

Surgical Treatment of Gastro-oesophageal Reflux Disease (GORD)

Patient information to assist informed consent

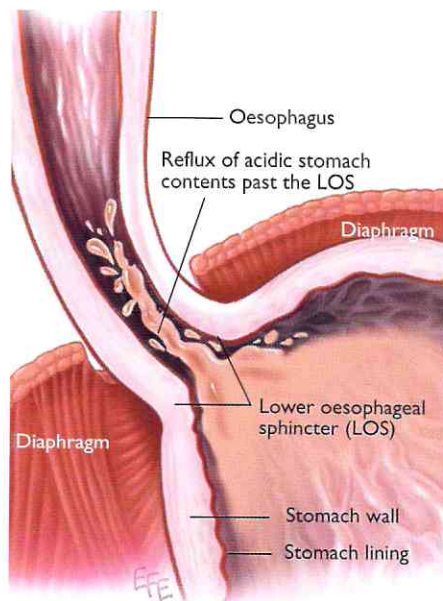
Most people have had heartburn or acid indigestion at some time. This is caused when some of the stomach's acidic contents surge upwards past the lower oesophageal sphincter and "burn" the delicate tissues of the oesophagus (as shown in the figure, right). This condition is called reflux.

The lower oesophageal sphincter (LOS) is a ring of muscular tissue that opens or closes, acting as an important two-way valve. It allows food and liquids to pass into the stomach and then closes to prevent regurgitation of stomach contents back into the oesophagus. The LOS also allows vomiting and belching.

If the LOS relaxes or closes incompletely, reflux will occur. Infrequent reflux can be annoying but is not a concern to health. However, frequent reflux of stomach acid can cause serious damage to the oesophagus and the LOS, making it less and less effective as a valve.

If reflux becomes persistent, it is usually because the LOS is not working properly. When reflux causes on-going distress, it is called gastro-oesophageal reflux disease, or GORD. It is also referred to as reflux oesophagitis or reflux disease.

GORD is a common condition, affecting about two in every 10 adults,

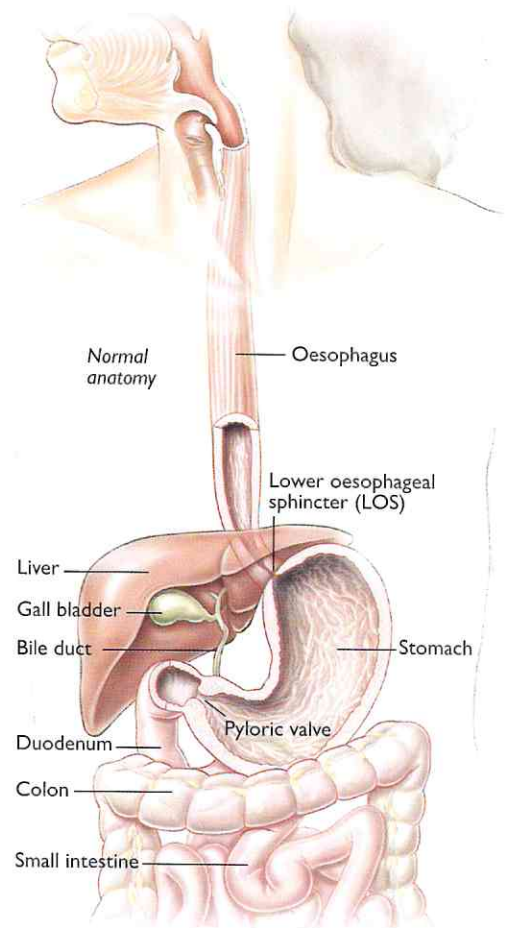


GORD is caused by the chronic regurgitation of stomach contents into the oesophagus, often due to the failure of the lower oesophageal sphincter.

most being over the age of 40. It is rare in children.

The most common symptoms are heartburn, reflux, acidic tastes in the mouth, difficulties in swallowing (dysphagia), painful swallowing, chest pain, burning in the throat, hoarseness, wheezing and cough. It is associated with asthma in some people.

In many people, these symptoms may be controlled with simple changes in eating and drinking habits. If GORD persists, medication may become necessary, for example, antacids



or stomach-acid suppressants.

In some patients, surgery may be recommended because medications and lifestyle changes have not been effective enough.

