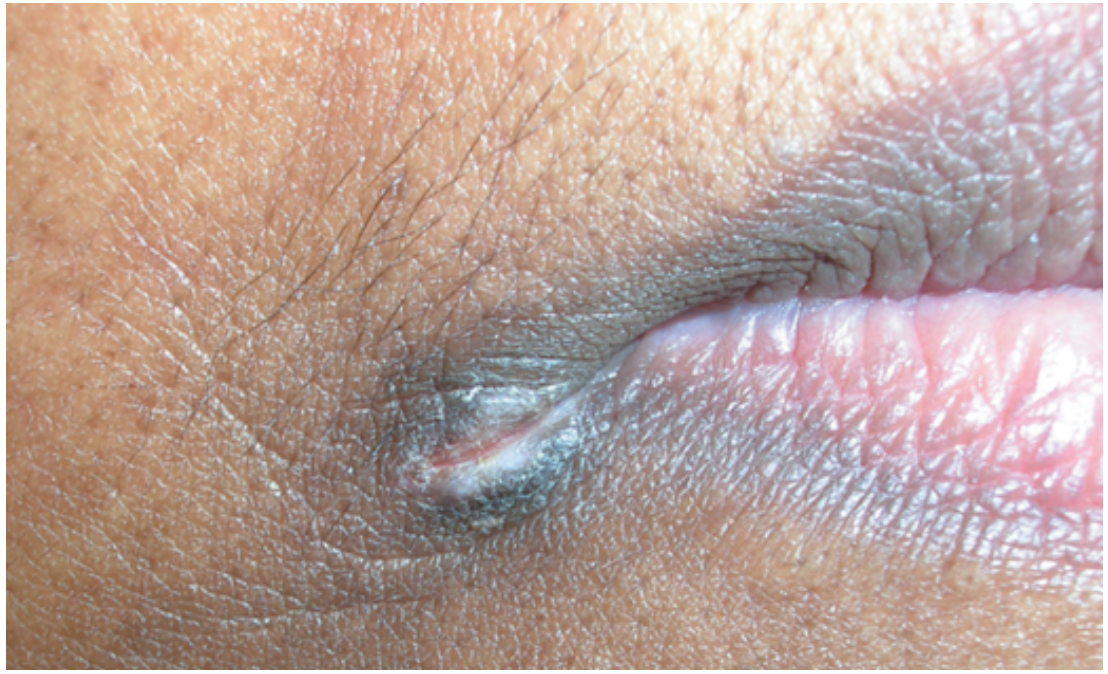
Painful Mouth

Causes of sore lips, tongue or buccal mucosa

- Deficiencies; Iron, Folate, Vitamin B12, Vitamin C deficiency
- Aphthous ulcer; idiopathic, maybe asociated with Crohn's or Behcet disease.
- Dermatological (lichen planus)
- Chemotherapy (Oral mucositis)
- Infective stomatitis



Painful Mouth, cont.



Angular Stomatitis

Aphthous Ulcer

Heartburn And Reflux

- Heartburn is a hot, burning, retrosternal discomfort that radiates upwards.
- When heartburn is the principal symptom, GERD is the most likely diagnosis
- Associated symptoms:
  - Reflux is a sour taste in the mouth from regurgitating gastric acid.
  - Waterbrash is the sudden appearance of fluid in the mouth due to reflex salivation as a result of GERD or, rarely, peptic ulcer disease.
  - atypical (extraesophageal) symptoms, such as; coughing and/or wheezing, hoarseness, sore throat, otitis media

Dyspepsia

- ***Pain or discomfort*** centered in the upper abdomen.
- Indigestion: vague, ill-defined symptoms

Reflux-like dyspepsia

- (heartburn-predominant dyspepsia)

Ulcer-like dyspepsia*

- (epigastric pain relieved by food or antacids)

Dysmotility-like dyspepsia (gastroparesis, DM)

- (nausea, belching, bloating and premature satiety).

Dyspepsia

Peptic ulcer disease

	Gastric ulcer	Duodenal ulcer
PAIN	Can be Greater with meals—weight loss	Decreases with meals—weight gain
H PYLORI INFECTION	~ 70%	~ 90%
MECHANISM	↓ mucosal protection against gastric acid	↓ mucosal protection or ↑ gastric acid secretion
OTHER CAUSES	NSAIDs	Zollinger-Ellison syndrome
RISK OF CARCINOMA	↑	Generally benign
OTHER	Biopsy margins to rule out malignancy	Hypertrophy of Brunner glands

Odynophagia

- Pain upon swallowing.
- It can be present with or without dysphagia
- Often precipitated by drinking hot liquids.
- It indicates active oesophageal ulceration or oesophagitis from GERD or oesophageal candidiasis (inhaled corticosteroid use or in immunocompromised).

Dysphagia

- Dysphagia is difficulty swallowing.
- Patients complain from food or drinks getting stuck when they swallow
- Oral vs esophageal
- Not Early satiety: premature fullness
- Not Globus: feeling of lump that does not interfere with swallowing and is not related to eating

Dysphagia, cont.

- Site: Where they feel the food sticks; unreliable
- Onset: recent or longstanding
- Character: Liquids vs. Solids.
- Timing: Progressive vs. intermittent.
- Associated symptoms (odynophagia, regurgitation of food or fluids
- wt loss, heartburn)

Dysphagia, cont.

Neurological; bulbar or pseudobulbar palsy

- liquids > solids , choking , spluttering , regurge from nose

Neuromuscular; dysmotility

- worse for solids , improves with liquid and setting upright. Can cause central chest pain, aspiration pneumonia

Pharyngeal pouch:

- Halitosis , recurrent chest infections (aspiration)

Mechanical; stricutre or external compression

- benign vs malignant , ask about associated symptoms

8.7 Causes of dysphagia

Oral

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

Neurological

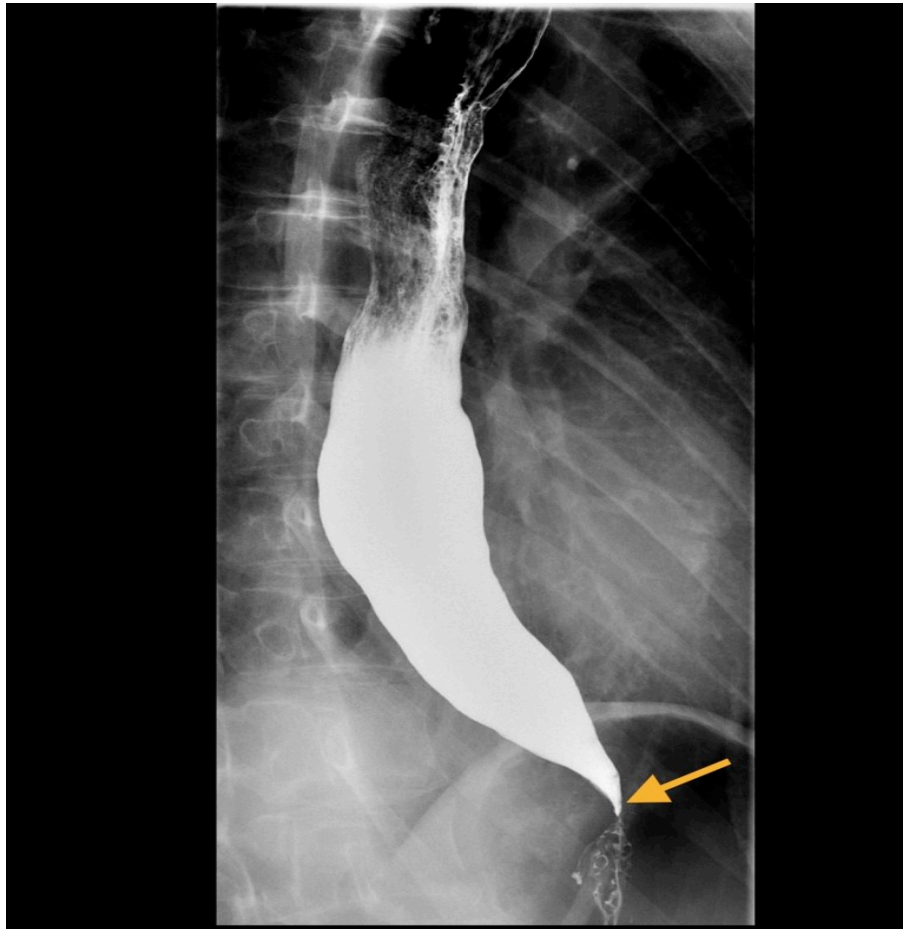
- Bulbar or pseudobulbar palsy
- Cerebrovascular accident

