HISTORY TAKING SERIES

APPROACH TO DIARRHOEA

MUM IMS

Definition of Diarrhoea

- increased stool frequency and volume
- decreased consistency relative to the usual habit of the individual.

Acute diarrhoea → 3 episodes of partially formed or watery stool per day for less than 14 days

Chronic diarrhoea →
- episode lasts more than 4 weeks
- Always needs investigations

Functional gastrointestinal disorders:

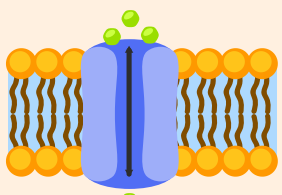
Symptoms occur in the absence of any demonstrable abnormalities in the digestion and absorption of nutrients, fluid and electrolytes

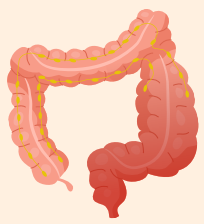
Red flags for diarrhoea:

- Unexpected weight loss
- Persistent / unresolved diarrhoea
- Fever
- Overseas travel
- Severe abdominal pain
- Family history of bowel cancer or IBD

Diarrhoea mechanisms

Types	Mechanism	Causes	Clinical clues
Osmotic 	• Non-absorbed solutes ↑ osmotic pressure • water drawn into lumen	• Non-absorbable substances ◦ E.g. purgatives (magnesium sulphate / magnesium containing antacids) • General malabsorption (high concentrations of solute remains in lumen) • Specific absorptive defect	• Stops with fasting or when malabsorptive substance is discontinued

Secretory
 
	• Active intestinal secretion of fluids + electrolytes
	• Decreased absorption
		• Enterotoxins
		  ◦ E.g. cholera, E. coli, C. difficile
		• Hormones
		  ◦ E.g. Vasoactive intestinal peptide in Verner-Morrison syndrome
		• Ileal resection
		  ◦ Bile salts in colon
		  ◦ Fatty acids in colon
		• Some laxatives
			• Continues despite fasting

Inflammatory 	• Mucosal damage → fluid + blood loss • Impaired absorption of fluid and electrolytes	• Infection ◦ E.g. dysentery due to Shigella • Inflammatory bowel disease	• Blood + mucus in stool • Fever, tenesmus
Abnormal motility 	• Altered transit time • Small bowel bacterial overgrowth	• Diabetes (autonomic neuropathy) • Post-vagotomy • Hyperthyroidism	• Variable stool pattern • Systemic disease

Causes of Acute Diarrhoea

Acute diarrhoea
(Diarrhoea < 2 weeks)
MINT

Medications
- Antibiotics → C.difficile
- Acid suppressants E.g. PPI
- Metformin
- Cytotoxics
- Laxatives
- Levothyroxine

Infections
- Sudden onset of bowel frequency
- Crampy abdominal pains
- Fever

Necrosis
- E.g. radiation, ischemia

Toxic ingestions

C.difficile risk factors?

Yes → Send stool for C.difficile toxin

No

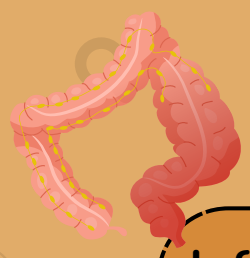
Inflammatory diarrhoea
- Salmonella
- Camylobacter
- Shigella
- EHEC
- Yersinia
- Vibrio
- E.histolytica

Watery diarrhoea
- Norovirus
- C.difficile
- C.perfringens
- ETEC
- Rotavirus
- Giardia
- Cryptosporidium
- Listeria
- Cyclospora

Clinical features commonly associated with acute diarrhoea:
- Fever
- Abdominal pain
- Vomiting
- Dehydration (severe diarrhoea)

Causes of Chronic Diarrhoea

Chronic diarrhoea



Inflammatory diarrhoea

Fever, blood, mucus, urgency, tenesmus

Inflammation:
- Inflammatory bowel disease

Infiltration:
- Colon cancer
- Lymphoma
- Amyloidosis

Ischemia:
- Ischemic colitis
- Mesenteric ischemia

Iatrogenic:
- Immunotherapy
- Radiation
- Chemotherapy

Infection :
- Cytomegalovirus
- Herpes Simplex Virus
- Tuberculosis
- Mycobacterium avium complex
- Syphilis
- Aeromonas
- E.histolytica
- Schistosomiasis
- C.difficile