Surgery can provide a cure for GORD. The aim of surgery is to assist a faulty LOS and stop stomach contents from surging upwards into the oesophagus.

IMPORTANT: Fill in all details on the sticker below.

DEAR SURGEON: When you discuss this pamphlet with your patient, remove this sticker and put it on the patient's medical history or card. This will remind you and the patient that this pamphlet has been provided. Some surgeons ask their patients to sign the sticker to confirm receipt of the pamphlet.

TREATMENT INFORMATION PAMPHLET

PROCEDURE: _____
PATIENT'S NAME: _____
DOCTOR'S NAME: _____
EDITION NUMBER: _____ **DATE:** / /

YOUR SURGEON



Complications of GORD

The complications of GORD may include:

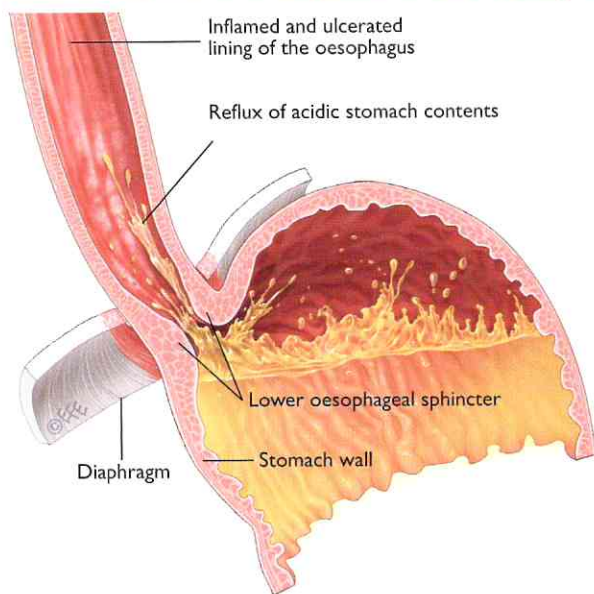
- Inflammation, erosion, ulceration and bleeding of the oesophagus
- Stricture, which is an abnormally

small calibre of the oesophagus due to scarring caused by stomach acid

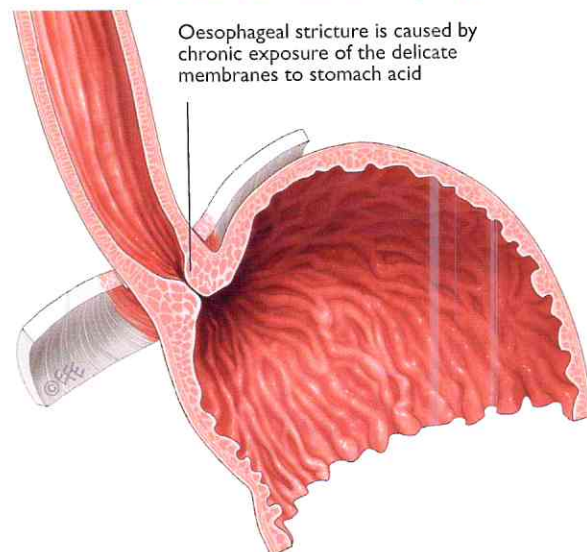
- Prolonged, uncontrolled reflux increases the risk of severe damage to the skin-like lining of the oesophagus.

- This damage can cause changes in the cells, known as Barrett's oesophagus, which may lead to cancer of the oesophagus. Oesophageal cancer occurs in only very few patients.

Inflammation and ulceration of the oesophagus



Stricture of the oesophagus



Diagnosis of GORD

Before surgery is considered, proper evaluation and diagnosis of the patient's condition is imperative. The surgeon has to have a high degree of certainty that the patient's symptoms are actually due to GORD, because it is possible that some symptoms may be caused by other conditions.

Inspection of the oesophagus and stomach is performed by a diagnostic test called endoscopy (or gastroscopy), which uses a thin fibre-optic device swallowed by the patient. This is done with the patient sedated. Gastroscopy allows the doctor to identify complications of GORD and remove small samples of tissue for testing (biopsy).

Gastroscopy is also useful in the diagnosis of Barrett's oesophagus, an uncommon complication of GORD that can be a risk factor for cancer of the oesophagus.