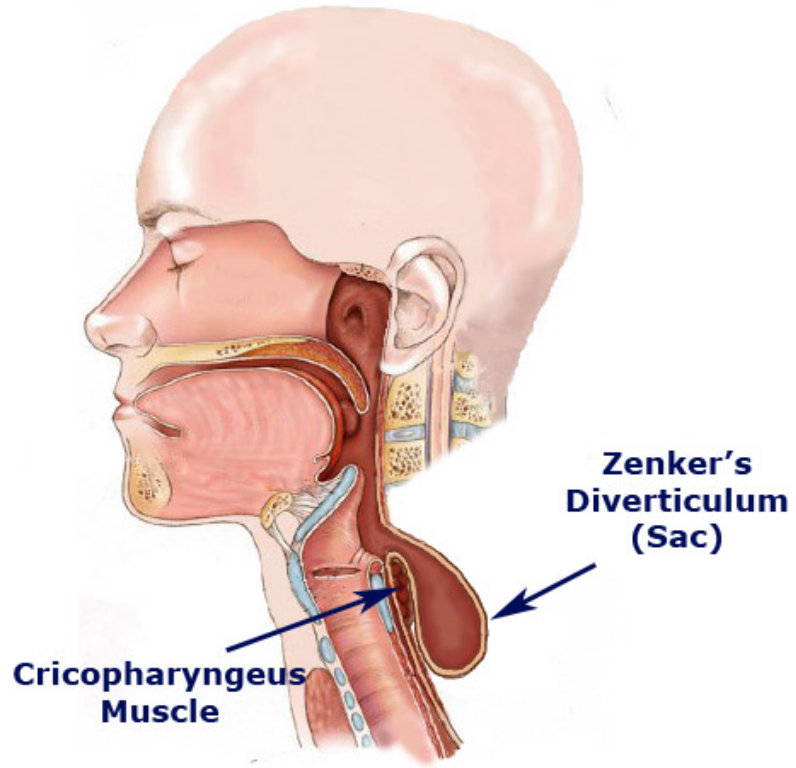
Neuromuscular

- 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




Zenker's
Diverticulum
(Sac)
Cricopharyngeus
Muscle

Abdominal Pain

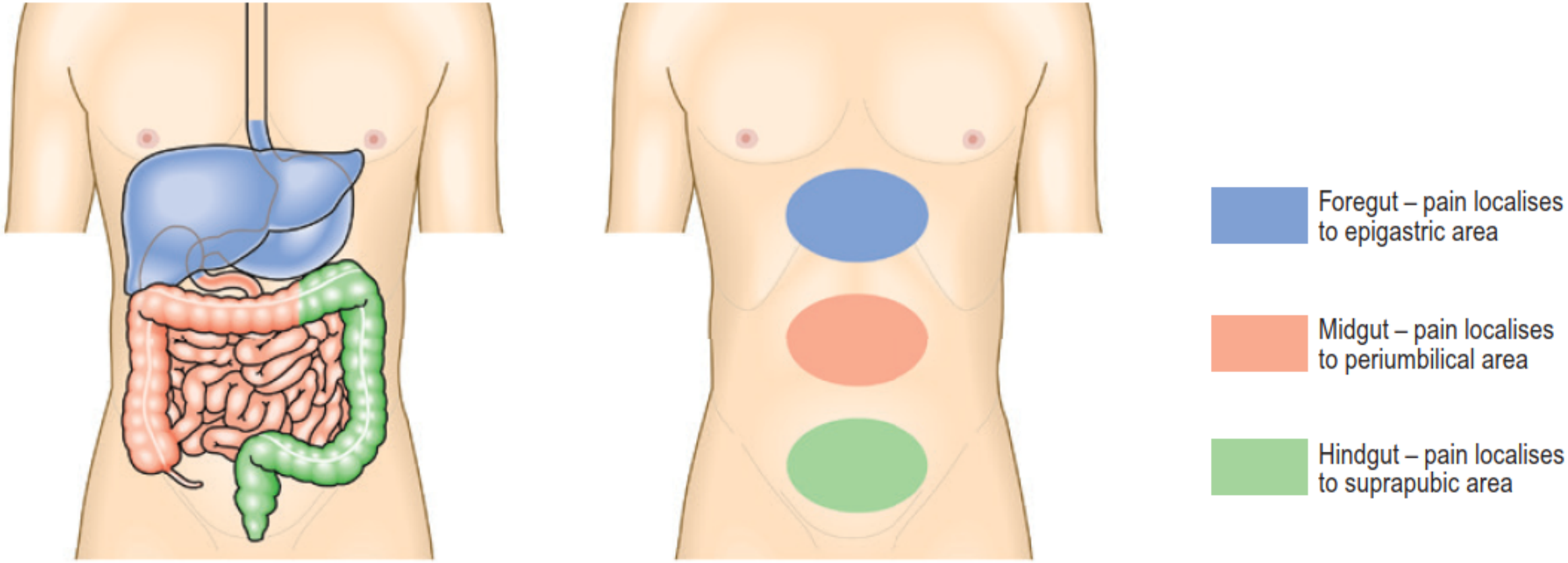


Fig. 6.4 Abdominal pain. Perception of visceral pain is localised to the epigastric, umbilical or suprapubic region, according to the embryological origin of the affected organ.

Visceral Vs. Somatic Pain

Visceral abdominal pain

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

Somatic pain

- Arises from the *parietal peritoneum* and abdominal wall.
- It is lateralised and localised to the area of inflammation, and conducted via *intercostal* (spinal) nerves.
- Examples: cholecystitis , appendicitis, diverticulitis..

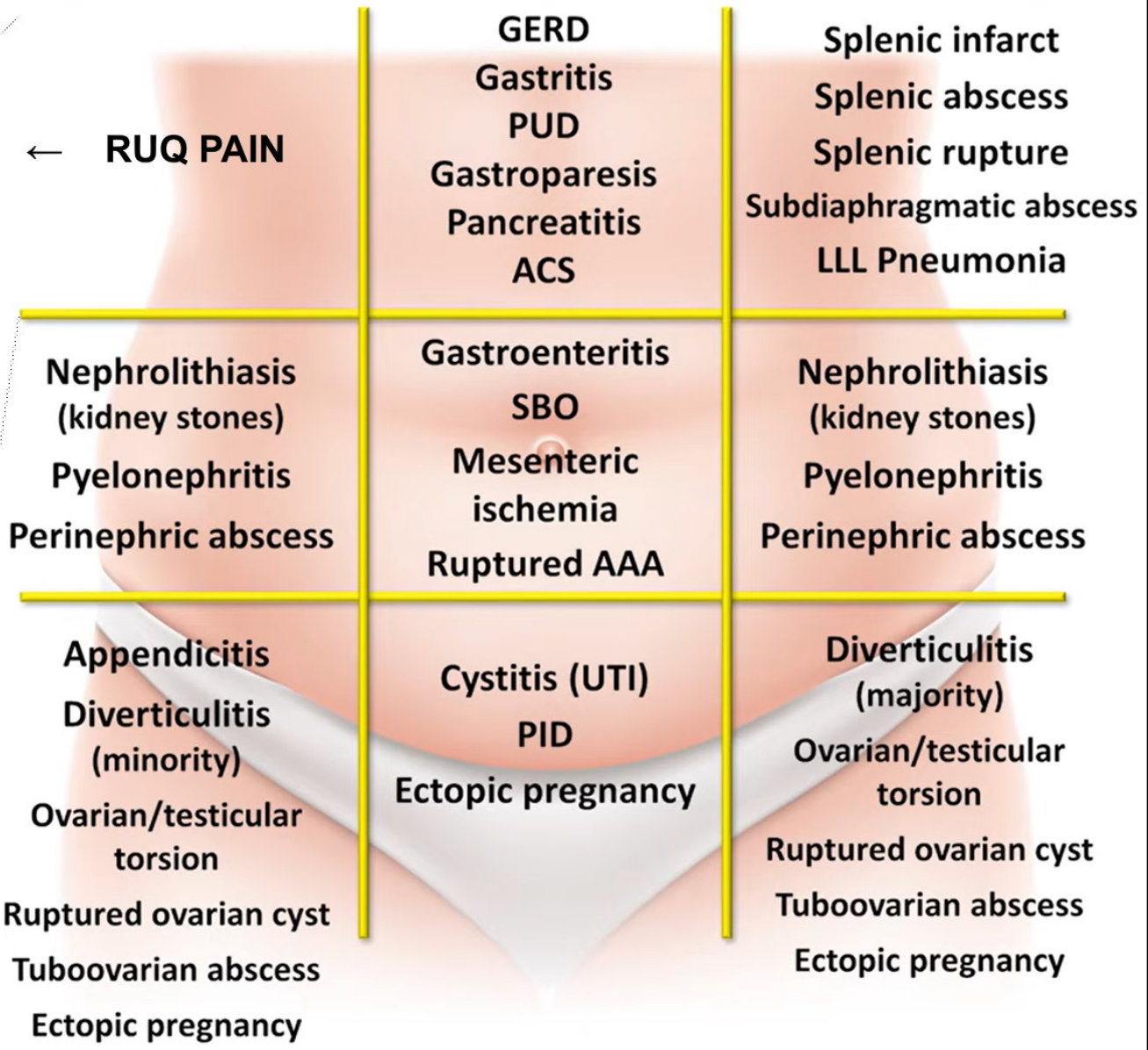
Abdominal pain, Cont.

