

WHAT IS GASTRO-OESOPHAGEAL REFLUX DISEASE?

1. INTRODUCTION	2
2. MECHANISMS OF REFLUX DISEASE	2
3. TREATMENT	3
a. General Measures.....	4
b. Medical Treatment	4
c. Schemes for Medical Management.....	5
4. COMPLICATIONS OF REFLUX DISEASE	6
a. Oesophagitis	6
b. Barrett's Change (Barrett's metaplasia)	6
c. Stricture Formation.....	6
5. INVESTIGATIONS OF GASTRO-OESOPHAGEAL REFLUX	7
a. Trial of Medical Treatment	7
b. Gastroscopy	7
c. Barium Swallow	7
d. Oesophageal Function Studies.....	8
6. SURGICAL TREATMENT OF REFLUX DISEASE	8
a. Bulking procedures performed via the gastroscope.....	8
b. Operations to reinforce the lower oesophageal sphincter.....	9
c. Nissen Fundoplication	9
d. Complications of Nissen Fundoplication	10
7. SUMMARY	11
Web Searching	11

1. INTRODUCTION

The symptoms of gastro-oesophageal reflux (GORD) occur when stomach acid inadvertently enters the oesophagus.

The classic symptoms of GORD are

Heartburn - a rising burning sensation behind the breastbone.

Regurgitation - the sensation of acid or water flooding into the mouth.

Dysphagia or odynophagia - difficulty or pain on swallowing.

Dysphagia is usually felt behind the breastbone but may also be felt in the lower neck (globus-type symptoms).

Atypical symptoms of reflux disease include an unexplained hoarse voice, nocturnal coughing, recurrent chest infections, angina-like chest pain related to the ingestion of food, unexplained multiple dental caries, a constricting sensation in the neck and smelly breath.

2. MECHANISMS OF REFLUX DISEASE

Keeping acid in the stomach requires an intact sphincter valve mechanism at the point where the gullet meets the stomach. This complex sphincter relies on specific muscle thickening at this point, pressure from the abdomen transmitted directly onto the oesophagus and pressure on the oesophagus from the adjacent stomach. If any of the components of this sphincter are compromised, then acid will tend to rise from the stomach into the gullet and give rise to the symptoms of GORD. The commonest mechanism for compromising this sphincter is a hiatus hernia. This occurs when the lower

part of the oesophagus and the point where it joins the stomach is drawn into the chest above the diaphragm.

There is also a tendency to reflux stomach contents into the gullet when the stomach is full – e.g. after meals, where the pressure within the tummy cavity is high – e.g. obesity and when the effects of gravity are eliminated – e.g. lying down at night, bending or stooping. In addition, certain foods will tend to slow down the emptying of the stomach and therefore allow greater opportunity for stomach contents to reflux into the gullet. This is particularly the case for foods containing fats and oils. Some foods may increase the acidity in the stomach, these include citrus juices – e.g. orange and tomato juice and some foods may be directly irritant to the oesophageal lining or stomach – e.g. chilli and curry dishes. Finally, the actual muscle mechanism at the lower end of the gullet is known to be affected by smoking, as substances in cigarette smoke will cause relaxation of this sphincter. In addition, once stomach acid enters the oesophagus and irritation of the oesophageal lining occurs, this may also slow down the movement of stomach contents back into the stomach and cause relaxation of the sphincter muscle itself.

As can be seen from this, the mechanism for ensuring stomach content does not regurgitate into the oesophagus is complex but may be significantly affected by lifestyle and activity.

3. TREATMENT

The treatment of gastro-oesophageal reflux falls into three main areas; General measures, Medical treatment and Surgical Treatment.

a. General Measures

As gastro-oesophageal reflux can be made significantly worse by smoking, high fat foods, large volume meals and obesity, measures should be taken to try and tackle these particular problems. By stopping smoking reflux disease may be abolished. Similarly by reducing the fats in the diet or by reducing weight, reflux symptoms may significantly decrease. Meals should be avoided after 8.00 o'clock in the evening for those who suffer from reflux disease and large volumes of food or drink should be avoided to prevent the volume effects of regurgitation. If reflux comes on when bending or stooping, it is best to squat under these circumstances. Finally, reflux at night may be controlled by elevating the head of the bed by approximately 10cm. Traditionally by using a house brick under each bedpost (a brick with a ridged indentation will tend to hold the bedpost more securely than a flat brick).

