Gastro-oesophageal Reflux Disease

Synonyms: GORD or GERD; reflux oesophagitis

See also separate articles Childhood Gastro-oesophageal Reflux Disease and Dyspepsia.

A certain amount of gastro-oesophageal reflux of acid is normal and there is a natural protective mechanism of the lower oesophagus. If reflux is prolonged or excessive it may cause breakdown of this protection with inflammation of the oesophagus (oesophagitis).

Epidemiology

Reflux is two to three times more common in men than in women. Symptoms of gastro-oesophageal reflux are common; about 25% of adults experience heartburn and 5% have symptoms daily.[1]

- There is a spectrum of disorders ranging from the most common endoscopy-negative gastro-oesophageal reflux disease (GORD) to oesophageal mucosal damage, which can progress to ulceration and stricture formation although only about 8% will have moderate or severe oesophagitis.

- Abnormalities of the lower oesophageal sphincter may facilitate excessive reflux of gastric contents including acid and sometimes bile from the stomach into the oesophagus.
- Bile is particularly caustic and reflux of duodenal contents is more troublesome than reflux of gastric contents alone. There is little correlation between severity of symptoms and findings on endoscopy.
- Sometimes drugs that have not been taken with an adequate amount of water stick in the oesophagus and are slowly released causing oesophagitis. Non-steroidal anti-inflammatory drugs (NSAIDs) and doxycycline are especially notorious and must be taken with adequate water. Bisphosphonates can be extremely troublesome. Oesophageal reflux is recognised as a risk factor for oesophageal cancer.

Aetiology

Factors that predispose to reflux include:
Most of these predisposing factors increase intra-abdominal pressure and a fatty meal delays gastric emptying but the listed drugs and smoking relax the tone of the cardiac sphincter. **NB:** there is no relationship between *Helicobacter pylori* infection and GORD.

### Presentation

- Heartburn is a burning feeling, rising from the stomach or lower chest up towards the neck, that is related to meals, lying down, stooping and straining. It is relieved by antacids.
- Retrosternal discomfort, acid brash - regurgitation of acid or bile.
- Water brash - this is excessive salivation.
- Odynophagia (pain on swallowing) may be due to severe oesophagitis or stricture.

### Atypical symptoms

These include chest pain, epigastric pain, and bloating.

- Non-cardiac chest pain caused by GORD has been found in up to 50% of patients with chest pain and normal coronary angiography. Usually there is no relationship to exercise and this helps to differentiate most cases of reflux-induced chest pain from true angina.
- Respiratory symptoms include chronic hoarseness (the Cherry-Donner syndrome), chronic cough, and asthmatic symptoms like wheezing and shortness of breath. Episodic or chronic aspiration can cause pneumonia, lung abscess, and interstitial pulmonary fibrosis. In 6-10% of patients with chronic cough, GORD is the underlying cause.

### Investigations

- Endoscopy is the investigation of choice.
- Perform FBC to exclude significant anaemia.
- Barium swallow may show hiatus hernia (fluid level on CXR does not prove oesophagitis).
- Oesophageal pH monitoring to assess if symptoms coincide with acid in the oesophagus. This can be done with:
  - Naso-oesophageal pH catheter (24-hour study)
  - Wireless pH capsule (Bravo®)[2]
  - Oesophageal impedance and pH via nasal catheter (can give quantitative information about the amount of fluid refluxed)

### Endoscopic grading of oesophagitis

The Savary-Miller grading system is commonly used:[3]

- **Grade 1:** single or multiple erosions on a single fold. Erosions may be exudative or erythematous.
- **Grade 2:** multiple erosions affecting multiple folds. Erosions may be confluent.
- **Grade 3:** multiple circumferential erosions.
- **Grade 4:** ulcer, stenosis or oesophageal shortening.
- **Grade 5:** Barrett's epithelium. Columnar metaplasia in the form of circular or non-circular (islands or tongues) extensions.

The more recent and more objective Los Angeles grades A to D classification is also used:[4]
Grade A: one or more mucosal breaks no longer than 5 mm, none of which extends between the tops of the mucosal folds.

Grade B: one or more mucosal breaks more than 5 mm long, none of which extends between the tops of two mucosal folds.