- Pain from paired structures, such as renal colic, is felt on and radiates to the affected side.
- Ureteric colic, although lateralized and severe pain, is considered visceral pain.
- Other paired structures: Testes, ovaries, ovarian tubes

Abdominal Pain - Differential Diagnosis

Right Upper Quadrant Pain

Liver	Biliary	Other
Infectious ▪ Acute viral hepatitis ▪ Liver abscess **Non-infectious** ▪ Acute non-infectious hepatitis • Alcohol • Medications ▪ Hepatic congestion (e.g. heart failure) ▪ Budd-Chiari syndrome	**Infectious** ▪ Acute cholecystitis ▪ Acute cholangitis (a.k.a. "ascending cholangitis") **Non-infectious** ▪ Gallstones (a.k.a. "biliary colic") ▪ Choledocholithiasis	RLL Pneumonia Subdiaphragmatic abscess



Onset

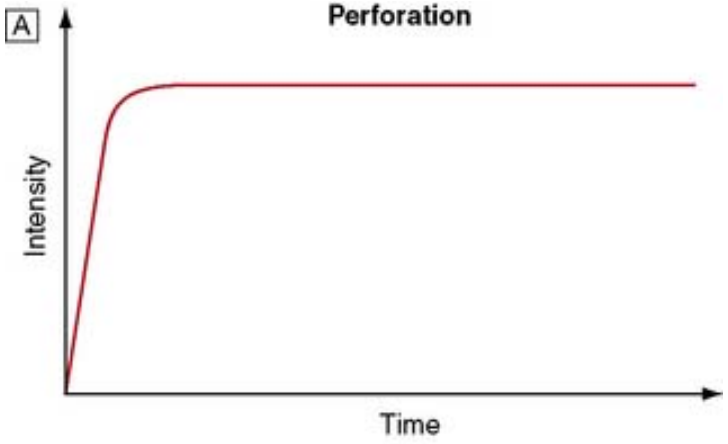
- The sudden onset of severe abdominal pain, rapidly progressing to become generalized and constant, suggests a hollow viscus perforation, a ruptured abdominal aortic aneurysm or mesenteric infarction.

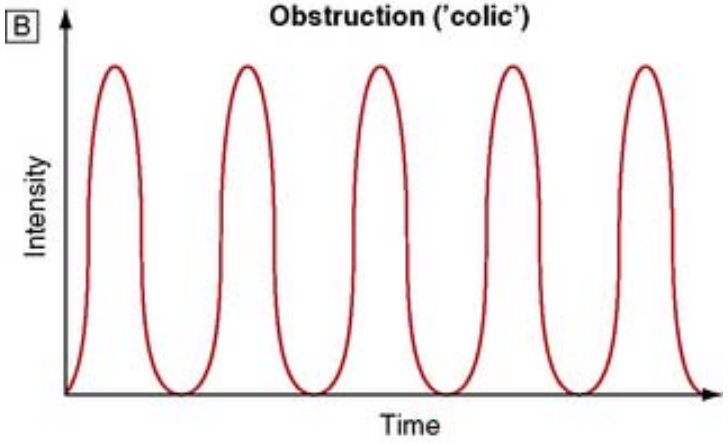
- Cecal or sigmoid volvulus occur with sudden abdominal pain associated with intestinal obstruction

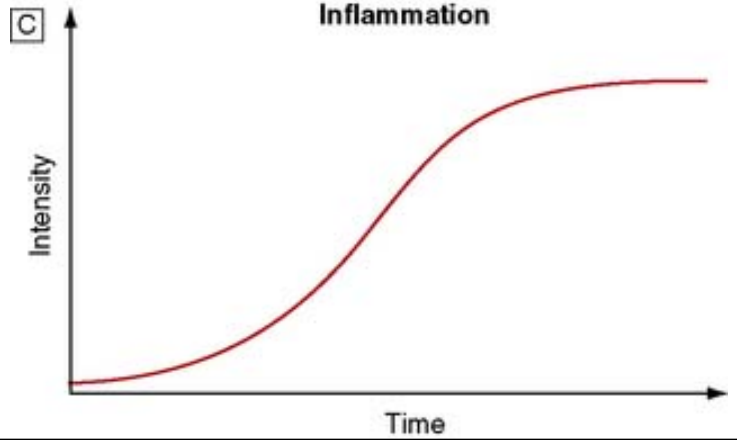
Character

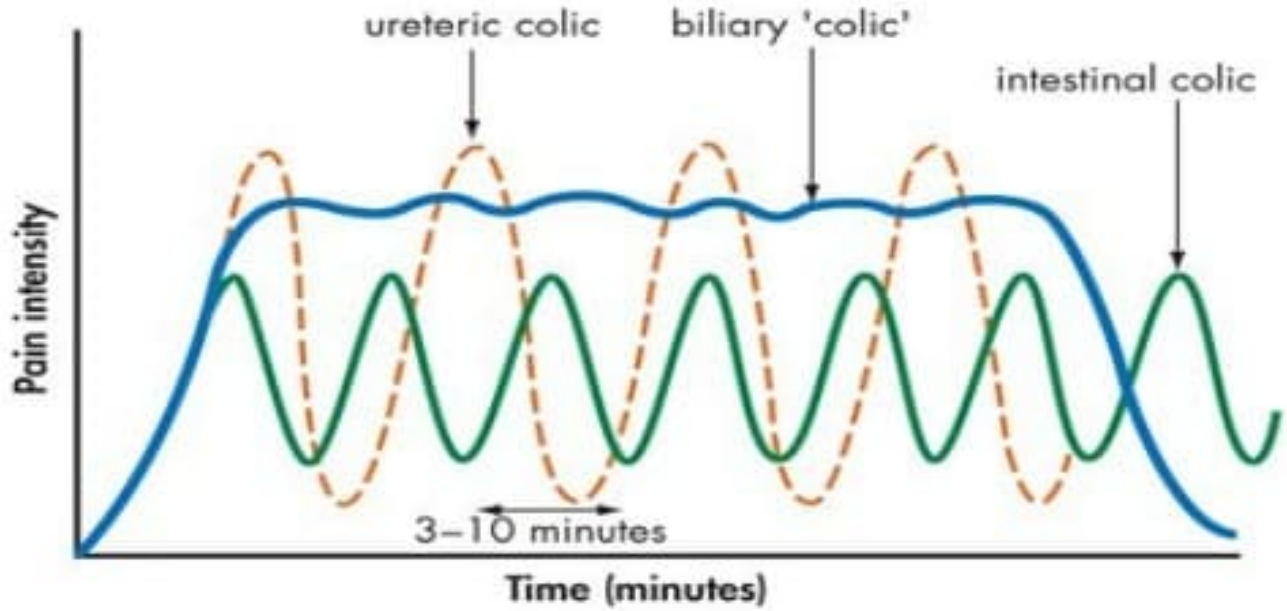
- Colicky pain lasts for a short time (seconds or minutes) eases off and then returns.
- It arises from hollow structures such as small and large bowel obstruction.
- “Hyperperistalsis against an obstructed hollow viscus”
- Dull constant vague and poorly localized pain is suggestive of inflammation, e.g.. salpingitis, appendicitis or diverticulitis.

Character, cont.









Source: John Murtagh, Jill Rosenblatt: *John Murtagh's General Practice*, 6e: www.murtagh.mhmedical.com

Character, cont.

- Biliary colic is a misnomer, as the pain is rarely colicky, pain rapidly increases to a peak and persists over period of time before gradually resolving.
- Unlike elsewhere in the intestinal tract, the gallbladder does not have a muscularis mucosae, and the muscular fibres are not arranged in distinct layers. The interspersed muscle fibres lie in longitudinal, oblique and transverse directions, and are not arranged in separate layers.

