

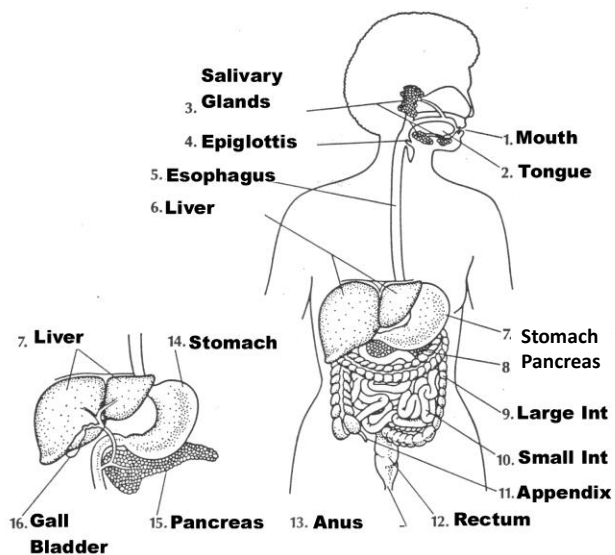


Essential Medicine for Lawyers: Gastroenterology and Liver Disease

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Human Digestive System



Digestion & Absorption

- Digestion
 - Mechanical: mastication, stomach
 - Chemical: enzymes in saliva, stomach and small intestine, pancreas break down large molecules into small molecules preparatory to ...
- Absorption
 - Fat (triglycerides) into fatty acids and glycerol
 - Carbohydrate (starch) into glucose etc
 - Proteins into amino acids
- Nutrients absorbed in small intestine
- Water absorbed by colon

Disease of the hollow gastrointestinal tract

- Oesophagus
 - Reflux, cancer
- Stomach
 - Gastritis, gastric ulcer, cancer
 - Helicobacter pylori (gastritis, ulcers)
- Small intestine
 - Coeliac disease, Crohn's disease
- Large bowel
 - Crohn's disease, ulcerative colitis (UC), diverticular disease (diverticulosis), cancer
- Functional gastrointestinal disorders
 - eg Irritable Bowel Syndrome (IBS)
- Gastrointestinal bleeding
 - Oesophageal varices, gastric/duodenal ulcers, cancer, diverticulosis, inflammatory bowel disease (IBD – UC or Crohn's)

Limited spectrum of GI symptoms

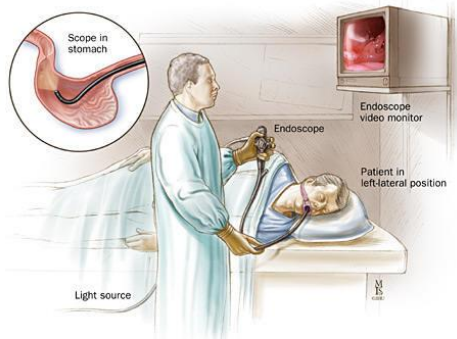
- Loss of appetite
- Loss of weight
- Nausea, vomiting
- Change of bowel habit
 - Constipation, diarrhoea, alternating
- Abdominal pain
 - Site, character
- Bleeding
 - Haematemesis
 - Melaena
 - Rectal bleeding

Endoscopy

- Endoscopy – general term ‘look inside’
- Gastroscopy (OGD: oesophago-gastro-duodenoscopy)
- Colonoscopy
- ERCP (endoscopic retrograde cholangio-pancreatography)
- Laryngoscopy
- Cystoscopy
- Hysteroscopy



Gastroscopy and colonoscopy



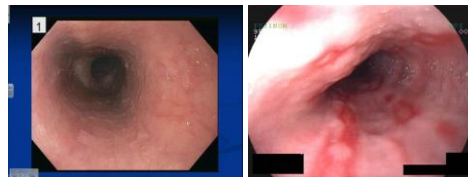
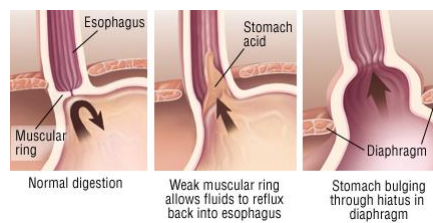
Complications

