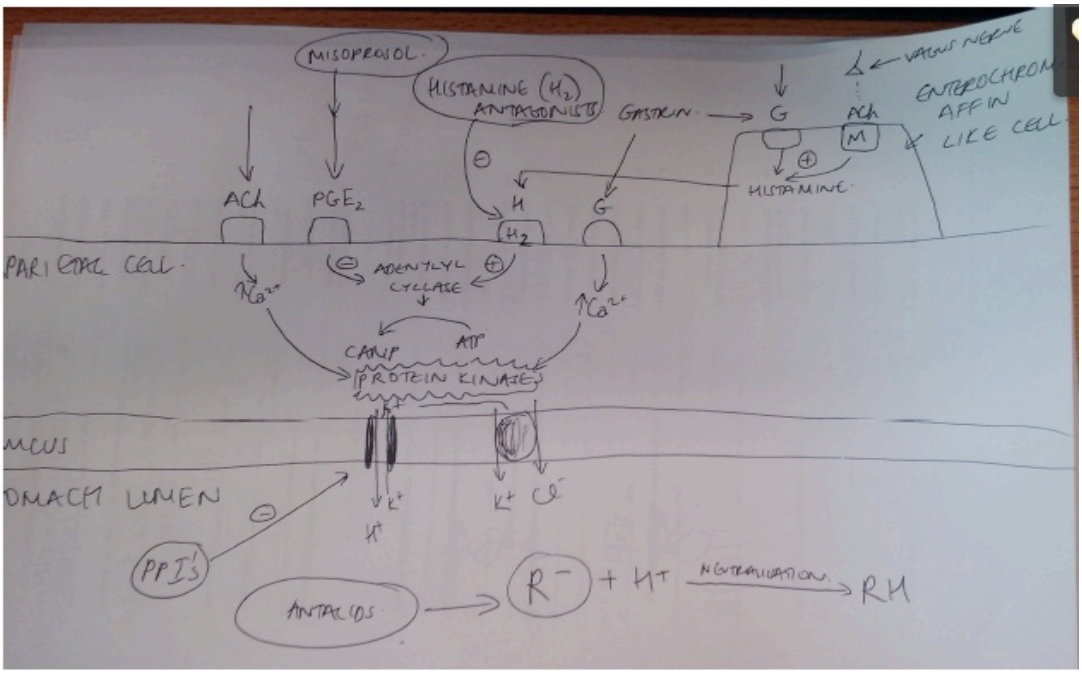


Small intestine

- 2-3m in length
- Enlarged surface area via VILLI and enterocytes
- Main function: absorption, mostly in the duodenum and jejanum
- Peyer's patches are lymphoid aggregates that take up antigen which stimulate B cells to differentiate into IgA secreting plasma cells to deal with intraluminal antigen
- Brunner's glands: secrete alkaline mucus to neutralise acid contents entering the duodenum from the stomach. Located in duodenum. Hypertrophy of Brunner's glands is seen in PUD
- 2 litres of alkaline fluid secreted daily contain mucus and digestive enzymes
- blood supply is from the SMA (at ampulla of vater)