Fatty diarrhoea (stool osm gap > 50 mOsm)

Oil drops, stain porcelain, steatorrhoea

Confirm with fecal fat study (>7g/day)

Malabsorption:
- Coeliac
- Whipple
- Tropical sprue
- Small Intestinal Bacterial Overgrowth
- Giardiasis
- Bile acid

Maldigestion:
- Exocrine pancreatic insufficiency

Watery diarrhoea

Calculate fecal osmotic gap

Osmotic
(stool osm gap > 100 mOsm):
- Stool pH <6
  - Lactose intolerance, Dietary sugar, Sugar alcohols
- Stool pH > 6
  - Poorly absorbed ions (Mg, Phos, Sulfates), Laxatives

Secretory
(stool osm gap <50 mOsm)
- Bile acid
  - Ileal disease/ resection
  - Cholecystectomy
- Medications
  - Non-osmotic laxatives
- Endocrine
  - Carcinoid
  - VIPoma
  - Gastrinoma
  - Glucagonoma
  - Stomatostatinoma
- Cancer
  - Lymphoma
  - Villous adenoma
  - Colorectal cancer
- Microscopic colitis
- Protein-losing enteropathy

Consider functional or factitious causes :

Functional diarrhoea
- Irritable bowel syndrome (IBS)
- Autonomic enteropathy (Diabetes Mellitus)

Factitious diarrhoea (self-induced diarrhoea)
- Purgative abuse (often seen in eating disorders)
- Dilutional diarrhoea

DID YOU KNOW?

Large volume diarrhoea: small bowel issue, secretory diarrhoea

Small volume diarrhoea: large bowel issue, osmotic diarrhoea

INTERESTING FACT

History taking

H/O diarrhoea > 10 days rarely has an infective cause

- **Identification of aetiological agent is important**

Duration < 2 weeks: suspect gastroenteritis

Stool characteristics

Consistency and appearance 	Liquid and uniform	• Small bowel disorder (e.g. gastroenteritis)
	Loose with bits of faeces	• Colonic disorder
	Watery, offensive, bubbly	• Giardia lamblia infection
	Liquid or semiformed, mucus +/- blood	• Entamoeba histolytica
	Bulky, pale, offensive	• Malabsorption
	Pellets or ribbons	• Irritable bowel syndrome
	Rice water	• Vibrio cholerae
Blood 	• Campylobacter, Shigella, Salmonella, E.coli, amoebiasis, Pseudomembranous colitis • Crohn's, Colorectal cancer, Colonic polyps, • Black colour stool: Melaena	
Mucus 	• Irritable bowel syndrome • Colorectal cancer and polyps	
Frank pus	• Inflammatory bowel disease • Diverticulitis • Fistula/abscess	
Explosive	• Cholera, Giardia, Yersinia, Rotavirus	
Steatorrhoea	• Pancreatic insufficiency • Biliary obstruction	
Volume and quantity	• Differentiate small bowel or large bowel causes	
Time of occurrence 	• Night or day	

History taking

Associated symptoms:

- Nausea/ Vomiting
- Abdominal pain
- Constipation (diarrhoea alternating with constipation ⇒ irritable bowel syndrome, colorectal cancer)
- Tenesmus
- Bloating
- Flatulence

Past medical history:

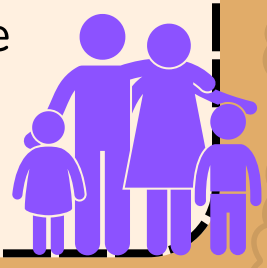
- HIV
- Achlorhydria
- Recent hospitalisations
- Past abdominal surgery
- Inflammatory bowel disease
- Irritable bowel syndrome
- Coeliac disease
- Hyperthyroidism

Systemic symptoms:

- Constitutional symptoms
  - Fever
  - Chills
  - Weight loss
  - Anorexia
  - Anaemia
- Extraintestinal symptoms of IBD
  - Arthritis
  - Mouth ulcers
  - Eye problems

Family hx of GI conditions:

- Inflammatory Bowel Disease
- Colorectal cancer
- Coeliac disease



Drug hx:

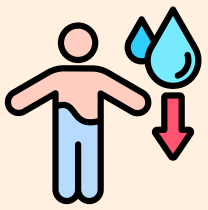
Refer to **page 3**: causes of acute diarrhoea

Social hx:

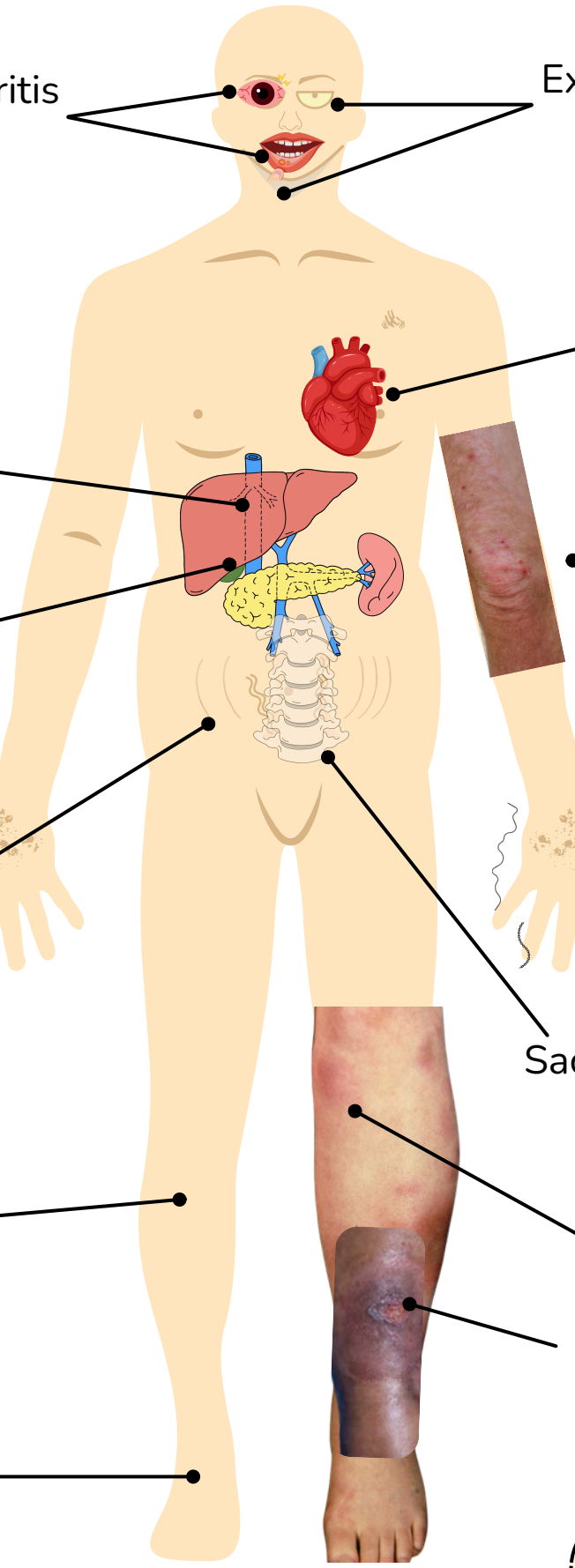
- H/O exposure within family or workplace, child daycare
- H/O ingestion of infected food (raw / contaminated)
- H/O water exposure from swimming pools, camping, or the marine environment
- Travel history
- Animal exposure
- Diet change
- Stress

Physical examination

Signs of moderate to severe dehydration:



- Dry mucous membranes
- Decreased skin turgor
- Tachycardia, Hypotension
- Altered mental status
- Prolonged capillary refill (>2 seconds)



Iritis, conjunctivitis, episcleritis
Mouth ulcers (IBD)

Exophthalmos, Goitre
(Hyperthyroidism)

Cardiac murmur
(Carcinoid syndrome)

Liver abscess
(Amoebiasis)

Dermatitis herpetiformis
(Coeliac disease)

Primary sclerosing cholangitis
(Ulcerative colitis)

Warm, moist palms, tremor
(Hyperthyroidism)

Mass
(Colon carcinoma,
Pelvic abscess, IBD)

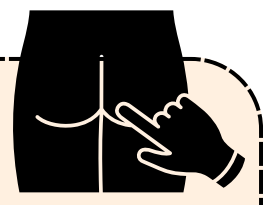
Sacroiliitis / Ankylosing spondylitis
(Crohn's with HLA-B27)