Damage to teeth
Bleeding
Perforation



Gastro-oesophageal reflux

- Hiatus hernia
- Acid regurgitation
- Heartburn
- Stricture (dysphagia)
- Barrett's oesophagus
 - Risk of cancer
- Obesity
- Smoking
- Pregnancy
- Proton pump inhibitor



Dysphagia

- Difficulty swallowing (cf. dysphasia)
- Neurological
- Incoordination of oesophageal peristalsis
- Narrowing of the oesophagus (stricture)
 - Reflux, cancer, chemical
- Can be biopsied & dilated at endoscopy, surgery, stents



Peptic Ulcer

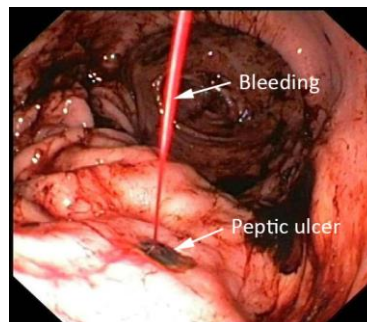
- Ulcers occurring in mucosa (lining of gastrointestinal tract) bathed by acid and pepsin
- Gastric (GU), duodenal (DU) and oesophageal ulceration (reflux, pills)
- Pain, bleeding, perforation
- Diagnosis: gastroscopy
- Treatment
 - Suppress acid: H2-receptor antagonists (H2RA), proton pump inhibitors (PPI)
 - Eradicate *Helicobacter pylori* (Hp) if present: will usually stop ulcers recurring without need for maintenance PPI treatment

Peptic Ulcer

- Ulcer
- Gastric ulcer
- Pain
- Diagnosis
- Treatment



Duodenal ulcer at gastroscopy



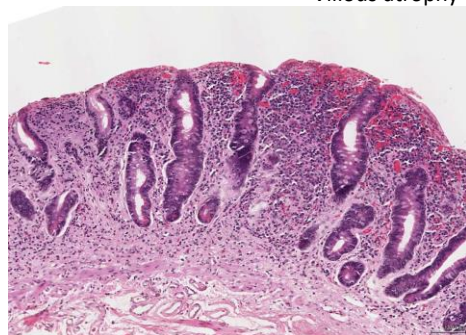
Coeliac Disease

- Gluten in cereals (wheat, barley, rye) damages small intestinal lining
- Malabsorption of nutrients and vitamins
- Anaemia, diarrhoea, steatorrhoea, weight loss, osteoporosis, osteomalacia
- Increased risk of some malignancies
 - importance of treatment with diet
- Diagnosis: serology (TTG), duodenal biopsy
- Treatment: gluten-free diet (GFD), supplements

Lining of the small bowel in coeliac disease



Normal



Coeliac
Villous atrophy

Irritable Bowel Syndrome (IBS)

- Functional ga
- No abnormal investigation
- Altered bowe
- Spontaneous
- Role of anxie
- Diet, antispasmodics, hypnotherapy
- Often an 'ad
- Adverse life
- Post-infecti



t bloating) or
bloating
, post-infective
CBT,



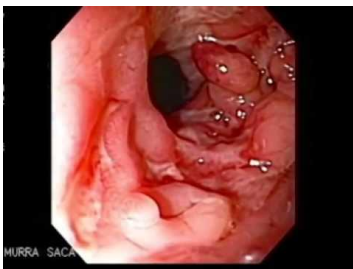
Inflammatory Bowel Disease (IBD)

- Ulcerative colitis (UC)
 - Large bowel (rectum & colon) only, rectum always with variable extent upwards (continuous), inflammation superficial
- Crohn's disease
 - Any part of GI tract (usually terminal ileum, large bowel); skip lesions, full thickness inflammation
- Diarrhoea, bleeding, pain, risk of large bowel cancer
- Extra-intestinal features (skin, eyes, joints, liver)