During gastroscopy, other possible conditions, which may include stomach ulcers, polyps, nodules, gastritis and infections, can be identified and assessed. A RACS patient education pamphlet on gastroscopy is available from your surgeon ("Endoscopy of the colon or upper gastrointestinal tract").

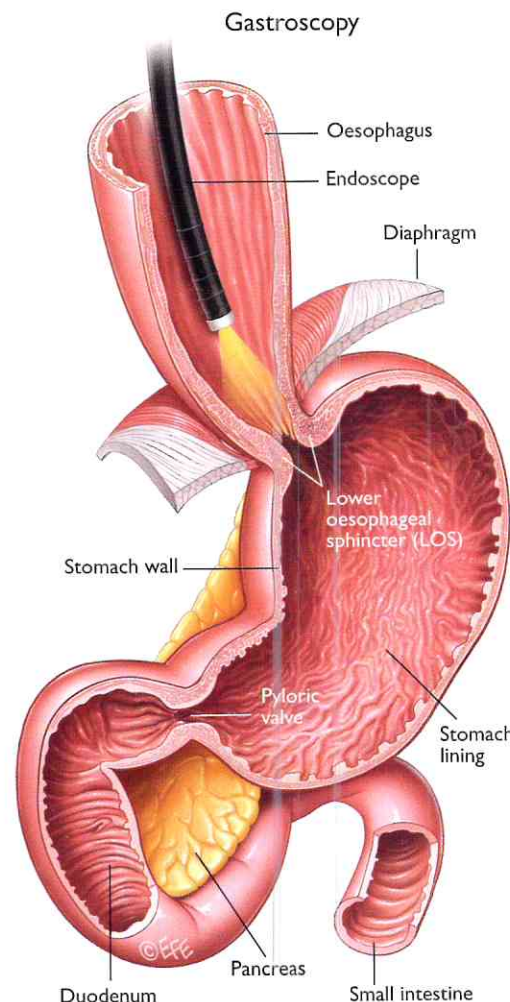
Diagnosis of GORD and other complications depends primarily on the detection of:

- injury to the lower oesophagus seen at gastroscopy (using photographic evidence or biopsy of oesophageal tissue), or
- significant acidity in the oesophagus during 24-hour or 48-hour monitoring of pH.

Other tests to confirm diagnosis may include radiographic studies, mapping of a patient's responses during tests to provoke symptoms, gastric emptying studies or oesophageal manometry (to measure the strength of the LOS and oesophagus).

These tests are also capable of diagnosing additional conditions related to GORD. In addition to a faulty LOS, GORD can be aggravated by:

- a delay in gastric emptying (food passing through the pyloric valve into the duodenum)
- impaired oesophageal peristalsis (the muscular action that pushes food down the oesophagus and into the stomach)
- low production of saliva, which is important in neutralising stomach acid that remains in the oesophagus.



Surgical Techniques to Treat Gastro-oesophageal Reflux Disease

The major indication for surgical treatment of GORD is the persistence of symptoms due to the failure of medical therapy. Another indication for surgery is personal preference for those patients who do not want to take life-long acid-suppression medicines or who have intolerable adverse side effects from these medicines.

A variety of surgical procedures called "funduplications" are capable of treating GORD. Your surgeon will use the one that is most appropriate in your

case and likely to have the best outcome for you.

The primary objective of surgery is to strengthen and reinforce the lower oesophageal sphincter (LOS).

The most common procedures are called:

■ **Nissen fundoplication** – This involves wrapping the upper part of the stomach (the fundus) around the bottom of the oesophagus. This strengthens and supports the LOS, making it less likely that stomach con-

tents will surge upwards past the LOS. Nissen fundoplication is the most common surgical procedure to treat GORD.

■ **partial funduplications** (for example, Toupet fundoplication), often for patients with impaired oesophageal peristalsis.

Surgeons have developed a range of different surgical techniques to perform funduplications. Using Figures 1, 2, 3 and 4 on the next page, your surgeon can show you the type of fundoplication recommended for you.

Laparoscopic surgery for GORD

Laparoscopy is the technique of looking into the abdomen using a laparoscope, a thin telescope-like tube.

Laparoscopic surgery, commonly called keyhole surgery, is performed through several small incisions in the abdomen using special instruments.

A small video camera attached to the laparoscope allows the surgeon to see the surgical area and manipulate the surgical instruments while watching a video monitor.