Radiation

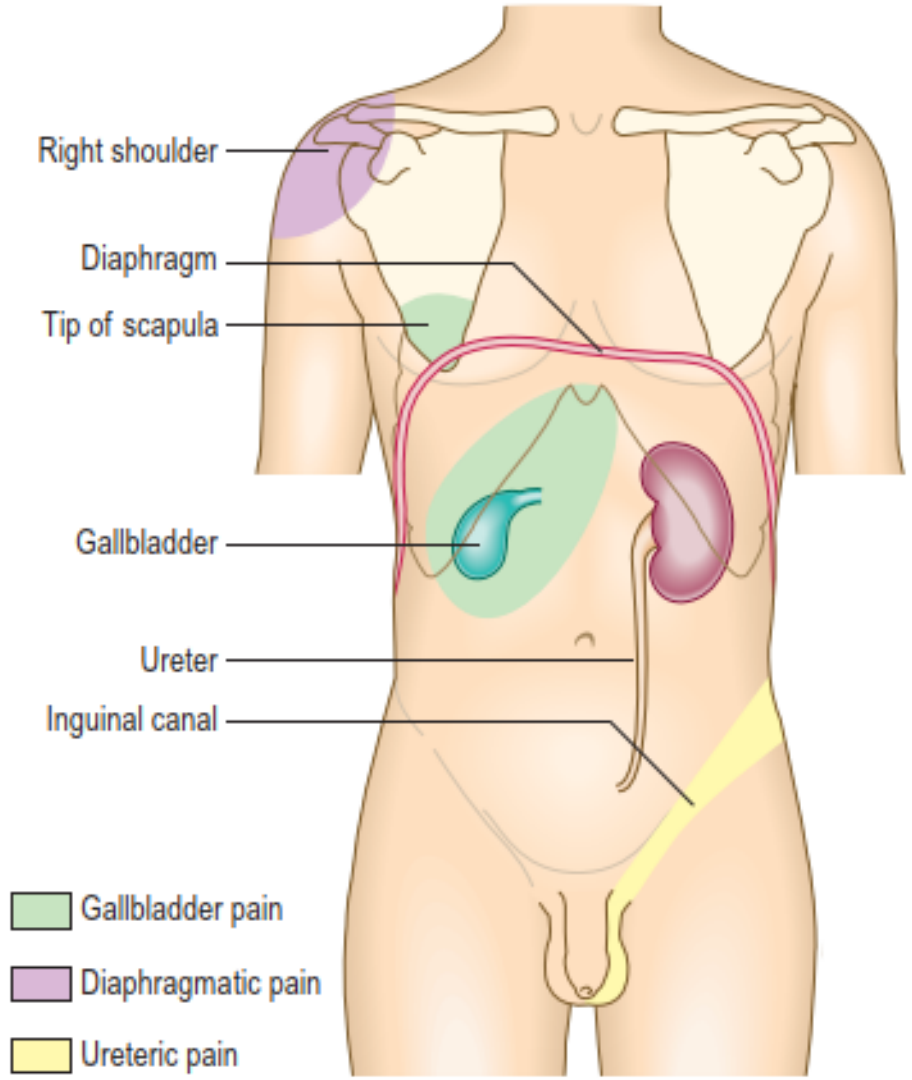


Fig. 6.5 Characteristic radiation of pain from the gallbladder, diaphragm and ureters.

Associated symptoms

- Non-specific symptoms : Reflex anorexia, nausea and vomiting are common but may be absent even in advanced intra-abdominal disease.
- Altered bowel habits : IBS, CRC, diverticular disease
- Tachycardia , hypotension – sepsis or bleeding
- Breathlessness and Palpitations – non alimentary causes

Timing

- Frequency and duration
- *Silent interval:* 1-2 hours after perforation; relief of obstruction
- Change of pattern: either wrong diagnosis or complications happened
- Abdominal pain persisting for hours or days suggests an inflammatory disorder

(appendicitis,cholecystitis,diverticulitis)

Timing, Cont.

- Acute appendicitis pain course: starts periumbilical (visceral, lumen obstruction) then migrates to the right iliac fossa in about 6-12 hours (somatic, inflammation)
- If it perforates, a possible silent interval (1-2 hours) if chemical peritonitis subsides, then bacterial peritonitis and generalized peritonitis may develop
- Occasionally, appendiceal mass develops; abscess or phlegmon.

Timing, Cont.

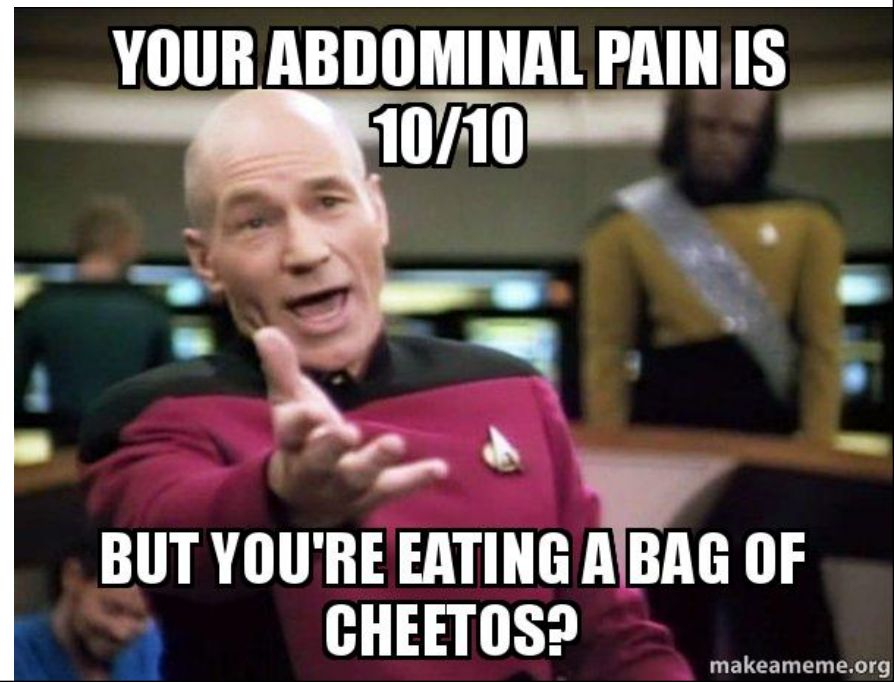
- Intestinal obstruction: Intestinal colic (visceral pain)
- If pain becomes more constant, systemic symptoms develop and the patient develops tenderness, that suggests intestinal ischemia and possible perforation

Exacerbating and relieving factors

- Pain due to ***inflammation*** is exacerbated by movement or coughing.
- 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.

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.



6.2 Diagnosing abdominal pain

	Disorder			
	Peptic ulcer	**Biliary pain**	**Acute pancreatitis**	**Renal colic**
Site	Epigastrium	Epigastrium/right hypochondrium	Epigastrium/left hypochondrium	Loin
Onset	Gradual	Rapidly increasing	Sudden	Rapidly increasing
Character	Gnawing	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	Remission for weeks/months	Attacks can be enumerated	Attacks can be enumerated	Usually a discrete episode
Special times	Nocturnal and especially when hungry	Unpredictable	After heavy drinking	Following periods of dehydration
Duration	½–2 hours	< 6 hours	>24 hours	4–24 hours
Exacerbating factors	Stress, spicy foods, alcohol, non-steroidal anti-inflammatory drugs	Eating – unable to eat during bouts Fatty food	Alcohol Eating – unable to eat during bouts	–
Relieving factors	Food, antacids, vomiting	–	Sitting upright Leaning forward	
Severity	Mild to moderate	Severe	Severe	Severe

Non Gastrointestinal causes

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

Acute abdomen

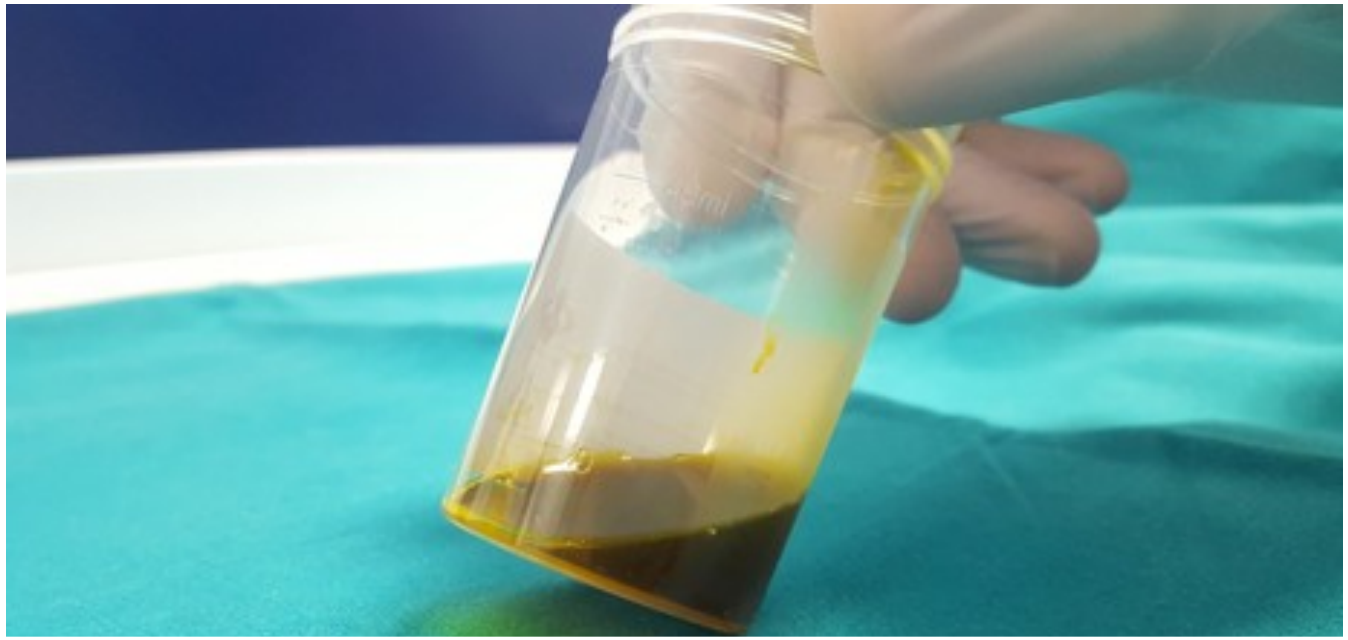
6.4 Typical clinical features in patients with an 'acute abdomen'

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

Nausea And Vomiting

- Relation to meals and timing during the day
- Amount
- Associated symptoms: Dyspepsia, abdominal pain. Does vomiting relieve them? Weight loss.
- The presence of hypotension and tachycardia is an indication of severe dehydration
- Bile-stained, blood-stained or faeculant?
- Medications that may cause vomiting:

Nausea And Vomiting, cont.