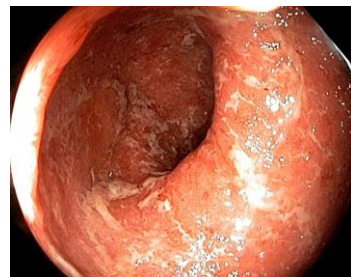
Inflammatory Bowel Disease (IBD)

- Diagnosis
 - Colonoscopy and biopsy
 - MR scan of small bowel, CT colonography, Barium x-rays
- Treatment
 - Steroids, 5-ASA compounds, azathioprine etc, biologic agents (monoclonal antibodies against TNF- α) eg Infliximab, Adalimumab
- Surgery

Colonoscopy in IBD



Crohn's



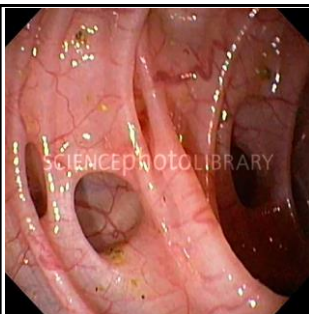
UC



Normal

Diverticular Disease Diverticulosis

- Out-pouching of the colonic lining
- Middle to old age
- Western societies. Lack of dietary fibre
- Pain, change in bowel habit
- Diverticulitis: infection, abscess (left sided appendicitis)
- High fibre diet, antispasmodics, antibiotics, surgery



Colonoscopy



CT colonography
Virtual colonoscopy



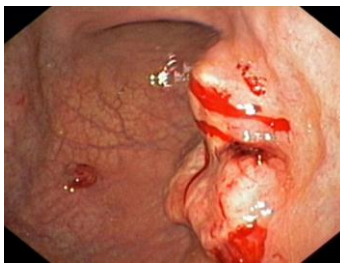
Barium enema

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Cancer of stomach and large bowel

- Middle-aged and elderly
- Stomach: loss of appetite and weight, nausea, vomiting, bleeding, discomfort/pain
- Large bowel: change in bowel habit, bleeding, anaemia, pain
- Surgery, chemotherapy/radiotherapy



Stomach



Colon

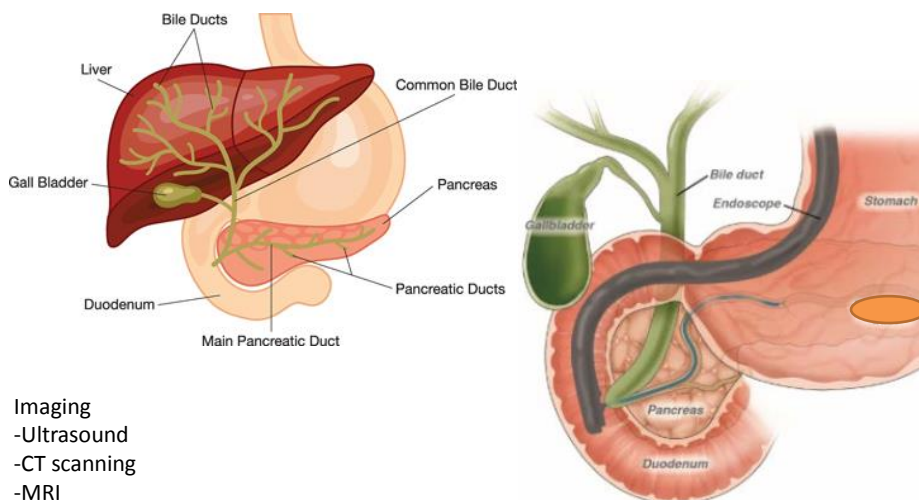
Strictures in the colon

- Cancer, Crohn's disease, Diverticulosis, Ischaemia
- Difficulty getting representative biopsies
 - Sampling error
- Litigation
 - Cancer thought to be Crohn's in young patient: alleged delay in diagnosis and inappropriate treatment
 - Diverticulosis thought to be Crohn's in young patient: alleged wrong operation