Colon

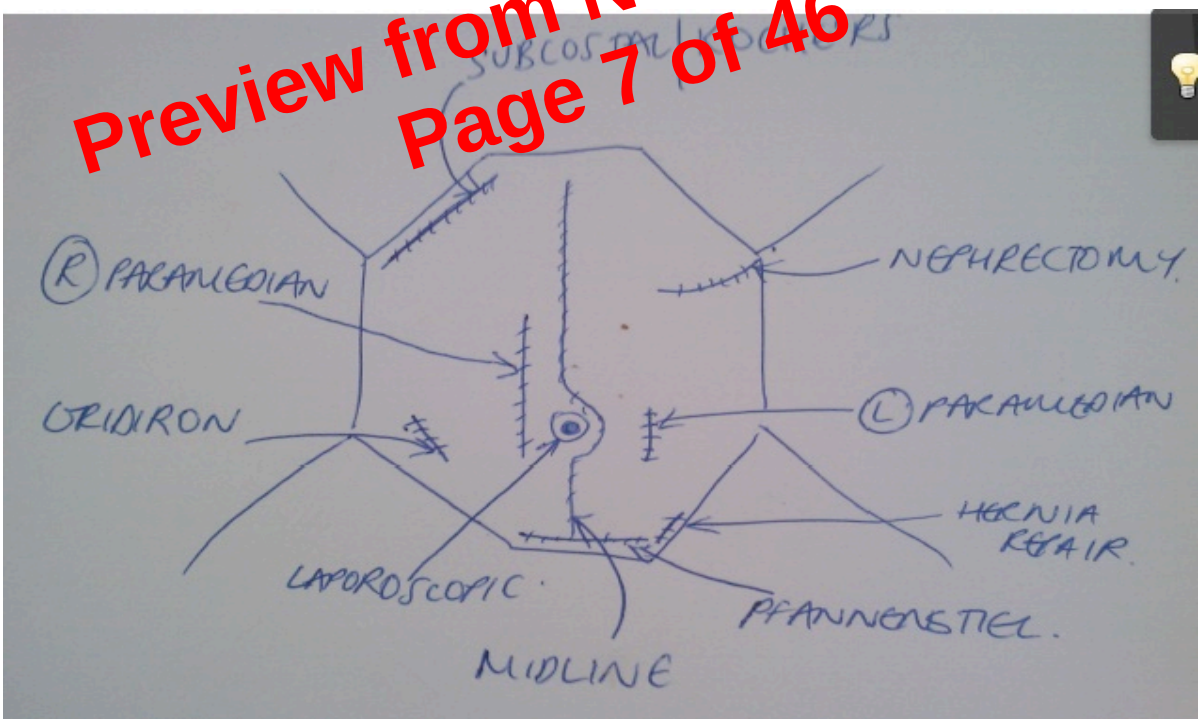
- approx 1 m in length
- main function: absorption of water, Na and Cl
- blood supply: SMA and IMA

Pectinate line

- Pain not well localised (autonomic nerves)
- Pain at embryological origin (foregut, midgut, hindgut)
- May radiate to specific sites
    - Gall bladder - tip of right scapula
    - Diaphragm - shoulder tip
    - Ureter - inguinal/scrotal
- Associated with visceral Sx
    - Nausea
    - Anorexia
    - Pallor
    - Sweating
- Colic: Characteristic type of visceral pain caused by contraction of smooth muscle against an obstruction, come's and go's in waves, associated with writhing/rolling around and vomiting

- PARIETAL PAIN
    - Parietal peritoneum is innervated by pain sensitive fibres (somatic nerves)
    - Pain is therefore well localised to the area overlying the inflammation or irritation
    - It is aggravated by movement and characterised by guarding and rebound tenderness

Abdominal scars



- SUBCOSTAL/KOCHER'S: cholecystectomy
- RIGHT PARAMEDIAN: laparotomy

- Causes
  - Mechanical block
    - In the lumen
      - Food bolus
      - Foreign body
      - Plummer-vinson syndrome (post-cricoid web & chronic iron deficiency anaemia)

    - In the wall
      - Malignant stricture: pharyngeal, oesophageal or gastric cancer
      - Benign oesophageal stricture (caused by GORD, corrosives, RT). Rx: endoscopic balloon dilatation
      - Pharyngeal pouch
      - Trauma e.g. endoscopy

    - Outside the wall
      - Retrosternal goitre
      - Lymphadenopathy
      - Lung Ca
      - Aortic aneurysm

  - Motility disorders

    - Achalasia: degeneration of the myenteric plexus which leads to failure of relaxation of the lower oesophageal sphincter, associated with squamous cell carcinoma

      - Sx: dysphagia, regurgitation, substernal cramps and weight loss

      - Barium swallow: dilated tapering oesophagus (bird beak)

      - Rx
        - endoscopic balloon dilatation
        - Heller's cardiomyotomy
        - Botulinum injection (new technique has good results)

    - Bulbar/pseudobulbar palsies

    - Crest disease

    - Chagas disease

    - Myasthenia gravis

    - Oesophageal spasm

      - causes intermittent dysphagia +/- chest pain

      - Barium swallow: abnormal contractions

- Bulking agents
  - E.g Fybogel, isphagula husk
  - Increase faecal mass therefore stimulate peristalsis

- Stimulant laxatives
  - E.g. senna, sodium decussate, picosulfate
  - Increase intestinal motility (prolonged use may cause hypokalaemia)

- Osmotic laxatives
  - E.g. lactulose, phosphate enemas
  - Retain fluid in the bowel