To enable a clear operating field for the surgeon, the wall of the abdomen is raised above the stomach and other organs by pumping carbon dioxide into the abdominal cavity.

Over recent years, techniques in laparoscopic fundoplica-

tion have improved greatly, and side effects are fewer, making the procedure popular among surgeons and their patients.

Benefits of laparoscopy

For most patients, laparoscopic surgery has benefits over open surgery, such as:

- less discomfort and quicker recovery after surgery
- less time in hospital
- small incisions instead of a large incision
- small scars instead of a long scar
- often a return home in one to three days after surgery and a return to work in one to two weeks; some patients may require longer times.

Open surgery (laparotomy) for GORD

Although the surgeon may recommend laparoscopy to correct GORD, the surgeon may find, after starting the procedure, that laparoscopy is not safe due to unexpected findings or events.

If your surgeon believes it is not safe to continue with a laparoscopic procedure, the surgery will be continued through a larger incision in the abdomen. This is called open surgery or

laparotomy.

Conversion from a laparoscopy to open surgery is not a complication, although it may be necessary following a complication.

Rather, open surgery is done to protect the patient. The decision to convert to open surgery should be considered as sound judgement.

While open surgery is safe and effective, recovery usually takes longer,

about four to seven days in hospital and from three to six weeks at home.

A patient may be very disappointed that he or she had open surgery instead of a laparoscopy, but open surgery is done in the interests of the patient's safety and well-being. Whether surgery is laparoscopic or open, the aim of the surgery is the same, and the surgeon performs the fundoplication in basically the same manner.

Surgical repair of hiatal hernia

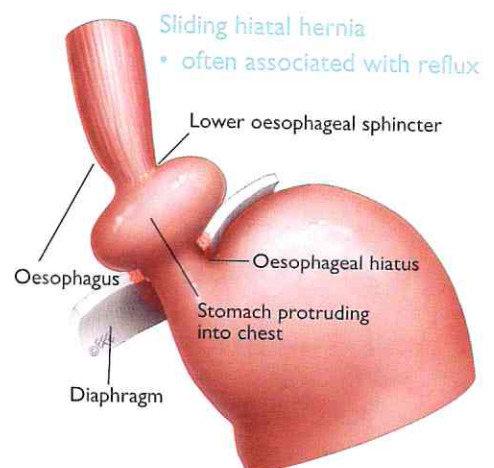
Hiatal hernia occurs when the top of the stomach partially protrudes through the diaphragm due to a weakness in the hiatus (see illustrations). When a breath is taken, the diaphragm puts pressure on the top of the stomach. This can force stomach contents past the LOS.

Hiatal hernia increases the severity of GORD. If a hiatal defect is present,

the surgeon usually repairs it during surgery. Sometimes, surgical mesh is used to strengthen the repair.

Hiatal hernia occurs mostly in middle-aged people, but it can affect people of all ages.

Illustrations, right: If a hiatal hernia is present, the surgeon will reduce the gap with stitches. This will prevent the stomach from pushing upwards into the hiatus between the diaphragm and the oesophagus.



While recovering in hospital, you may have temporary discomfort in your shoulders from carbon dioxide used during laparoscopy. Several hours after surgery, if you do not feel nauseous, you can drink and eat a light meal. Your nurse will ask you to cough frequently and breathe deeply to keep your lungs clear.

You will be asked to take a short walk in several hours to keep your blood circulating well. This helps to prevent deep-vein blood clots from forming in the legs. Most patients go home after one or two days.

A sore throat is usual for a few days. During meals, some patients feel full sooner and report that they eat less than before the surgery.

In most patients, anti-reflux medi-

Recovery after surgery

cation will not be necessary.

Pain relief: Medication will be given to minimise pain and discomfort. If you have severe pain, tell your surgeon so that pain control can be improved. Prescription pain relievers can cause temporary changes in bowel habits.

Recovering at home: You can usually resume most normal, non-strenuous activities in three to five days. Observe the following:

- No heavy lifting.
- No vigorous exercise.
- Follow your doctor's advice on showering, driving and returning to work.

Eating: As swallowing may be difficult for several weeks, all patients require a diet containing soft or well-lubricated

foods easy to swallow. Examples are pasta with creamy sauce (no chunks) and pureed soups. Avoid fizzy drinks, meats and dry or fibrous foods such as breads and vegetables like celery. Chew all foods well. Your surgeon will give you more information on postoperative diet.

