Peptic ulcer disease and Helicobacter pylori

Definition of peptic ulcer disease

- Ulceration of the oesophageal, gastric or duodenal mucosa

Definition of Helicobacter pylori (H.pylori)

- Gram-negative bacterium found in the stomach and associated with the development of peptic ulcer disease and gastric cancer

Epidemiology of peptic ulcer disease

- 1-2/1000 per year. Previously much more common in men, now roughly equal.
- Duodenal ulcers 4 x more common than gastric ulcers

Epidemiology of H.pylori

- Prevalence approximately 30% young adults
- Much higher in older people

Causes of peptic ulcer disease

- H. Pylori (approximately 80%)
  - Risk factor for:
    - Peptic ulcer disease
    - Gastric cancer (six-fold increased risk)
    - MALT lymphoma (which may regress if H.Pylori is treated)
  - See 'complications of H.Pylori' section below for full list of H.Pylori associations
- Drugs
  - Aspirin
  - NSAIDs
  - Steroids
- Smoking
- Alcohol
- Stress
  - Curling's ulcer (burns – sloughing of mucosa due to plasma loss)
  - Cushing's ulcer (raised intracranial pressure – changes to vagal tone)
- Acid hypersecretion
  - Zollinger-Ellison – gastrin-secreting tumour (gastrinoma)
    - Responsible for 1/1000. Multiple ulcers.
    - Treat with high-dose PPI (or curative resection)
  - Small bowel resection (loss of negative feedback on acid secretion)
  - Systemic mastocytosis (increase histamine production)
- Abnormal gastric emptying
  - Too fast can give duodenal ulcers
  - Too slow can cause gastric ulcers and succussion splash

Presentations of peptic ulcer disease

- Symptoms:
  - Heartburn
  - Dyspepsia (burping, distension, bloating) – either before or after meals
  - Symptoms relieved by antacids

- Pain
    - Epigastric
    - Posterior in a posterior ulcer
  - Haematemesis or melaena
  - Anterior duodenal ulcers tend to bleed, posterior ulcers are more likely to perforate than anterior ulcers
  - ALARM symptoms (see dyspepsia section)
- Signs:
  - Sometimes epigastric tenderness
  - Succussion splash if gastric emptying delayed

Differential diagnosis of peptic ulcer disease (see dyspepsia section)

- Oesophagitis/Gastritis
  - Alcohol; NSAIDs; Stress
  - Hiatus hernia
  - Barrett's oesophagus
- GORD (Gastro-Oesophageal Reflux Disease)
- Malignancy
- Oesophageal spasm
- Biliary causes
- Other causes of upper abdominal pain – angina; AAA; musculoskeletal; pancreatitis

Initial management of peptic ulcer disease and H. pylori infection

- Lifestyle advice
  - Weight loss; smoking cessation; avoid precipitants; raise the head of the bed; don't eat late at night
  - Stop NSAIDs / bisphosphonates / steroids
  - Use of antacids (eg. Gaviscon, Peptac) PRN.
- Trial of full-dose proton pump inhibitor (PPI) for 4-8 weeks for patients with GORD symptoms.
- Offer H2 blocking therapy therapy (e.g. Ranitidine 150mg once to twice daily) if inadequate response to PPI.
- Test for Helicobacter pylori (H. pylori) if symptoms persist (see below for testing methods):
  - Treat H. pylori if positive or if endoscopic evidence of PUD
  - Eradication therapy
    - Amoxicillin 1g twice daily and Clarithromycin 500mg twice daily plus full-dose PPI for 7 days.
    - If allergic to penicillin then substitute Clarithromycin 250mg and Metronidazole 400mg both twice daily.
- Upper GI endoscopy if symptoms persist despite above
- Urgent (within 2 weeks) upper GI endoscopy if:
  - ALARMS symptoms present
  - Age < 55
    - High risk i.e. previous gastric surgery; FHx gastric malignancy

Further management of peptic ulcer disease

- If patients present with an acute upper GI bleed secondary to PUD then manage as per any other GI bleed (see upper GI bleed section)
- H.pylori testing:

- Allow a 2 week washout period after stopping the PPI before testing for H.Pylori
- Options:
  - C13-Urea breath test is the best first line test
  - Stool antigen test
    - Both have sensitivity and specificity of approximately 95%
  - Serology
    - Sens 95%, spec only 85%
    - Cannot confirm eradication with it and persistent response
  - Endoscopy and biopsy with rapid urease test (also known as CLO test) is routinely performed at endoscopy

Complications of peptic ulcer disease and H. pylori

- Haemorrhage:
  - Controlled endoscopically
  - Adrenaline, diathermy, laser coagulation, heat probe.
  - Bleeding ulcer base can be undersewn by surgeons
- Perforation:
  - Conservative approach (NBM, NG, IV antibiotics) can prevent surgery in up to 50%, if no generalised peritonitis present
  - Laparoscopic repair of hole
- Pyloric stenosis (late complication – lots of vomiting):
  - Balloon dilatation + PPIs
  - If ineffective, drainage procedure (e.g. pyloroplasty)
- MALT lymphoma:
  - B-cell
  - Metastases are rare
  - Associated with paraproteins and pseudohyponatraemia
  - H.Pylori eradication leads to regression in 80%
- Gastric cancer:
  - VacA and CagA strains of H pylori appear to be associated with an increased risk of gastric cancer

Prognosis of peptic ulcer disease

- Good, if underlying cause addressed.
  - Approximately 2% recurrence rate
  - Smoking, ETOH, NSAIDs increases recurrence rate (especially gastric ulcers)

Common questions concerning peptic ulcer disease and H pylori

What are the causes of peptic ulcer disease?

- H. Pylori (approx. 80%)
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  - Aspirin
  - NSAIDs
  - Steroids
- Smoking
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