Joint arthritis
(IBD)

Erythema nodosum (IBD)

Pyoderma gangrenosum (IBD)

Peripheral neuropathy
(Diabetes)



Rectal examination :

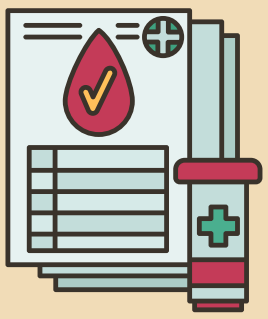
- Masses
- Impacted faeces
- Skin tags, perianal fistula, anal fissures (IBD)

Signs in a patient with diarrhoea

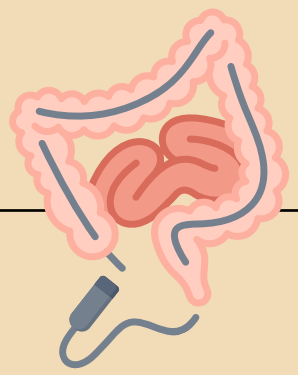
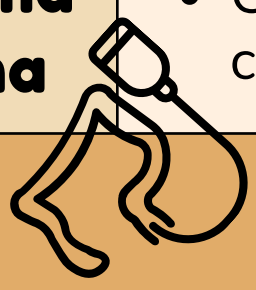
- Weight loss
- Rashes
- Pallor
- Jaundice
- Abdominal mass or scars

Investigations

Investigations	Details

Blood 	• Full blood count
	  ◦ ↓ MCV: Iron deficiency (Coeliac, Colon cancer)
	  ◦ ↑ MCV: ↓ B12 absorption (Coeliac, Crohn's), Alcohol abuse
	  ◦ Eosinophilia: Parasites
	  ◦ WCC
	• Urea & Electrolytes
	  ◦ ↓ K+: Severe diarrhoea
	• ↑ ESR/CRP
	  ◦ Infections, Crohn's, Ulcerative Colitis, Cancer
	• Thyroid function test
	  ◦ ↓ TSH: Thyrotoxicosis
	• Coeliac serology
	• HIV test

Stool 	• Stool Microscopy, Culture & Sensitivity
	  ◦ Bacterial pathogens, ova cysts, parasites, C.diff toxin
	• Viral PCR
	• Faecal calprotectin
	  ◦ To detect bowel inflammation
	• Faecal elastase
	  ◦ To detect chronic pancreatitis

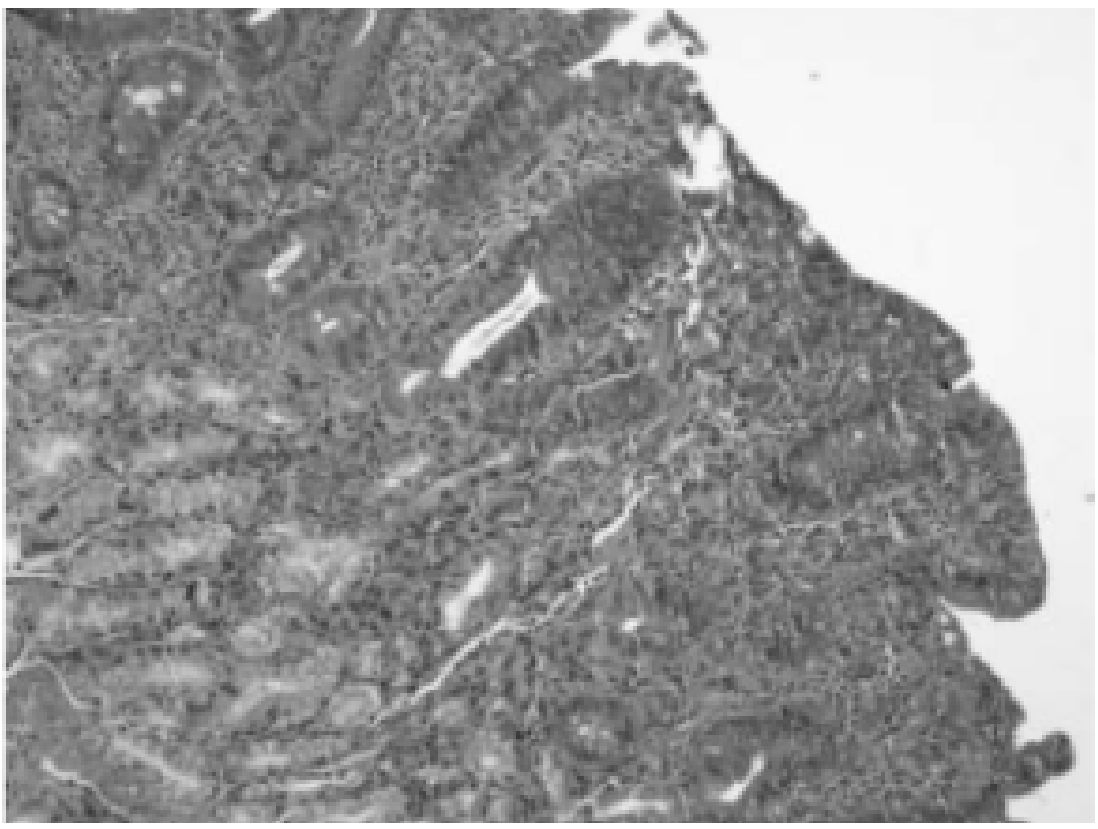
Lower GI endoscopy 	• Full colonoscopy with biopsy
Small bowel enema and barium enema 	• Consider to look for small bowel issues, if colonoscopy is normal