You may pass more gas and have gas pains and other discomfort while your digestive system returns to normal. Most patients resume their normal diet in about three to four months.

Follow-up: During the first seven to 10 days after surgery, your surgeon will check on your progress and answer any questions. If you have stitches, they will be removed, along with any tubes. More appointments will be scheduled if you need them.

Possible complications of GORD surgery

Modern surgery is relatively safe but does have risks. Despite the highest standards of surgical practice, complications can occur. A surgeon does not usually dwell at length on every possible complication of a procedure. Sometimes, such detail can frighten the patient so much that treatment is refused, and the patient is worse off than running the usually small risk of complications.

Any discussion of frequency of risks or benefits (for example, one patient in 100, or "rare" and so on) can only be estimates as the outcomes of clinical research can vary widely. Such outcomes can depend on many factors, such as the surgical methods, equipment, surgeons' experience and data collection, amongst others.

Most patients will not have complications, but if you have concerns, discuss them with your surgeon. The following possible complications are listed to inform and not to alarm. There may be other complications not listed.

General risks of surgery

- Cardiovascular problems such as heart attack, thrombosis (formation of one or more blood clots) or stroke (a blood clot that has moved to the brain). A blood clot may move to a lung (pulmonary embolism), which may be fatal.
- Infection of the wounds, which is

uncommon. It is more likely to occur in people with diabetes.

- A keloid or hypertrophic scar may form from an incision, which may be raised, itchy and inflamed. Although annoying, it is not a threat to health.

Specific risks of GORD surgery

- Injury to the oesophagus, stomach, diaphragm, liver or nearby organs.
- Excessive bleeding (haemorrhage) near the surgical site. Blood transfusion is rarely necessary.
- Severe postoperative nausea and vomiting, which can be treated.
- The fundoplication may fail to achieve its intended outcome. A few patients report little or no improvement in symptoms.
- The ability to belch or vomit may be limited. Some patients report that their stomach often feels bloated.
- Some patients pass more wind after fundoplication. This is usually not troublesome but may be in some patients. Some report more episodes of diarrhoea.
- Difficulty or discomfort in swallowing (dysphagia) can persist in about 15 of every 100 patients beyond three months after surgery. Most swallowing problems will get better during the first year after surgery. Some patients may require a simple procedure to treat the oesophagus (endoscopic dilatation). In

rare cases, reoperation may be advised.

- A small number of patients have persistent long-term problems with swallowing following fundoplication and will need to avoid problem foods.
- Diabetic patients with gastroparesis (paralysis of the stomach) often have poor results with a fundoplication.
- Uncommonly, carbon dioxide used to lift the abdominal wall during laparoscopy may cause a serious condition called subcutaneous emphysema (SE), where swelling of subcutaneous tissues occurs due to trapped gas. SE can be quickly diagnosed and treated.

REPORT TO YOUR SURGEON

Tell your surgeon at once if you have any of these unexpected side effects:

- fever (more than 38°C) or chills
- bleeding or drainage of body fluid from an incision that occurs beyond the first day after surgery
- increasing abdominal pain or swelling
- increased difficulty in swallowing
- increasing chest pain
- cough or shortness of breath that worsens
- persistent vomiting or frequent nausea
- dizzy, light-headed, faint, short of breath, difficulty breathing or calf pain
- increasing redness around an incision
- any other concerns about your surgery.

If you cannot contact your surgeon, go to your family doctor or the Accident and Emergency Department of your nearest hospital.

The aim of this pamphlet is to provide you with general information. It is not a substitute for advice from your surgeon and does not contain all known facts about GORD, or every possible side effect of GORD surgery.

The surgery may have other risks that are not discussed in this pamphlet. It is important that you have enough information to compare the benefits of GORD surgery with the risks.

If you are not sure about the benefits, risks and limitations of surgical treatment, or

TALK TO YOUR SURGEON

terms used in this pamphlet, ask your surgeon.

Read this pamphlet carefully, and save it for reference. This information will change with time, due to clinical research and new therapies.

Technical terms are used that may require further explanation by your surgeon.

Write down questions you want to ask. Your surgeon will be pleased to answer them. Seek the opinion of another surgeon if you are uncertain about the advice you are given.