Liver, Pancreas and Biliary Tract

ERCP

Endoscopic Retrograde Cholangio-Pancreatography

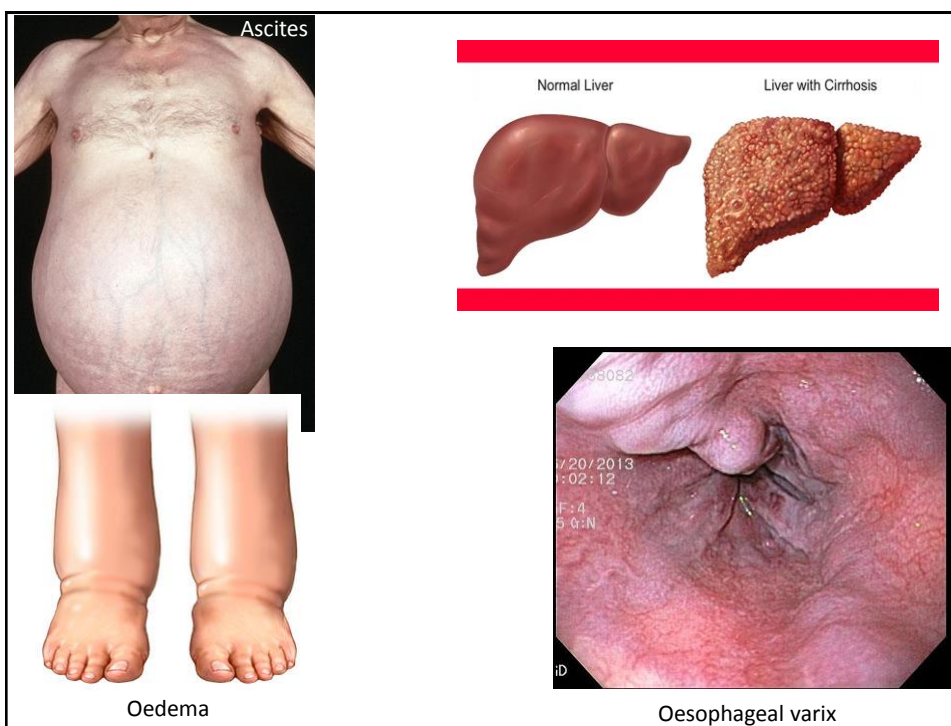


Functions

- Liver
 - carbohydrate, fat and protein metabolism
 - excretion of bile acids (fat absorption)
 - excretion of bilirubin (haemoglobin break down, accumulation causes jaundice)
- Gallbladder
 - Bile storage: released at mealtimes (fat absorption)
- Pancreas
 - Digestive enzymes, Insulin

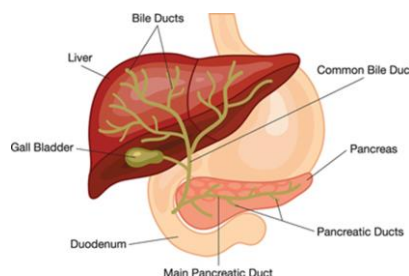
Liver disease

- Fatty liver (NAFLD): 20% population have fatty liver
- Hepatitis
 - A, B, C, D, E etc; drugs, autoimmune (treatable)
 - HBV and HCV (both treatable) can cause chronic disease and cirrhosis
 - HAV and HEV usually resolve spontaneously
- Alcohol
- Genetic
 - Haemochromatosis (treatable) etc
- Progressive disease may lead to cirrhosis
 - Longstanding inflammation, scarring with disorganisation of the liver structure
- Lethargy, jaundice, oedema, ascites, bleeding oesophageal varices
- Litigation: failure to identify treatable cause of liver disease in patient with chronic mild liver function test abnormalities



Gallbladder and Pancreas

- Gallstones
 - Pain, jaundice, rarely perforation/cancer of GB
 - Pancreatitis
 - Litigation: cutting or tying off common bile duct at laparoscopic cholecystectomy
- Pancreas
 - Acute and chronic pancreatitis, cancer
 - Pancreatitis: gallstones, alcohol
 - Pain, jaundice, diabetes
 - Litigation: delayed diagnosis of cancer



Thank you

Questions & Comments