Bile Colour

Nausea And Vomiting, cont.

- Both could be associated with pallor, sweating and hyperventilation.
- Dyspepsia: causes nausea without vomiting
- Peptic ulcers?
- Gastric outlet obstruction: causes projectile vomiting of large volumes of gastric content without significant pain that is not bile-stained (green).
- Obstruction distal to the pylorus (intestinal obstruction): bile-stained vomitus or faeculent vomitus.

Nausea And Vomiting, Cont.

- In intestinal obstruction; the more distal the level of intestinal obstruction, the more marked the accompanying abdominal distension and colic.
- In peritonitis, the vomitus is usually small in volume but persistent.

Non-Gastrointestinal Causes

- Drugs: alcohol, opioids, theophyllines, digoxin, cytotoxic agents or antidepressants
- Pregnancy
- DKA
- Renal or Liver failure
- Hypercalcemia
- Addsion's disease
- Raised intracranial pressure (no preceding nausea, early morning)
- Vestibular disorder
- Self-induced: eating disorders

Wind and flatulence

- Includes bleching, excessive or offensive flatus, borborygmi, abdominal distension
- *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.

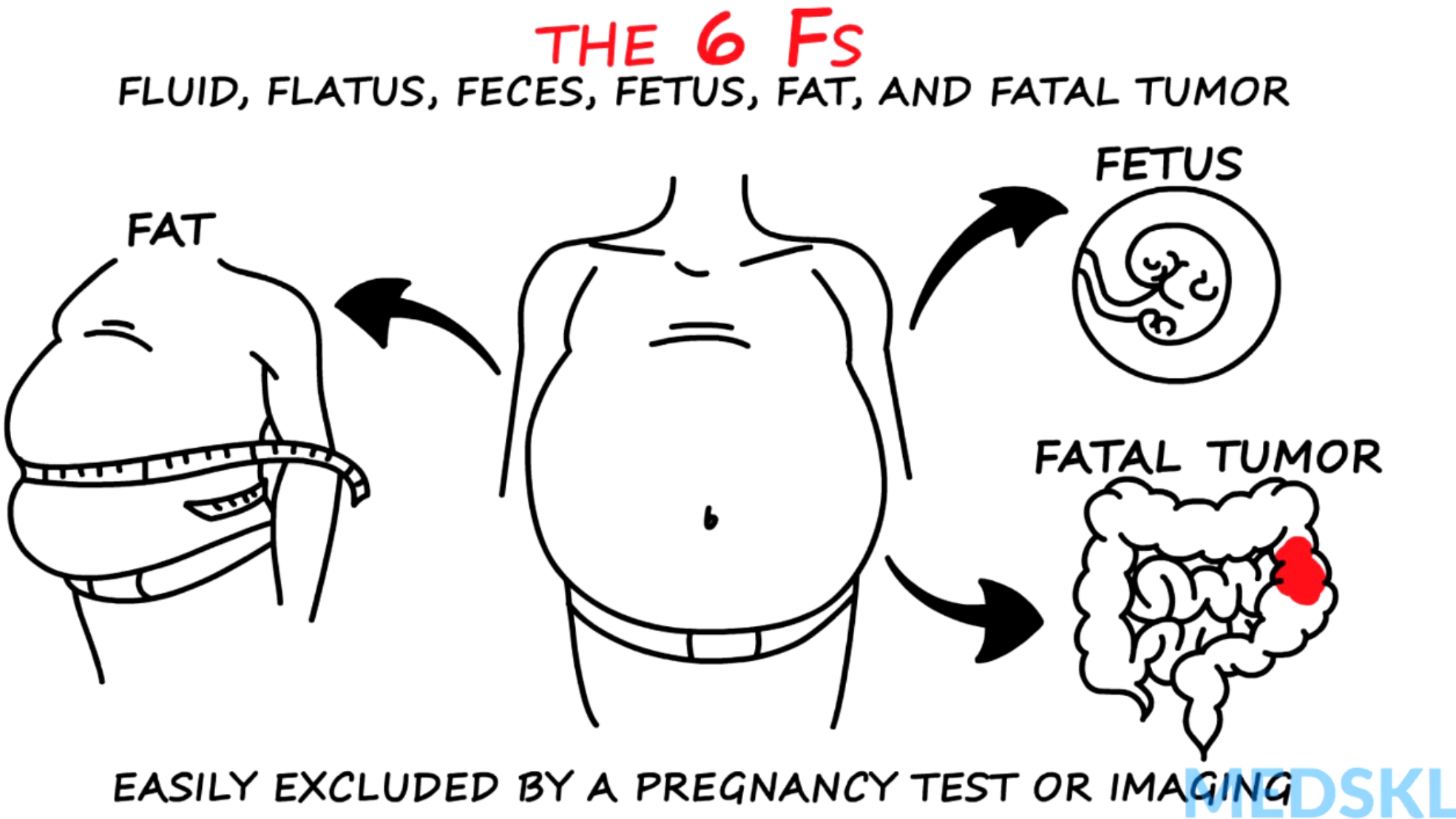
Wind and flatulence, cont.

- Flatus: Mixed gases from swallowed air and bacterial fermentation of carbs in colon
- Normally 200–2000 ml of flatus is passed each day.
- Excessive flatus occurs in lactase deficiency and intestinal malabsorption.

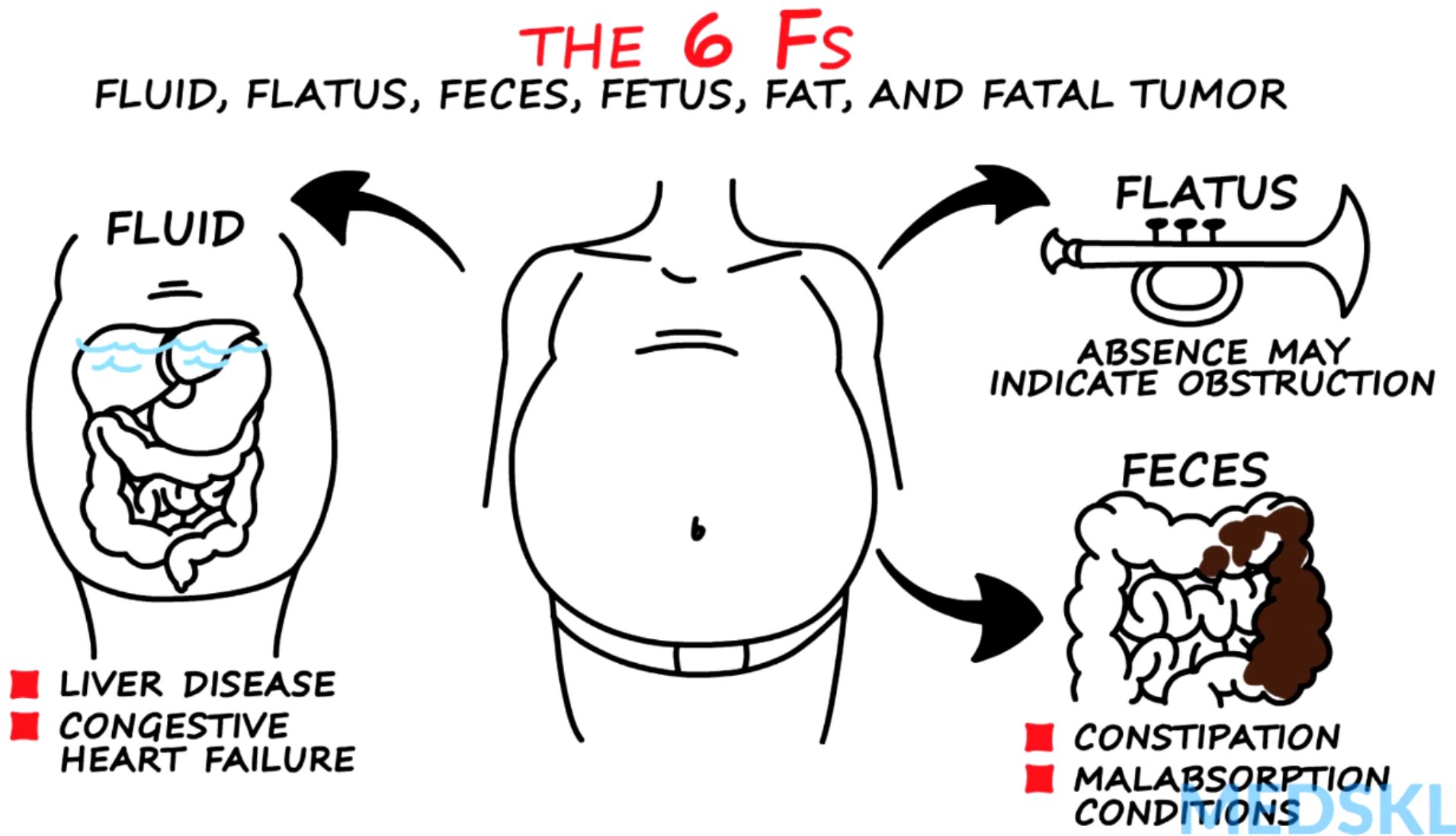
Borborygmi

- *Audible bowel sounds*
- Loud borborygmi, particularly if associated with colicky discomfort, suggest small-bowel obstruction or dysmotility.