Grade C: mucosal breaks that extend between the tops of two or more mucosal folds, but which involve <75% of the mucosal circumference

Grade D: mucosal breaks which involve ≥75% of the mucosal circumference

Differential diagnosis

- Oesophagitis from swallowed corrosives or drugs like NSAIDs
- Infection (especially in the immunocompromised): cytomegalovirus, herpes, candidiasis
- Peptic ulcer
- Gastrointestinal (GI) cancers
- Non-ulcer dyspepsia
- Oesophageal spasm

Management\[^5\]

The National Institute for Health and Clinical Excellence in the UK has published guidelines on the management of dyspepsia (including reflux symptoms) that impact on clinical practice.\[^6\]

Department of Health guidelines for urgent referral for suspected upper GI cancer\[^7\]

- Dysphagia - food sticking on swallowing, at any age.
- Dyspepsia at any age combined with one or more of the following 'alarm' symptoms:
  - Weight loss
  - Proven anaemia
  - Vomiting

- Dyspepsia in a patient aged 55 years or more with at least one of the following 'high-risk' features:
  - Onset of dyspepsia <1 year previously
  - Continuous symptoms since onset

- Dyspepsia combined with at least one of the following known 'risk factors':
  - Family history of upper GI cancer in more than two first-degree relatives
  - Barrett's oesophagitis
  - Pernicious anaemia
  - Peptic ulcer surgery over 20 years previously
  - Known dysplasia, atrophic gastritis, intestinal metaplasia
  - Jaundice
  - Upper abdominal mass

In a prospective observational study the prevalence of gastric cancer was 4% (and serious benign disease 13%) in a cohort of patients referred urgently for alarm symptoms.\[^8\]

Referral for dysphagia or major weight loss at any age, together with those older than 55 years with alarm symptoms, would have detected 92% of the cancers found in the cohort. In contrast, the presence of typical reflux symptoms was less likely to indicate the presence of malignancy.\[^8\]

Routine endoscopic investigation of dyspepsia is not necessary for patients (of any age) without alarm symptoms.

Lifestyle

Unfortunately most patients do not respond to lifestyle advice and require further therapy. However, the following are recommended: \[^9\]

- Reduce weight
- Stop smoking
• Reduce alcohol intake
• Raise the head of the bed at night
• Take small, regular meals
• Avoid hot drinks, alcohol, and eating during the three hours before going to bed
• Avoid drugs that affect oesophageal motility (nitrates, anticholinergics, tricyclic antidepressants) or damage the mucosa (NSAIDs, potassium salts, alendronate)

**Pharmacological treatment**

Patients with reflux symptoms but no alarm symptoms, should receive initial treatment with full-dose proton pump inhibitors (PPIs) for one month.

• In cases of uninvestigated dyspepsia, eradication therapy for *H. pylori* can also be provided if infection is evident on serology or urea breath test. Where there is known GORD (ie post-gastroscopy), *H. pylori* eradication is not recommended.

• If symptoms return after treatment, and long-term acid suppression is required, a step-down strategy to the lowest dose of PPI that provides effective relief of symptoms is more cost-effective than the step-up approach.[6] Start acid suppression at a healing dose for 1 to 2 months. Then either step up a level if still symptomatic, or step down, once symptoms have improved, to the lowest level that provides effective symptom control. All patients should have a treatment plan and should be told if they can stop if symptom-free.

**Referral for endoscopy**

It may become appropriate to refer some patients with an inadequate response to therapy, or new emergent symptoms, to a specialist for a second opinion.

• Review medications for possible causes of dyspepsia; for example, calcium antagonists, nitrates, theophyllines, bisphosphonates, steroids and NSAIDs. Patients undergoing endoscopy should be free from medication with either a PPI or an H2-receptor antagonist (H2RA) for a minimum of two weeks.

• Consider the possibility of cardiac or biliary disease as part of the differential diagnosis.

**Post-endoscopy**

• If endoscopy is carried out and oesophagitis is present, a healing dose of PPI should be prescribed for two months.

• In such patients, symptoms usually relapse when treatment is withdrawn, and maintenance PPI therapy is usually required.