b. Medical Treatment

i. Antacids

The mainstay of medical treatment is the use of antacids. There are many formulations of these from simple tablets and lozenges to liquids. Some of these liquids contain a substance that allows the medication to float on the surface of the stomach fluid which then coats the lower oesophagus if reflux occurs. (Gaviscon is the commonest example of this). These medications can be bought over the counter at most chemists.

ii. H2 Antagonists - (Ranitidine, Cimetadine)

These drugs act by blocking the effects of histamine on the cells that generate stomach acid in the lining of the stomach itself. They have been available for many years and are effective in reducing stomach acid and the treatment of reflux disease. These tablets are now also available without prescription from the chemist.

iii. Proton Pump Inhibitors – (e.g. Omeprazole, Esomeprazole, Lansoprazole, Pantoprazole and Rabeprazole)

These drugs are more effective at controlling stomach acid than H₂ antagonists. They act by directly blocking the mechanism that allows the transfer of acid into the lumen of the stomach from the cells that make the acid. By reducing stomach acid when regurgitation occurs, no irritation of the gullet lining takes place and therefore there are no symptoms.

c. Schemes for Medical Management

There are two ways in which each of these classes of drugs can be given. This is known as either a step up or step down treatment regime.

i. Step Up

In this treatment regime the patient starts by taking antacids and moves up through H₂ antagonist to a proton pump inhibitor to see at what level symptoms are controlled. Maintenance drug treatment is then continued for a period of time before stopping it to see if these symptoms have then settled.

ii. Step Down

This regime starts with proton pump inhibitors which are then usually maintained for 2 months decreasing the dose of the proton pump inhibitor and if necessary moving down to the H₂ antagonist and antacids to control symptoms.

You should be advised by your medical practitioner as to the best regime for you.

4. COMPLICATIONS OF REFLUX DISEASE

Chronic exposure of the lining of the gullet to the stomach acid can lead to a number of problems.

a. Oesophagitis

This is inflammation of the lining of the oesophagus and may give rise to significant pain on swallowing and in consequence a reluctance to eat and weight loss. Most patients with oesophagitis have mild symptoms and treatment is usually completely successful using a proton pump inhibitor for 2 to 3 months. In the extreme form this condition can cause bleeding into the gut, long term stricturing of the gullet (see below) and may predispose to cancer formation.

b. Barrett's Change (Barrett's metaplasia)

Chronic exposure of the lining of the lower gullet to acid can also lead to changes in the cells which line this area from gullet lining cells to stomach lining cells. Ironically as this process occurs, symptoms of reflux may appear to decrease. The long term problem of Barrett's oesophagus is that it may predispose to the development of cancer in a small number of patients.

c. Stricture Formation

A stricture is by definition a narrowing in the lumen of the gullet and this may be caused by the long term effects of oesophagitis giving rise to scarred narrowing or may be due to the development of a malignant change within the Barrett's oesophagus. Symptoms of this are difficulty in swallowing. Urgent investigation is required.

5. INVESTIGATIONS OF GASTRO-OESOPHAGEAL REFLUX

a. Trial of Medical Treatment

Treatment with medication known to reverse the effects of gastro-oesophageal reflux may be used as a trial to confirm the diagnosis. If symptoms recur after stopping medication however, some other forms of investigation are usually required, particularly in patients over the age of 45 years.

b. Gastroscopy

This investigation directly visualises the lining of the gullet and stomach by using a flexible telescope which is placed through the mouth. This procedure is usually done as a day case under light sedation or with the patient awake after rendering the back of the mouth anaesthetic with a local throat spray. The advantages of this investigation is that the lining of the gullet can be directly visualised to determine the extent of the oesophagitis and any complications that may have occurred and biopsies can be taken of the lining of the oesophagus if this is required.

c. Barium Swallow

This investigation is usually done for those patients who are unable to tolerate gastroscopy and involves taking an x-ray of the chest and upper abdomen whilst swallowing barium. An hiatus hernia can be visualised using this technique and severe oesophagitis can be recognised. However it is not as sensitive as gastroscopy and no biopsies can be taken.

d. Oesophageal Function Studies

Probes can be inserted through the nose into the lower oesophagus to measure the amount of acid that is regurgitating into the oesophagus and to measure the pressures that the oesophagus generates on swallowing. Both of these measurements give direct readings of the severity of reflux. Two separate probes are needed for each part of the investigation. The pressure probe is placed and withdrawn over a matter of minutes, however the pH probe needs to stay in place for between 8 and 24 hours whilst the data on acid in the gullet is downloaded to a portable box clipped onto a belt to which the probe is connected. This investigation is usually reserved for those patients with severe reflux disease who are considering surgical treatment or as part of the investigation for atypical symptoms of reflux disease.