Abdominal distention



Abdominal distention



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

SAAG: Serum-Ascites Albumin Gradient

- SAAG = serum albumin – ascites albumin.
- Obtained with diagnostic paracentesis and ascitic fluid analysis.
- A high gradient (SAAG >1.1 g/dL) indicates portal hypertension and suggests a nonperitoneal cause of ascites., transudate
- ↑ pressure in portal vein → ↑ hydrostatic pressure in the hepatic vessels → pushing of fluid out from the intravascular space to the peritoneal cavity

SAAG: Serum-Ascites Albumin Gradient

- A low gradient (SAAG < 1.1 g/dL) indicates nonportal hypertension and suggests a peritoneal cause of ascites.
- ↓ intravascular osmotic gradient → secondary influx of water from the intravascular space to the peritoneal cavity, exudate (exudative ascitic fluid is high in protein, like eggs.)

SAAG: Serum-Ascites Albumin Gradient

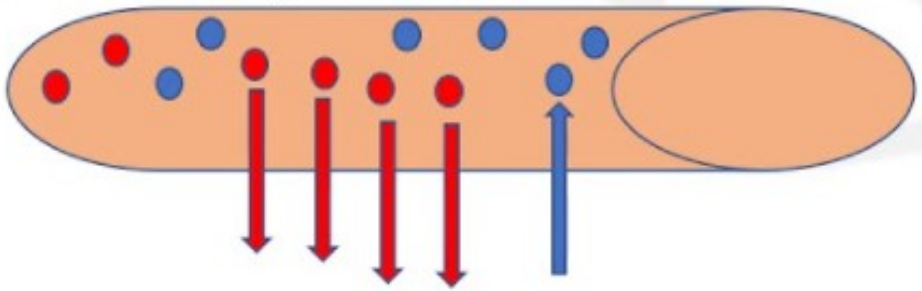
SAAG

HIGH SAAG (> 1·1 g/dl)

Increased portal pressure

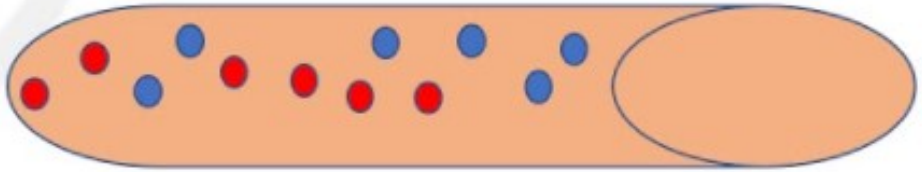
(either liver related or non-liver related)

Increased pressure forces fluid/water out from the vessels into the peritoneal cavity but leaves albumin within the blood vessels leading to HIGH SAAG



LOW SAAG (< 1·1 g/dl)

Portal pressure remains normal



Serum-ascites albumin gradient (SAAG)

	SAAG (g/dL)	
	≥ 1.1	< 1.1
Total protein (g/dL)		
< 2.5	Cirrhosis	Nephrotic syndrome
	Acute liver failure	
≥ 2.5	CHF	Peritoneal carcinomatosis
	Constrictive pericarditis	TB peritonitis
	Budd-Chiari syndrome	Pancreatic ascites
	Veno-occlusive disease	Chylous ascites

Altered Bowel Habit

- Diarrhea: bowel movements more than 3 times daily or frequent passage of loose stool
- Clarify : frequency vs. consistency
- Change from their usual habits?
- Steatorrhea, related to fat malabsoption
  - Excretion of more than 7 g of fat per day is diagnostic of malabsorption
  - Stool is greasy, pale, bulky, floating, difficult to flush

Diarrhea, Cont.

- Onset : Acute, Chronic, intermittent
- Stool: frequency, volume, color, consistency (watery, unformed, semisolid)
- Content (red blood, mucus, pus)
- Associated features:
  - urgency, fecal incontinence, tenesmus, abdominal pain, vomiting, sleep disturbance.
- Recent travel
- Medications (antibiotics, laxatives, PPI)

Diarrhea, Cont.

- High-volume diarrhea (>1 liter per day) occurs when stool water content is increased
- Low-volume diarrhea is associated with the irritable bowel syndrome.
- Overflow diarrhea: Fecal impaction secretions and particulate/fluid stool matter seeps around the impacted fecal material.

Diarrhea, Cont.

- Secretory: due to intestinal inflammation, e.g. infection, or inflammatory bowel disease.

- Osmotic: due to malabsorption, adverse drug effects or motility disorders, related to food intake.

Causes Of high volume diarrhea

- Infective gastroenteritis – most common , norovirus/ salmonella/ c.diff , if > 4 weeks → chronic (giardiasis , amebiasis)
- IBD, colonic ischemia, infective gastroenteritis → bloody
- Colon cancer → especially right sided
- Thyrotoxicosis → secretory
- Celiac disease, chronic pancreatitis, cystic fibrosis → steatorrhea

Causes Of Low Volume Diarrhea

- Irritable bowel syndrome → pain , dyspepsia , bloating
- Rome IV criteria is used for diagnosis of IBS

Constipation

- Infrequent passage of hard stool
- Onset: lifelong, recent
- Stool frequency: How frequent, time spent straining
- Shape of stool → Bristol classification
- Associated symptoms: abdominal pain, anal pain, rectal bleeding
- Drugs

Terminology

- Obstipation: Absolute constipation with no gas or bowel movements, suggesting complete intestinal obstruction
- Tenesmus: feeling of incomplete evacuation, suggests rectal disease such as inflammation or cancer (the sensation of needing to defecate although the rectum is empty)
- Anismus : difficulty to empty the rectum despite straining due to paradoxical contraction of puborectalis muscle

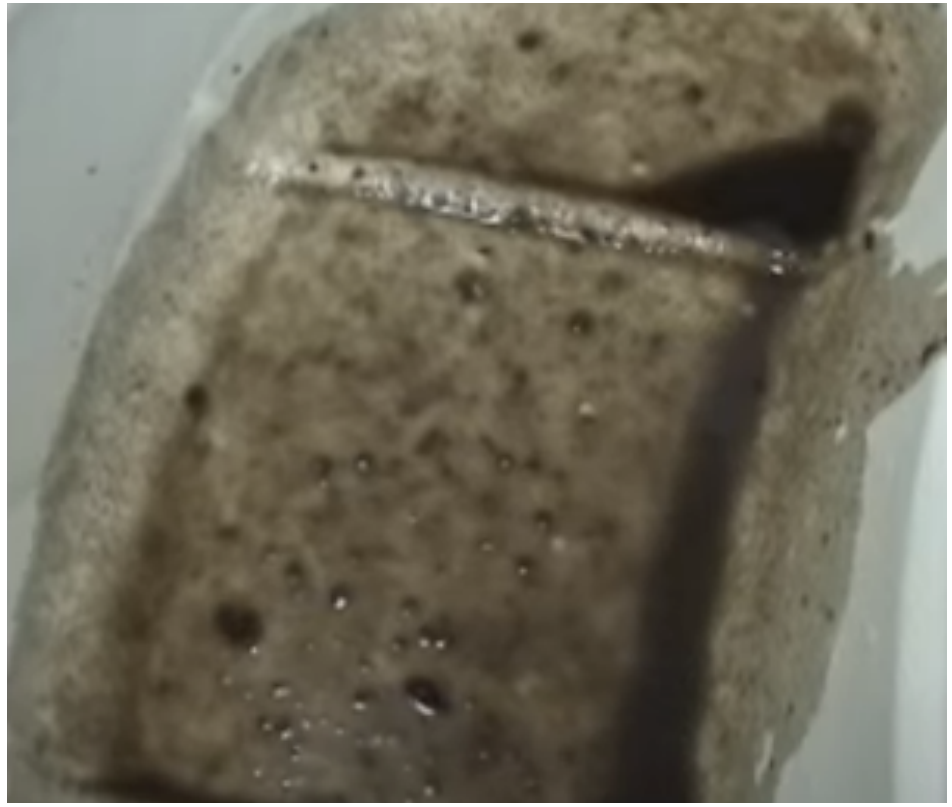
Causes

- Lack of dietary fibre
- Impaired motility
- Mechanical obstruction
- Colorectal cancer
- Impaired rectal sensation or anorectal dysfunction
- IBS
- Drugs (iron, PPI, opioids)
- Immobility
- Metabolic\endocrine (hypercalcemia, hypothyroidism)