- **Lower GI bleed**

  - Causes

    - V
      - Haemorrhoids
      - Anal fissures
      - Mesenteric ischaemia
      - Angiodysplasia

    - I
      - Diverticulitis
      - Infectious colitis
      - IBD

    - N
      - Malignancy

    - T

- **Steatorrhoea**

  - Def: “fatty pale stools that are difficult to flush”

  - Causes
    - 1. Chronic pancreatitis
    - 2. Coeliac disease
    - 3. Pancreatic/ampulla of Vater obstruction

Pathology

Salivary gland tumours
Disorders of the oesophagus
Motility disorders

- Clinical features
  - 1. Haliptosis
  - 2. Regurgitating food
  - 3. Sensation of gurgling in the neck

- Ix
  - Barium swallow

- **Infectious esophagitis**

  - Cause
    - Candida albicans
    - HSV
    - CMV
    - N.B. most commonly occurs in immunosuppressed patients

  - Sx
    - Dysphagia

Diffuse Oesophageal Spasm

- Def: “Non-peristaltic contractions of the oesophagus”

- Sx:
  - Dysphagia, odynophagia, chest pain
  - Precipitated by ingestion of hot/cold liquids
  - Relieved by nitroglycerin (takes few minutes whereas angina takes seconds)

- Ix
  - Barium swallow: “corkscrew shaped oesophagus”
  - Oesophageal manometry shows high-amplitude, simultaneous contractions

- Rx
  - M
    - Nitrates
    - CCB’s
  - S
    - Oesophageal myotomy for severe symptoms

Upper GI bleed

- Mallory-weiss tear
- Oesophageal varices

- Gliadin provokes an inflammatory response that results in villous atrophy in proximal small bowel
- Caused by an immunological reaction to gliadin found in Wheat, Barley, and Eye

- Sx
  - Asymptomatic
  - W/L
  - Abdo pain
  - Steatorrhoea
  - Malaise
  - Failure to thrive
  - Associations
    - Other autoimmune diseases
    - Dermatitis herpetiformis (Itchy rash, Rx with dapsone)
    - Iron deficiency anaemia
    - Osteomalacia
    - Small bowel lymphoma

  - Ix
    - Antiendomyseal ABs
    - Antigliadin ABs (may become negative after treatment)
    - Upper GI endoscopy with duodenal Bx's (increase in lymphocyte density, villous atrophy, crypt hyperplasia)

  - N.B. Idiopathic mucosal enteropathy is a disorder that presents in the same way as ceoliac disease, a jejuna Bx shows villous atrophy but the disorder is unresponsive to dietary gluten withdrawal

  - Rx
    - Gluten-free diet
      - N.B. Gluten is not found in rice and maize

Carcinoid Tumours

- Epid
  - Relatively common (50% of small bowel tumours) but carcinoid syndrome is rare

- Pathophysiology
  - Originate from neuro-endocrine cells
  - Most common sites: appendix, terminal ileum, rectum
  - Carcinoid syndrome occurs when secondaries in the liver release serotonin into the systemic circulation

- Clinical features (carcinoid syndrome)
  - Lindsey Davies Fed Brown Rav
    - Local e.g. obstruction
    - Diarrhoea
    - Flushing
    - Bronchospasm

- ABx – all the ‘C’s
  - Clindamycin
  - Ciprofloxacin
  - Cephalosporins (third generation)

- Ix
  - Toxin in stool
  - PCR
  - Endoscopy shows inflamed mucosa with ‘yellow pseudomembranes’

- Rx
  - Oral vancomycin
  - Metronidazole

Peutz-Jegher’s syndrome

- Autosomal dominant syndrome featuring multiple non-malignant hamartomas throughout the GIT along with hyperpigmented mouth, lips, hands and genitalia

- Associated with ↑ risk of CRC

Haemorrhoids

- Def: “Congested vascular cushions”

- RF
  - 1. Low fibre diet
  - 2. Pregnancy
  - 3. Colorectal Ca

- Sx
  - Fresh blood PR
  - Painless (unless thrombosed)

- Classification
  - First degree: reduce spontaneously
  - Second degree: manually reduce
  - Third degree: remain prolapsed

- Rx

  - C
    - Increase fibre intake
    - Toilet behaviour modification

  - S