Use this pamphlet only in consultation with your surgeon.

CONSENT FORM

If you decide to have surgery, your surgeon will ask you to sign a consent form. Before signing, read it carefully. If you have questions, ask your surgeon.

You are encouraged to fully discuss with your surgeon:

- the result you want
- the treatment to be done and why
- the likely outcome you should expect.

Your complete medical history

Your surgeon needs to know your complete medical history to plan the best treatment.

Fully disclose any health problems you may have had because some problems may interfere with surgery, anaesthesia or aftercare. This information is confidential.

Tell the surgeon if you have had:

- an allergy or bad reaction to antibiotics, anaesthetic drugs, any other medicines, surgical tapes or dressings
- prolonged bleeding or excessive bruising when injured

- recent or long-term illness.

Give the surgeon a list of ALL medicines you are taking or have recently taken. Include medicines prescribed by your family doctor and those bought "over the counter" without prescription.

Include long-term treatments, such as insulin. Unless your surgeon advises differently, you will be able to continue taking most of your usual medicines.

Some medicines increase the risk of bleeding during and after surgery. Tell your surgeon if you take aspirin, anti-inflammatory medications (such as

ibuprofen), vitamin E, herbal medications or garlic tablets. If you are on medication to help prevent a blood clot (such as aspirin, warfarin, clopidogrel or similar medicines), seek the advice of your surgeon and prescribing doctor about whether the dose should be changed or the medication stopped. Discuss this carefully with your surgeon.

As smoking can impair healing, it is best to stop smoking. Also, some research has suggested that smoking can further weaken a poorly functioning LOS.

The decision to have surgery

As GORD is a chronic condition, the patient is often faced with having to take stomach-acid suppressants lifelong. Surgical treatment can be an attractive and effective option in some patients who want to avoid:

- the expense, inconvenience and burden of being dependent (usually for their lifetime) on medications to treat GORD
- the possibility of further damage to the oesophagus caused by reflux, even though symptoms may be mostly under control; some patients find that their symptoms are poorly controlled by medications or lifestyle changes
- significant lifestyle changes
- the uncertainty of long-term side effects of some newer medications.

A decision about surgery should be made only after discussion with your surgeon. The decision is always yours and should not be made in a rush. Make a decision only when you are satisfied with the information you have received

and believe you have been well informed.

For most patients, GORD surgery is an elective procedure (that is, it may be effective in improving health and well-being but is not a life-saving or urgent procedure).

However, for some patients with chronic reflux that is very difficult to treat, surgery can help avoid Barrett's oesophagus, a risk factor for cancer of the oesophagus.

Surgical mesh

Surgical mesh is a range of implants to repair defects such as an hiatus hernia. A mesh implant can assist the strength of a repair and reduce the risk of the hiatus hernia recurring at the surgical site. Mesh may be composed of a variety of biological absorbable or synthetic non-absorbable materials. While surgical mesh has been used successfully for 40 years in many types of abdominal repairs, surgeons have reported local complications, including inflammation, infection, tissue erosion, scar-tissue adhesions, pain and mesh movement.

This is an area of current research and debate, and if mesh is indicated, your surgeon can advise you about the best surgical mesh for your condition.

Anaesthesia

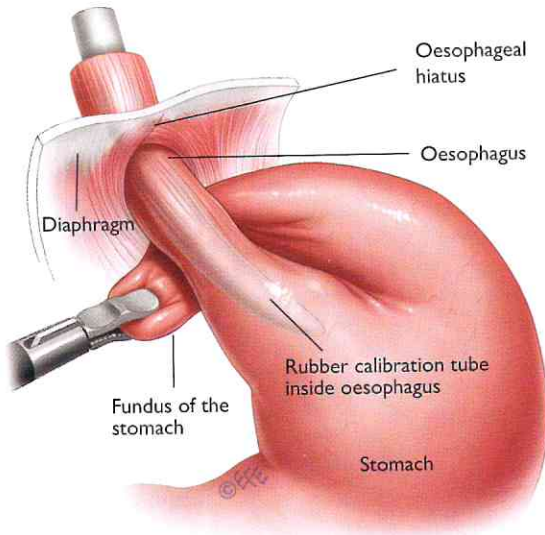
Surgery for GORD is carried out under general anaesthesia. Your anaesthetist will need to know your full medical history (including any allergies) and ALL medicines you are taking or have recently taken. Modern anaesthesia is safe and effective, but does have risks. Rarely, side effects from a general anaesthetic can be life threatening.