Bleeding

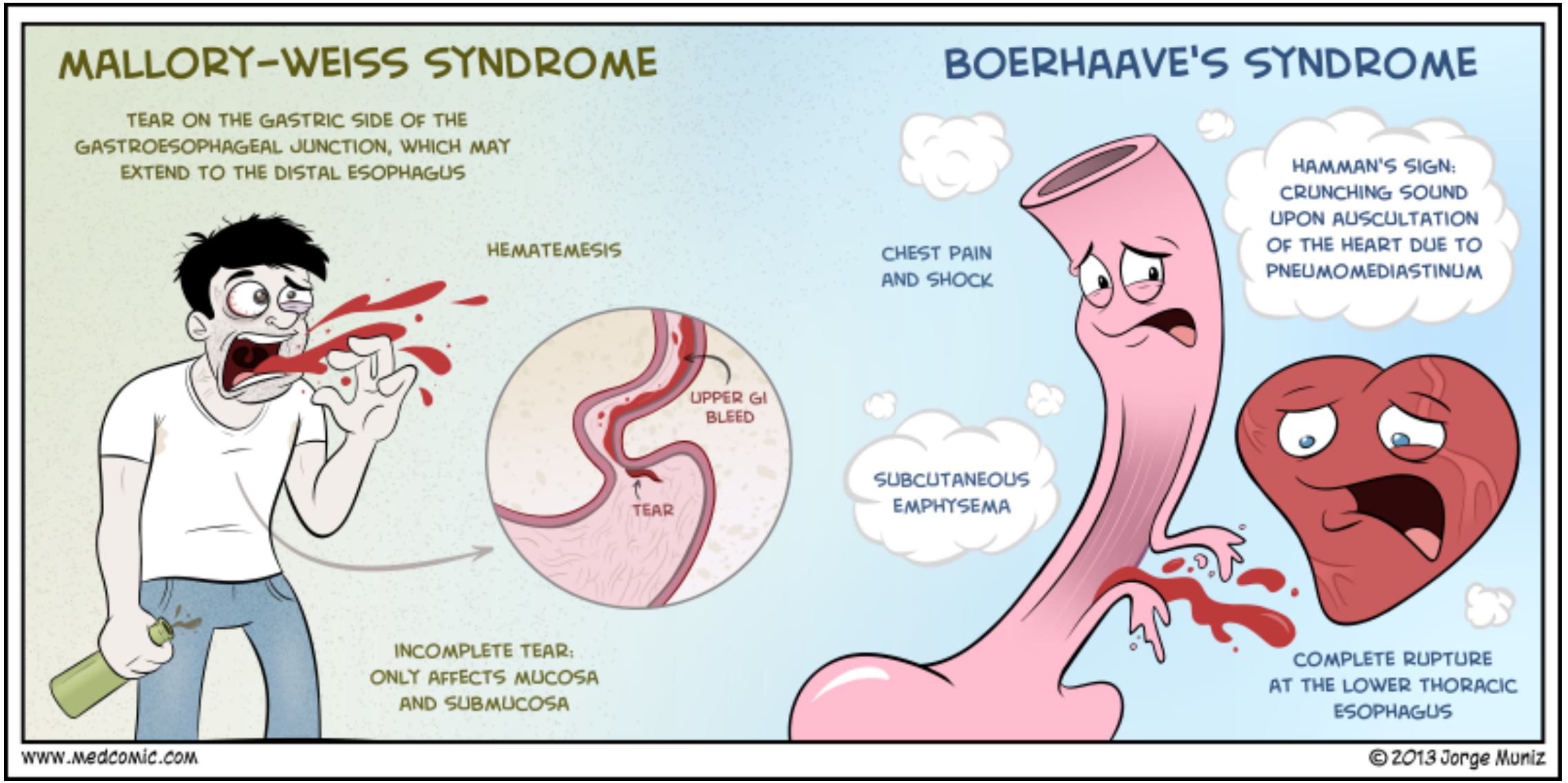
- Haematemesis: vomiting blood
- Ask about:
  - Color: fresh and red, or dark brown in colour and resembles coffee grounds
    - Coffee ground emesis usually occurs with slower bleeding and coagulation of blood after exposure to gastric acid.
  - Amount
  - Onset , was it preceded by intense retching?
  - Previous history: dypepsia, peptic ulcer, GI bleeding, liver disease
  - Drugs and Alcohol intake: NSAIDs, glucocorticosteroids

Haematemesis, cont.



Coffee Ground Vomitus

Haematemesis

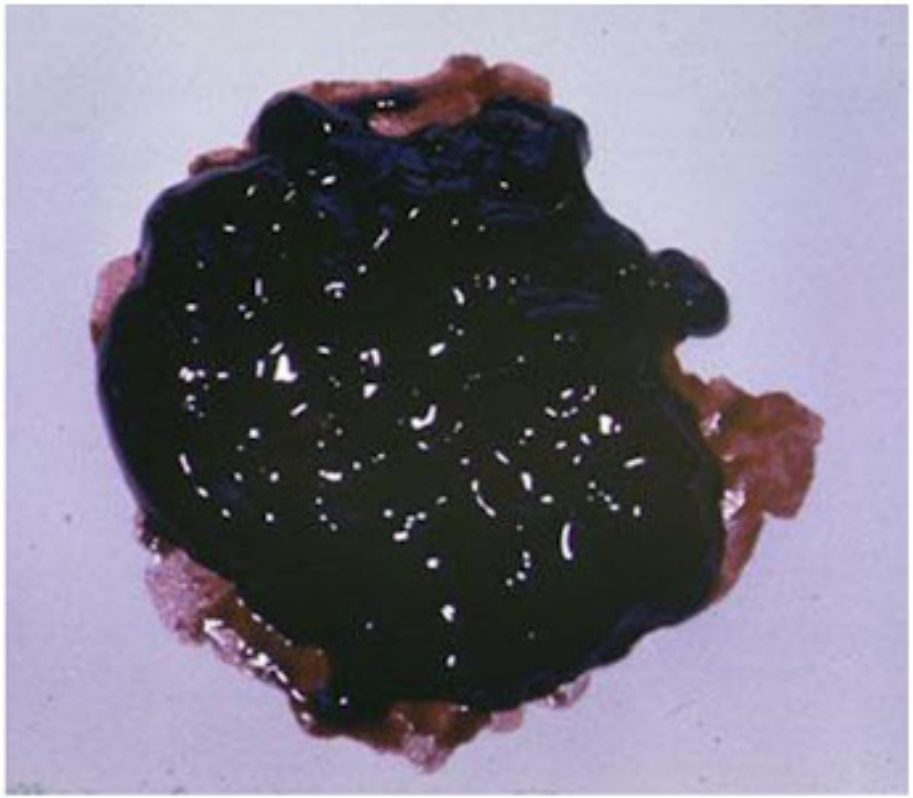


Bleeding, Cont.

- Melaena 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.

Melaena



Melena
The specimen consists of a black tarry stool passed per anus.
Note the mahogany color at the edge of the specimen (filter paper).

Melaena: > 50 ml\day

Hemoccult: >20 ml\day

Bleeding, Cont.

- Fresh rectal bleeding (heamatocazia): indicates a disorder in the anal canal, rectum or colon.
- Blood may be mixed with stool, coat the surface of otherwise normal stool, or be seen on the toilet paper or in the pan.
- During severe upper gastrointestinal bleeding, blood may pass through the intestine unaltered, causing fresh rectal bleeding.

Causes of 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, sclerae and mucous membranes due to hyperbilirubinaemia.
- Most clinicians will recognize jaundice when bilirubin levels exceed 3 mg\dl

Jaundice

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

- Appetite and weight change
- Abdominal pain, altered bowel habit
- Gastrointestinal bleeding
- Pruritus, dark urine, rigors
- Drug and alcohol history
- Past medical history (pancreatitis, biliary surgery)
- Previous jaundice or hepatitis
- Blood transfusions (hepatitis B or C)
- Family history, e.g. congenital spherocytosis, haemochromatosis
- Sexual and contact history (hepatitis B or C)
- Travel history and immunisations (hepatitis A)
- Skin tattooing (hepatitis B or C)

Jaundice, Cont.

- Stercobilin is the substance that gives the stool its normal color. Obstructive jaundice causes pale stool.
- Urobilin is the substance that gives the urine its yellow color.
- Urine bilirubin is normally absent.
- Conjugated hyperbilirubinemia causes the urine to become dark.