References

1. Kumar and Clark's Clinical Medicine 9th Edition
2. Davidson’s Principles and Practice of Medicine 24th Edition
3. John Murtagh General Practice 6th edition
4. Oxford Handbook of Clinical Medicine 11th edition
5. https://www.crohnscolitisfoundation.org/what-is-ibd/extraintestinal-complications-ibd

Quiz time!

Question 1

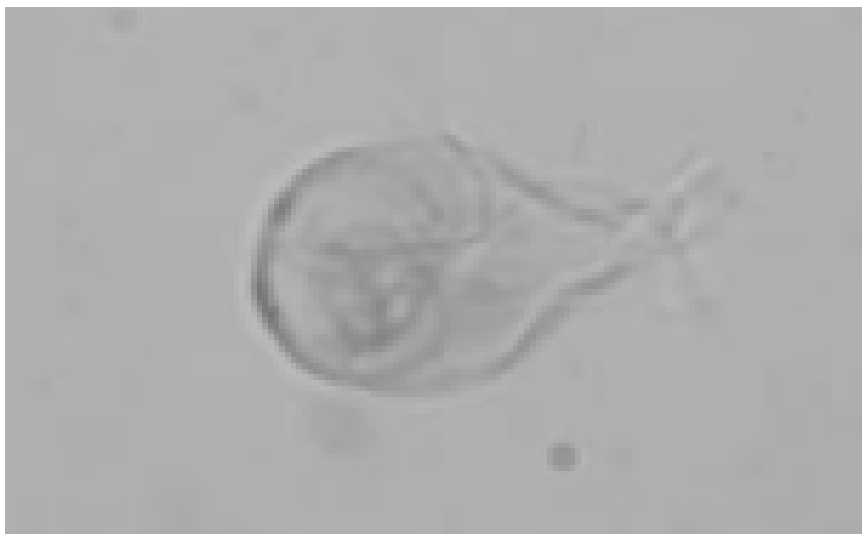


A 2-year-old girl presents with lifelong malabsorptive, foul-smelling diarrhoea, weakness, and failure to thrive. Her symptoms began at 6 months after starting solid foods and worsened recently after eating cereal daily. A dairy-free diet did not help. Small intestine biopsy is shown. What is the most likely diagnosis?

(A) Abetalipoproteinemia
(B) Coeliac sprue
(C) Lactase deficiency
(D) Viral enteritis
(E) Whipple disease

Quiz time!

Question 2



A 34-year-old woman presents with three weeks of abdominal pain and diarrhoea. She says the diarrhoea appears to be greasy. She also admits to a lot of flatulence since the gastrointestinal symptoms began. A stain of the stool is shown in the image. What drug(s) should be used to treat the organism causing her symptoms?

(A) Chloroquine
(B) Dapsone
(C) Melarsoprol
(D) Metronidazole
(E) Nifurtimox
(F) Sulfadiazine and pyrimethamine