MISS JOANNA B REED

RAMSAY OAKS HOSPITAL - PATIENT INFORMATION LEAFLET

Laparoscopic Nissen Fundoplication

INTRODUCTION

The aim of this leaflet is to provide information about acid reflux and the operation to treat it. This leaflet will explain:

1. *What gastro-oesophageal reflux disease (GORD) is*
2. *Medical and surgical treatment options*
3. *Preparation for surgery*
4. *How the operation is performed*
5. *Side-effects of the operation*
6. *Complications of surgery*
7. *What to expect following your operation*

1. GASTRO-OESOPHAGEAL REFLUX DISEASE

The stomach produces strong acid but its lining is specially designed to resist attack. The oesophagus (or gullet) connects the throat to the stomach. In contrast to the stomach, its lining is not resistant to acid and if too much acid gets into the gullet it causes pain and inflammation (oesophagitis). This is called Gastro-Oesophageal Reflux Disease or GORD. As a patient with GORD you may experience a range of symptoms but the main one is heartburn.

2. MEDICAL AND SURGICAL TREATMENT OPTIONS

Lifestyle
There are some non-medical ways to improve GORD symptoms. Acid reflux is related to increased pressure inside the abdomen (which pushes more acid into the oesophagus) and therefore anything which helps to reduce this pressure will improve your symptoms. Examples include losing weight, wearing looser clothing, eating smaller meals and avoiding bending or lifting soon after meals. It may also help to avoid late night meals, and if you suffer with night-time symptoms then lifting the head of the bed onto blocks may reduce overnight reflux.

Medical treatment
Simple antacids like *Rennies* or *Gaviscon* act by neutralising the stomach acid. Prescription tablets such as *Losec*, *Zoton* or *Pariet* work by reducing the amount of acid produced by the stomach. Most patients' symptoms are either partially or fully controlled on these medicines. After the first course of tablets to heal the inflammation, further occasional medication may be required when symptoms flare up. Alternatively, some patients may require prolonged or even life-long treatment with a 'maintenance' (lower) dose of antacid tablets to keep symptoms under control.

Surgical treatment
However, some patients are either resistant to this group of tablets, or suffer a reaction to it so that they are unable to take the medication. Others may have a good response, but do not wish to take pills for the rest of their lives. The alternative is a surgical procedure called a "Laparoscopic Nissen Fundoplication" which is a permanent solution and means that the patient can stop taking medication for reflux, usually straight after the operation.

3. PREPARATION FOR SURGERY

There are several things you can do to prepare for your visit to theatre. If you smoke, you should try to stop preferably ***SIX WEEKS*** before the operation as smoking delays wound-healing and can cause postoperative chest complications. If you are overweight, losing weight prior to surgery will not only help in the technical aspects of the operation, but also reduce weight-associated risks (see table below). Your GP or pre-operative assessment nurse should be able to help you with both these issues.

When you are admitted to hospital you will be prepared for theatre. Your blood pressure will be recorded and a blood sample may be sent to the laboratory. You may also be given stockings to wear and a small injection given into the tummy to reduce the risk of blood clots forming in the legs. You must not have anything to eat or drink for 6 hours prior to the planned surgery.

Before your operation the Surgeon will ask you to sign a consent form, if this has not already been done in clinic. The anaesthetist will explain the anaesthetic procedure and also obtain your consent.

4. HOW THE OPERATION IS PERFORMED

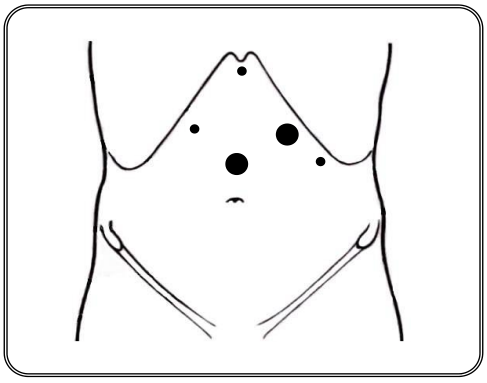

Figure 1

Modern surgical techniques allow this operation to be done as a keyhole (laparoscopic) procedure. The operation is performed through several (usually five) small incisions on the abdominal wall through which the camera and operating instruments can be placed (Figure 1).