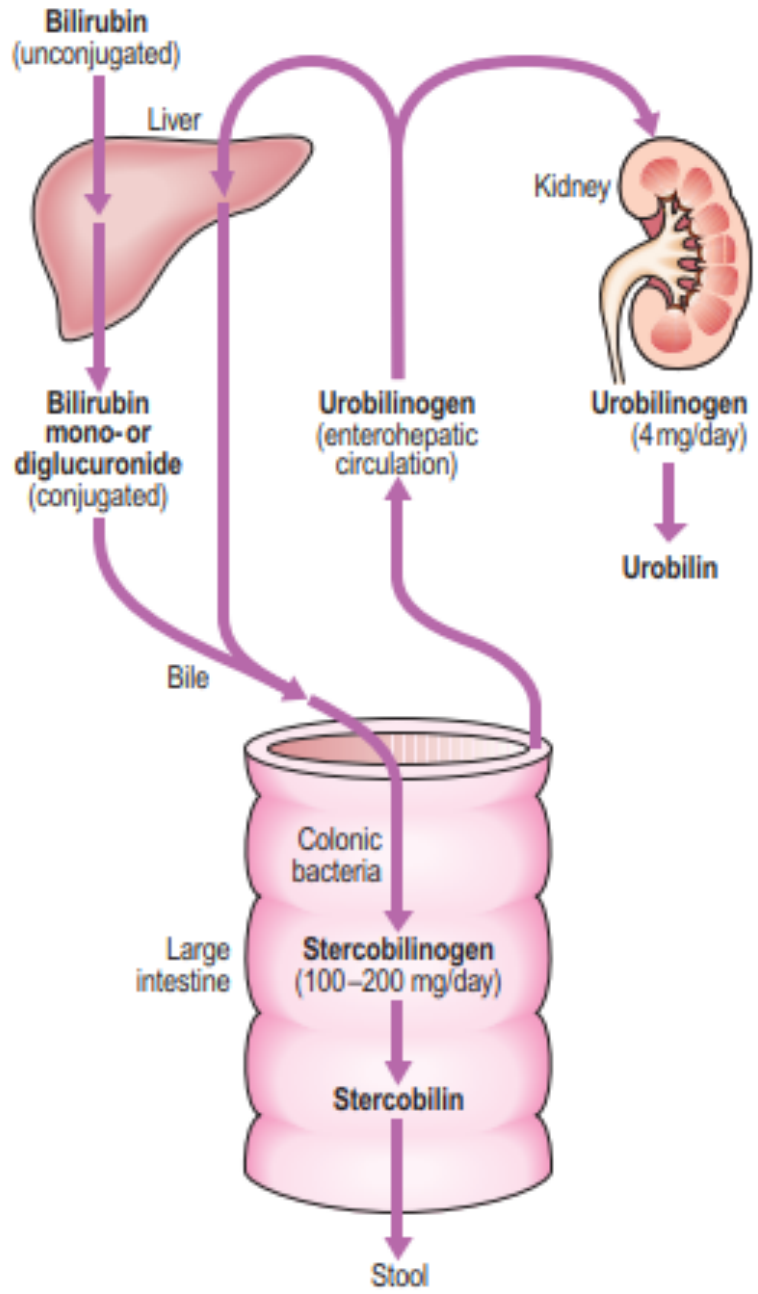
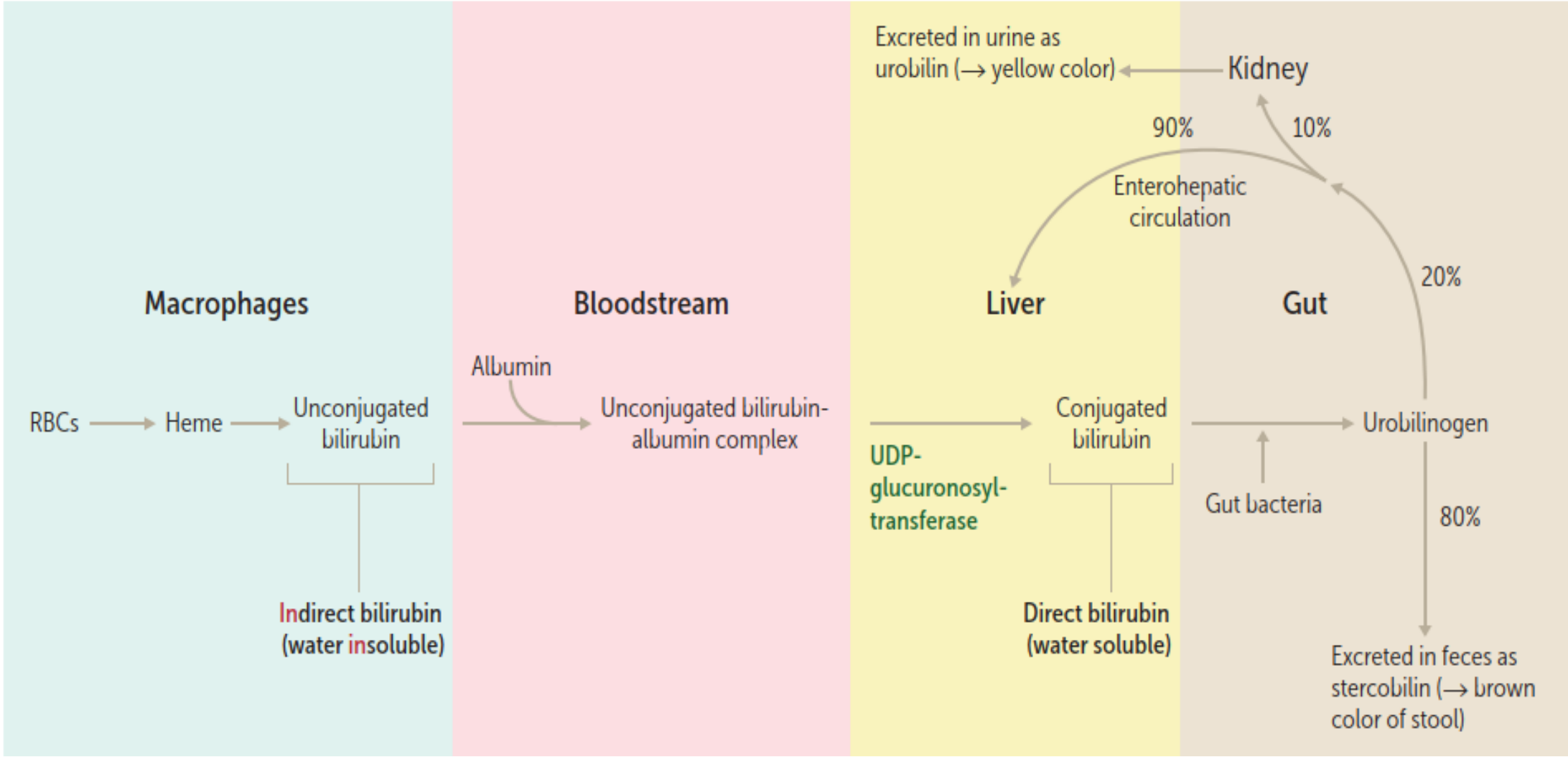


Fig. 8.9 Pathway of bilirubin excretion.

Jaundice, Cont.



Quick Review

- Heme->biliverdin->bilirubin->to liver->conjugation to bile (aka **conjugated bilirubin**)->secreted into duodenum->broken down in large intestine by bacteria->**urobilinogen**->stercobilinogen OR resorbed into bloodstream and oxidized to **urobilin** which gives urine its color.

  In obstructive jaundice, you don't have secretion of conjugated bilirubin (bile) into the GI tract, so the bacteria in the large intestine does not have any bilirubin to breakdown into sterobilin which is why you get pale stool!
  So why do you still get dark urine? Note: you also don't get any urobilin either. BUT the buildup of conjugated bilirubin leaks into the urine. Bilirubin is also pigmented! bili-rubin (rubin for red, which is why you get dark urine).

Jaundice, Cont.

6.7 Urine and stool analysis in jaundice

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

Jaundice, Cont.

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 cholestasis:
  - Gallstones
  - Cancer: pancreas, cholangiocarcinoma

Jaundice, Cont.

- Prehepatic jaundice: extravascular hemolysis, decreased bilirubin uptake (Gilbert disease)
- Hepatic jaundice: Hepatocellular disease
- Posthepatocellular/ cholestatic jaundice: intrahepatic vs extrahepatic.
  - Extra: Gallstones (abdominal pain), cholangiocarcinoma (painless)
  - Intra: PBC, PSC, alcohol

Direct VS. Indirect hyperbilirubenemia

Cojugated bilirubin/ total bilirubin

- Indirect : <20 % of conjugated(D) bilirubin
- Mixed : 20-50% of conjugated(D) bilirubin
- Direct : >50% of conjugated(D) bilirubin

Groin swellings and lumps

- Hernias
- Lymph nodes
- Skin and subcutaneous Lumps
- Saphena varix
- Hydroceele
- Undescended testis
- Femoral aneurysm
- Psoas abscess

Past Medical History

- History of a similar problem may suggest the diagnosis: for example, bleeding peptic ulcer or inflammatory bowel disease.

- Atrial fibrillation; acute mesentric ischemia (embolic)

- 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.

Family History, Cont.

- 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 (specific types)
- alcohol consumption
- Smoking increaes risk of malignancies, Crohn's disease and peptic ulcer, while it appears to decrease the severity of Ulcerative Colitis
- Stress, exacerbates irritable bowel syndrome and dyspepsia
- Foreign travel: liver diseases, diarrhea

Risk factors for liver disease

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

Thank you