6. SURGICAL TREATMENT OF REFLUX DISEASE

Surgery for reflux disease is considered in those patients with complications of reflux disease or who have classic reflux symptoms well controlled on medication but have immediate return of symptoms on ceasing medical treatment. It should not be considered in those patients who do not have a definitive diagnosis of gastro-oesophageal reflux.

Treatments may be broken down into two areas. Bulking procedures on the lower gullet performed using the gastroscop and surgery to reinforce the lower oesophageal sphincter.

a. Bulking procedures performed via the gastroscop.

Most of these procedures would still be considered experimental, however there are a number of groups undertaking the injection of various substances

into the lower oesophagus to thicken this area to minimise reflux. In addition, a small sewing machine can be passed gastroscopically to insert a stitch through the lower oesophagus to plicate this. Again this would be considered experimental. Patients wishing to consider this intervention will need to be referred to a tertiary referral centre where the procedure is undertaken and should consult with their medical practitioner.

b. Operations to reinforce the lower oesophageal sphincter.

The principal operation that has been available to reinforce the lower oesophageal sphincter is the fundoplication procedure. This was first invented by a German surgeon, Dr Nissen in 1958 and although performed then via an open incision in the abdomen (laparotomy), is now usually performed laparoscopically (keyhole technique). A number of other procedures exist which can also be done either through the abdomen or by entering the chest cavity. However Nissen fundoplication is probably the most popular anti-reflux procedure.

c. Nissen Fundoplication

During this operation the oesophagus is dissected free at the point where it enters the abdomen through the diaphragm. The top or fundus of the stomach is then drawn behind the oesophagus and sutured back on itself to create an artificial sphincter wrapped around the lower gullet. If there is a hiatus hernia, the opening in the diaphragm is usually reinforced at the same time either with sutures or a small mesh. When performed laparoscopically this involves a general anaesthetic and placing five incisions in the abdominal wall, all approximately 1cm long. When performed via the open procedure it is undertaken via a long incision in the upper abdomen between the lower breastbone and the bellybutton. There are modifications to the Nissen fundoplication that reduce the amount of stomach contained within the wrap. These modifications have been devised to reduce the incidence of

postoperative dysphagia. There is currently no general consensus on whether any of these modifications are better than a conventional Nissen fundoplication.

d. Complications of Nissen Fundoplication

i. Operation performed for non- reflux symptoms

It is essential that this operation is only done on patients with confirmed reflux disease. Patients with symptoms such as bloating, flatulence and generalised upper abdominal pain will not be benefited by this operation, their symptoms may be made worse and they will be exposed to the general risks of the operation without benefit.

ii. Gas Bloat Syndrome

Approximately 5% of patients will experience significant bloating following the operation associated with the inability to belch or bring up food when vomiting. For this group of patients, these symptoms can be troublesome and a nuisance. They tend to settle with time as the wrap loosens but this process may take several years. It is important that gaseous drinks are avoided following the surgery for about 3 months to minimise bloating symptoms.

iii. Difficulty Swallowing

Difficulty swallowing or dysphagia is a universal problem following fundoplication and all patients will experience this to some extent over the first 2 to 4 months following the surgery. In a small proportion of patients the dysphagia is persistent and may require further surgery to modify the wrap to decrease this symptom.

iv. Severe or Life-Threatening Complications

Although life-threatening complications are rare in this operation, they can occur and consist of perforation of the gullet, bleeding from the spleen,

drawing of the fundoplication wrap into the chest with perforation of the wrap and infection in the chest cavity (due to forcible retching post-operatively).

v. Return of Reflux Symptoms

Approximately one third of patients undergoing Nissen fundoplication will experience some return of reflux symptoms within five years. The majority of these patients do not consider these symptoms to be significant, although a third may go back onto anti-reflux medication at that stage. Some patients in this category may require re-operation if the fundoplication has come apart.

7. SUMMARY

Gastro-oesophageal reflux disease is a common problem and may be considered as a disease of affluence. For the majority, the symptoms are mild, intermittent and require minimal intervention. For those patients that do require intervention, simple measures such as change in lifestyle or simple antacid medication is usually sufficient to control symptoms. Where symptoms are persistent, proton pump inhibitors are usually the treatment of choice. Only a small percentage of patients with gastro-oesophageal reflux disease will need to be considered for surgery in order to control symptoms that interfere with daily life.

Peter Willson

July 2011

Addendum

Web Searching

If you are performing an internet search on reflux disease the American spelling of oesophagus is esophagus and therefore the GORD initials become GERD