Essential Medicine for Lawyers:
Gastroenterology and Liver Disease

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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
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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 gastrointestinal disorder
- No abnormality on examination (except bloating) or investigation (no test for it)
- Altered bowel habit, pain/discomfort, bloating
- Spontaneous onset, adverse life events, post-infective
- Role of anxiety, depression
- Diet, antispasmodics, antidepressants, CBT, hypnotherapy
- Often an ‘add-on’ to other claims!
  - Adverse life event
  - Post-infective

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
Barium enema
CT colonography
Virtual colonoscopy
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

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

Imaging
- Ultrasound
- CT scanning
- MRI
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