PPIs are more effective than H2RAs in relieving heartburn in patients with GORD who are treated empirically and in those with endoscopy-negative reflux disease, although the degree of benefit is greater for those treated empirically.[10] PPIs are a safe class of medications to use long-term in persons in whom there is a clear need for the maintenance of extensive acid inhibition.[11]

**Surgery**

Most patients with reflux symptoms are treated with lifestyle interventions and medication. However there is evidence that laparoscopic fundoplication surgery is more effective than medical management for the treatment of GORD, at least in the short to medium term.[12]

Laparoscopic insertion of a magnetic bead band:[13]

• With the patient under general anaesthesia, an implant is placed so that it encircles the distal oesophagus at the gastro-oesophageal junction.

• The implant is then secured in place. The implant consists of a ring of interlinked titanium beads, each with a weak magnetic force that holds the beads together to keep the distal oesophagus closed.

• When the patient swallows, the magnetic force is overcome, allowing the ring to open. After swallowing, magnetic attraction brings the beads together and the distal oesophagus is again closed.

• MRI is contra-indicated after this procedure.

• NICE currently recommends that the evidence on the safety and efficacy of laparoscopic insertion of a magnetic bead band for GORD is limited in quantity. Therefore, this procedure should only be used with special arrangements for clinical governance, consent and audit, or for research.[14]
Management problems

A minority of patients have persistent symptoms despite PPI therapy and this group remains a challenge to treat.

Some evidence suggests that once patients develop the disease, severity is determined early and patients seem to continue with that phenotype long-term.\[^{[9]}\] Therapeutic options include:

- Doubling the dose of PPI therapy
- Adding an H2RA at bedtime
- Extending the length of treatment
- Surgery (see section above)

Prokinetic drugs, such as metoclopramide 10 mg tds, may occasionally help symptoms by promoting gastric emptying and increasing the tone in the cardiac sphincter. Specific groups should be given continuous, rather than intermittent, therapy:

- Patients with a documented NSAID-induced ulcer, who must unavoidably continue with NSAIDs (eg, severe rheumatoid arthritis), should remain on maintenance doses of PPIs.
- Patients with severe reflux oesophagitis should remain on maintenance doses of PPI to prevent its recurrence.
- Patients with complicated reflux disease (stricture, ulcer, haemorrhage) should be left on 'full-dose' PPI.

The cheapest effective PPI should be used.

NB: sudden or progressive worsening of symptoms if a patient aged over 55 years, or the development of dysphagia, anaemia, persistent vomiting or weight loss at any age, merits urgent referral for endoscopy (two-week rule - as per local guidelines).

Complications

- Oesophagitis/ulcer
- Anaemia
- Oesophageal stricture
- Barrett's oesophagus:
  - This is premalignant ectopic gastric mucosa.
  - Patients with chronic GORD are at increased risk of developing the changes of Barrett's oesophagus.
  - The risk increases with longer duration and increased frequency of gastro-oesophageal symptoms.

Further reading & references

- Endoluminal gastroplication for gastro-oesophageal reflux disease, NICE (2011)
- Endoscopic radiofrequency ablation for gastro-oesophageal reflux disease, NICE Interventional procedure guidance (Aug 2013)

14. Laparoscopic insertion of a magnetic bead band for gastro-oesophageal reflux disease, NICE Interventional Procedure Guideline (September 2012)

Disclaimer: This article is for information only and should not be used for the diagnosis or treatment of medical conditions. EMIS has used all reasonable care in compiling the information but make no warranty as to its accuracy. Consult a doctor or other health care professional for diagnosis and treatment of medical conditions. For details see our conditions.

<table>
<thead>
<tr>
<th>Original Author: Dr Hayley Willacy</th>
<th>Current Version: Dr Colin Tidy</th>
<th>Peer Reviewer: Dr Adrian Bonsall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Checked: 22/04/2013</td>
<td>Document ID: 325 Version: 4</td>
<td>© EMIS</td>
</tr>
</tbody>
</table>

View this article online at www.patient.co.uk/doctor/gastro-oesophageal-reflux-disease.

Discuss Gastro-oesophageal Reflux Disease and find more trusted resources at www.patient.co.uk.

EMIS is a trading name of Egton Medical Information Systems Limited.