Costs of treatment

Your surgeon can advise you about public healthcare cover, private health insurance and out-of-pocket costs.

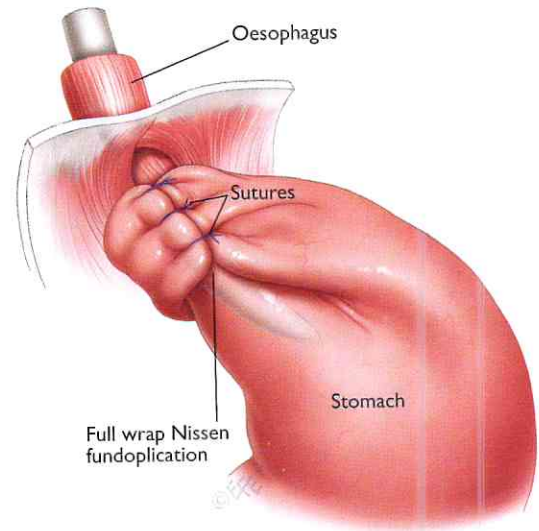
You may want to ask for an estimate that lists the costs. This includes medical and hospital fees, and other items. As the actual surgery may differ from the proposed surgery, the final account may vary from the estimate. It is best to discuss costs with your surgeon before surgery rather than afterwards.

Figure 1



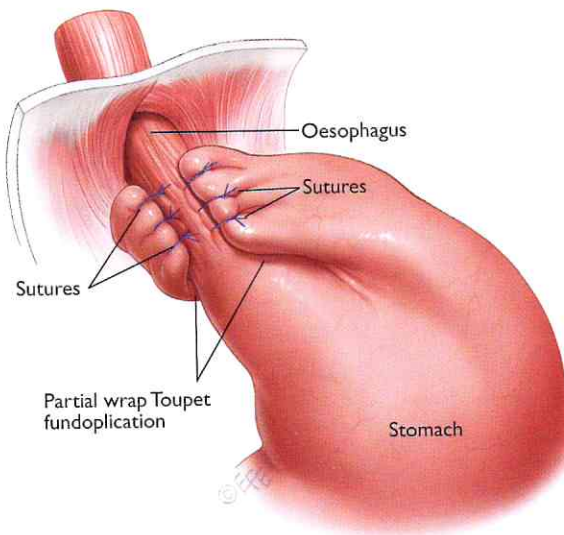
During a fundoplication, the surgeon pulls the top of the stomach (fundus) around the base of the oesophagus (Figure 1). To make sure the junction of the oesophagus and the stomach is not squeezed too tightly, a rubber tube may be inserted (from the mouth and down past the LOS) during the procedure.

Figure 2



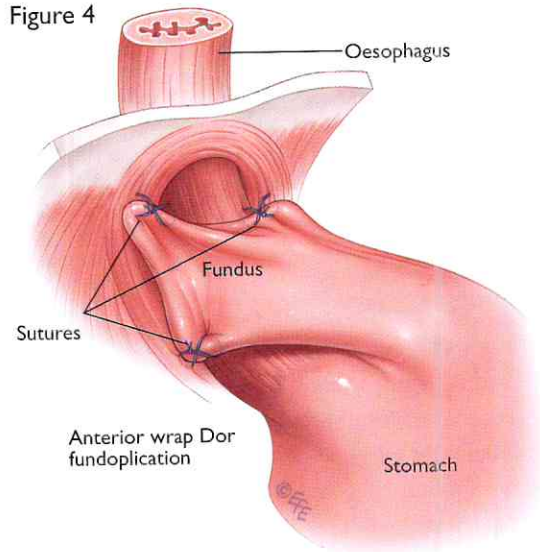
If the top of the stomach goes completely around the oesophagus, the procedure is called a "full wrap fundoplication".

Figure 3



If the top of the stomach goes partly around the oesophagus, the procedure is called a "partial wrap fundoplication".

Figure 4



With an anterior wrap Dor fundoplication, the fundus of the stomach is laid over the top of the oesophagus and then sutured into position.

