Common Upper GI Symptoms and Management Options

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Topics:

• Gastro-oesophageal reflux disease (GORD)
• Barrett’s oesophagus
• Achalasia
• Oesophageal cancer
• Gastric cancer
GORD:

• Definition:
  • Reflux of gastric contents with resultant mucosal damage or symptoms
Epidemiology:

- Uncertain true incidence – 10-40% population
- Reflux oesophagitis is the commonest finding at endoscopy.
- 20% oesophagitis and Barrett’s are asymptomatic
GORD:

- **Aetiology:**
  - Associated with hiatus hernia (50%) but not sufficient indication for repair
  - Most HH are asymptomatic
    - Type I: Sliding hiatus hernia - Phrenooesophageal ligament fails to maintain GOJ in abdominal cavity
    - Type II: Rolling hernia - GOJ anchored but diaphragmatic defect allows visceral migration
    - Type III: Mixed hernia
  - Low LOS pressure
  - Dysmotility (delayed clearance) and delayed gastric emptying
GORD:

• Symptoms:
  • Asymptomatic
  • Most have long-history of heartburn (80%), shorter history of regurgitation (60%)
  • Caustic/stinging retrosternal pain (29%)
  • Regurgitation indicates progression of the disease
  • Dysphagia due to stricture distal oesophagus
  • Cough, belching, bloating, aspiration, wheeze
  • Voice change, throat clearing, sore mouth, sinusitis
GORD:

• Diagnosis:
  • Heartburn responding to PPI, and/or oesophagitis/Barrett’s at endoscopy
GORD:

• Upper GI endoscopy and biopsies – exclude tumour, document oesophageal injury, may suggest motility disorder

• Los Angeles classification:

  Grade A  One or more mucosal breaks < 5 mm in maximal length
  Grade B  One or more mucosal breaks > 5mm, but without continuity across mucosal folds
  Grade C  Mucosal breaks continuous between > 2 mucosal folds, but involving less than 75% of the esophageal circumference
  Grade D  Mucosal breaks involving more than 75% of esophageal circumference
GORD:

• pH monitoring:
  • Thin catheter with spaced electrodes detect pH 2-7
  • Synchronous reading with subjective events
  • Measures: Total reflux episodes (pH<4), longest episode, number of episodes > 5 minutes, extent of reflux when upright, extent of reflux when supine
  • De Meester score (<14.7)
GORD:

• pH monitoring: Use selectively:
  • Unnecessarily excludes 20% with oesophagitis and typical symptoms
  • Use for endoscopy-negative reflux disease and/or atypical symptoms
  • Problems: Patients may alter activities with catheter in place, not tolerate nasal tube, 25% normal profiles in symptomatic patients, 25% of endoscopic oesophagitis
GORD:

• Manometry:
  • To exclude primary motility disorders e.g. achalasia
  • Ineffective oesophageal motility: <60% peristalsis or distal oesophageal amplitudes < 30mmHg, often with significant GORD
  • Consider *partial* fundoplication procedure if dysmotility
GORD:

• Contrast Swallow:
  • Reflux
  • Anatomy of oesophagus and proximal stomach
  • Strictures
  • Motility
  • Mediastinal GOJ predicts difficult operation
GORD:

• Treatment:
  • Incremental
  • Avoid exacerbating foods and alcohol
  • Weight loss, avoid large meals, head of bed up
  • Smoking cessation
  • Rarely effective in moderate to severe disease
GORD:

• Medical Therapy: H2-receptor antagonists:
  • First effective medical treatment but less effective for reflux
GORD:

• Medical Therapy: PPI:
  • 1\textsuperscript{st} line treatment for prevention of long term acid damage and reduce cancer risk
  • Does not prevent reflux but lowers acidity of refluxate
  • Increased severity of oesophagitis have higher failure rate
  • Rapid recurrence of symptoms with cessation
  • Side effects from long term use
    • Over-stating of adverse effects of PPI from a few years ago
    • Parietal cell hyperplasia / polyps:
      • Possible reason for rapid symptom recurrence with cessation of treatment
      • Possible reason for escalation of doses of PPI to control symptoms
    • Osteoporosis: Adequate Vit D, calcium to prevent bone loss
Surgery (Aim to create of a mechanical anti-reflux barrier):
- Needs objective evidence of reflux
  - Erosive esophagitis on endoscopy
  - Abnormal 24-hour pH monitoring (but may be normal in 20-25%)
- Failed medical therapy
- Wish to cease medical therapy (otherwise lifelong) esp. young
- Respiratory complications: Firm indication for antireflux surgery (PPI do not greatly decrease volume of regurgitation)

Consideration:
- A good response to PPI predicts better surgical outcome.
- PPI less likely to aid volume regurgitation
Toupet Fundoplication
Barrett’s Oesophagus:

- **Definition:**
  - Squamous epithelium replacement by columnar epithelium in the lower oesophagus
  - Without dysplasia: Risk of oesophageal carcinoma: 0.1-0.4% per year
  - Low grade dysplasia: Stable LGD in 20%, progression to HGD or cancer in 15%, regression in 65%
  - High grade dysplasia: Widely different results: About 40% has underlying adenocarcinoma
Barrett’s Oesophagus:
• Epidemiology:
  • 1% of patients having endoscopy
  • 10% of patients with symptoms of GORD
Barrett’s Oesophagus:

• Aetiology:
  • Chronic reflux and mucosal damage
  • Physical adaptation to ongoing stimulus
PRAGUE CRITERIA
For Endoscopically Suspected Esophageal Columnar Metaplasia/Barrett’s Esophagus

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)

1. Ensure Hiatus Hernia is Recognised By Distinguishing Diaphragmatic Hiatal Impression From Gastroesophageal Junction

2. Locate Gastroesophageal Junction By Depth Of Endoscope Insertion* At Level Of:
   - tops of gastric mucosal folds
   - sphincter “pinch”
   = 36 cm

3. Look For Displacement Of Squamocolumnar Junction Above Gastroesophageal Junction

4. Measure Depth Of Endoscope Insertion* At The Most Proximal Circumferential Extent Of Suspected Columnar Metaplasia*
   = 33 cm

5. Measure Depth Of Endoscope Insertion* At The Maximum Extent Of Suspected Columnar Metaplasia*
   = 29 cm

6. Subtract the Depth of Insertion for Circumferential and Maximum Extents from the Depth of Endoscope Insertion at the Gastroesophageal Junction:
   :36 cm - 33 cm = C3
   :36 cm - 29 cm = M7
   Prague C3 and M7

* To the nearest centimeter
* Spurious and columnar islands do NOT contribute to measures of extent
* To the nearest centimeter, except when areas of columnar metaplasia are estimated to be less than 1 cm report this as <1 cm

Supported by an educational grant from AstraZeneca
Barrett’s Oesophagus:

- **Surveillance Protocol:**
  - **No dysplasia:**
    - Endoscopy every 2 years with systematic 4 quadrant biopsy every 2cm (or suspicious areas - Seattle protocol)
  - **Low grade dysplasia:**
    - Initiate PPI and repeat biopsy at 6 months after diagnosis
    - Annual endoscopy
  - **Indefinite for dysplasia:**
    - Double dose PPI
    - Repeat endoscopy after two months with biopsies every 1cm
  - **High grade dysplasia:**
    - Repeat endoscopy and biopsy with confirmation by pathologist (8 weeks after double dose PPI)
    - Consider endoscopic or surgical resection
Barrett’s Oesophagus:

• Treatment:
    • Reduction of length and surface area of metaplasia in omeprazole group but not in ranitidine group
    • Both treatments successful in controlling reflux symptoms
  • Insufficient evidence to recommend anti-reflux surgery over PPI as cancer reducing operation
  • Indications for surgery are the same as those for GORD
Achalasia:

• Definition:
  • Failure of lower oesophageal sphincter to relax with absent oesophageal peristalsis
Achalasia:

- Epidemiology:
  - 1:100000
  - M=F
  - 25-60 years old
Achalasia:

- **Aetiology:**
  - Loss of Auerbach’s myenteric plexus
  - Loss of postganglionic inhibitory neurons but sparing of cholinergic neurons
  - Failure of LOS to relax with loss of peristalsis of distal 2/3 oesophagus

- **Classification:**
  - Type I: Classic – Swallowing results in no significant change in oesophageal pressurisation
  - Type II: Swallowing results in simultaneous pressurisation that spans the entire oesophagus (More likely to respond to treatment)
  - Type III: Swallowing results in abnormal, lumen-obliterating contractions or spasms
Achalasia:

• Symptoms:
  • Dysphagia: Solids (90-100%), liquid (75% - varying severity)
  • Postprandial regurgitation (60-90%)
  • Odynophagia and oesophageal pain – fermentation of bacteria in food residue with production of lactic acid
  • Heartburn
  • Weight loss
Achalasia:
- Upper GI endoscopy and biopsies –
  - Exclude tumour
  - Dilated oesophagus
  - Tight but passable LOS
  - Erythema, friable mucosa, ulceration
  - May miss early or vigorous achalasia
Achalasia:

• Contrast swallow:
  • Dilated oesophagus with taper at LOS
Achalasia:

- **Manometry:**
  - Hypertensive LOS (>35mmHg)
  - Failure of LOS to relax with swallowing
  - Pressurisation of oesophagus
  - Simultaneous mirrored contraction with no peristalsis
  - Low-amplitude waveforms indicating a lack of muscular tone
Achalasia:

- **Treatment:**
  - **Non-operative:** Sublingual GTN, calcium channel blockers
    - 50-70% initial response, <50% at one year
    - Limitations: Tachyphylaxis and S/Es
  - **Pneumatic dilatations:**
    - To disrupt circular muscle and subsequent reflux symptoms treated with PPI
    - 60-95% initial success; 60% at 5% years
    - Risk: 5% perforation
  - **Endoscopic Botox injection**
    - 90% initial response, 60% at 6 months, 1/3 after one year
    - Inferior to pneumatic dilatation
  - **Peroral endoscopic myotomy (POEM)**
    - Incision in mucosa, through submucosa, diathermic scalpel to cut muscle of muscularis propria in and around LOS
    - 45% reflux
    - Good reduction in symptom scores and LOS pressures
    - Good results in Type III (spastic achalasia) and “end stage” achalasia
    - Long term data limited
Achalasia:
• Laparoscopic Heller’s cardiomyotomy and anterior fundoploty:
  • Myotomy at least 5cm up oesophagus and 2cm down stomach
  • >90% initial response, 85% at 10 years, 70% at 20 years
  • <1% mortality, <10% major morbidity
  • Perforation: Avoid diathermy, dissection of muscle layer and go into tissue plane between muscle and submucosa
• Oesophagectomy for end stage achalasia:
  • Markedly dilated, sigmoid oesophagus
Oesophageal Cancer:

- Epidemiology:
  - Eighth most common cancer in the world
  - Affects about 2000 Australians per year
  - Majority presents with advanced stages and cannot be cured
  - Death after surgery <1%
- Squamous cell carcinoma (SCC):
  - Most common but reducing incidence
  - More common in upper and middle third of oesophagus
- Adenocarcinoma:
  - Incidence increasing esp. in Western countries (Possibly associated with rise in obesity and GORD)
  - More common in the lower oesophagus and gastrooesophageal junction (GOJ)
- Long-term outcomes for oesophageal cancer poor:
  - 5-year overall survival (OS) rates of only around 20%
  - Majority of patients treated with curative intent eventually succumb to their disease
Oesophageal Cancer:

• Risk Factors:
  • Smoking
  • Alcohol
  • N-nitrosamines (in pickled foods)
  • Diets lacking fresh fruit and vegetables
  • Achalasia (88 per 100,000) due to stasis within oesophagus
  • Fibrous stricture after chemical damage – 1-7%, latent period up to 40 years
  • Tylosis – rare AD disease, abnormal keratinisation affecting palms and soles of feet
  • Post-cricoid dysphagia with iron-deficiency anaemia (Plummer-Vinson)
  • Zenker’s diverticulum (0.5-1%)
  • Barrett’s oesophagus
  • Irradiation
Oesophageal Cancer:

• Symptoms:
  • Dysphagia (when >60% oesophageal circumference infiltrated)
  • Asymptomatic
  • Bleeding
  • Weight loss
  • Anorexia
Oesophageal Cancer:

- Investigations:
  - Upper GI endoscopy
  - CT C/A/P
  - CT PET
  - Transthoracic Echo
  - Pulmonary function tests
  - CPEX
Oesophageal Cancer:

• Classification:
Oesophageal Cancer: Staging

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Oesophageal Cancer: Treatment

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Gastric Cancer:

Australian Incidence and Mortality from Gastric Cancer (Data from AIWH)

Figure 9.30(a): Incidence and mortality ASRs of stomach cancer, by sex, 1982–2018

Figure 9.30(b): Incidence (2013) and mortality (2014) rates of stomach cancer, by age group and sex
Gastric Cancer:

5 Year Relative Survival of Gastric Cancer by Sex in Australia (Data from AIWH)
Gastric Cancer:

- Risk Factors:
  - Age
  - Gender
  - Geographic area
  - Race
  - Smoking
  - Dietary habits: High salt diet, high meat intake, bile reflux
  - H. Pylori infection – non-cardia gastric carcinoma
  - Family history
Gastric Cancer:

• Lauren Classification:
  • Intestinal
  • Diffuse
Gastric Cancer:

Genetic Subtypes of Gastric Cancer
Gastric Cancer:

• Symptoms:
  • Asymptomatic (50%)
  • Epigastric pain (60-90%)
  • Weight loss (40%)
  • Anorexia
  • Dysphagia (Proximal tumours)
  • Gastric outlet obstruction (Distal tumours)
  • Early satiety
  • Chronic anaemia
Gastric Cancer:
• Investigations:
  • Upper GI endoscopy
  • CT C/A/P
  • Staging laparoscopy
Gastric Cancer: Staging

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Gastric Cancer: Treatment