Once access has been gained, the abdominal cavity is filled with Carbon Dioxide to create a space in which to perform the procedure. This is a very safe gas to use, and once the procedure has been completed any residual gas not removed by the surgeon will be rapidly absorbed by the body, usually within 24 hours.

Figure 2 shows the normal arrangement of the oesophagus, stomach and diaphragm. When you have a hiatus hernia some of the stomach 'pops up' into the chest (Figure 3). An anti-reflux operation involves three steps: firstly, the stomach is brought back into the abdominal cavity to restore normal position; then the hole ("hiatus"), through which the stomach has slipped, needs to be tightened up; finally, the top part of the stomach ("fundus") is wrapped loosely around the lower oesophagus and sutured to itself (Figures 4 and 5). This creates a sort of 'doughnut' of stomach around the oesophagus, called the 'wrap'. When the pressure in the stomach goes up the pressure in the doughnut also increases and this squeezes the bottom of the oesophagus shut. This prevents the acid contents being pushed up into the lower oesophagus.

The operation has several variations but this one is the most common and is called the Nissen Fundoplication.

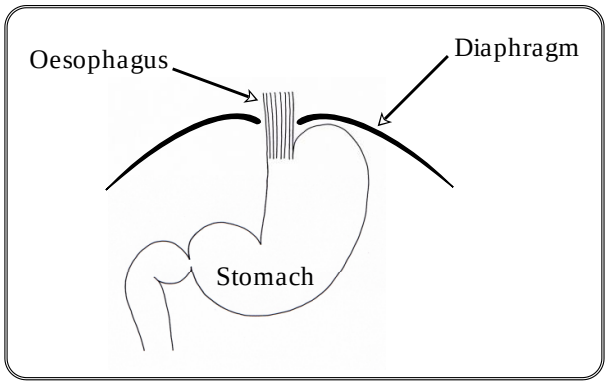

Figure 2

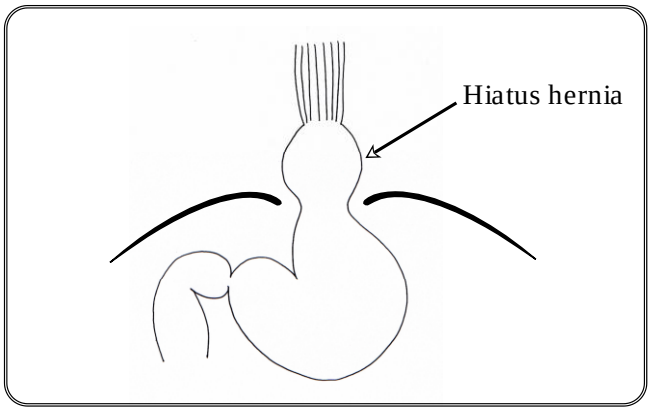

Figure 3

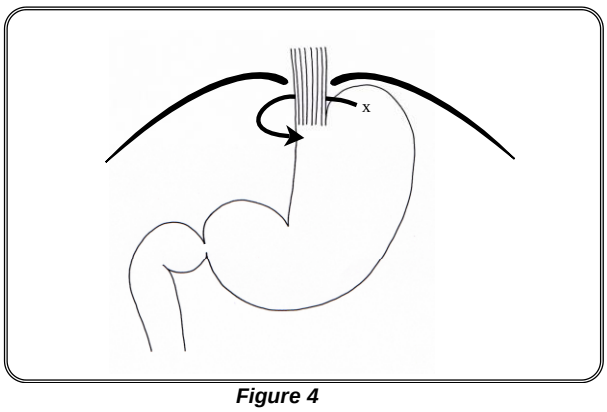

Figure 4

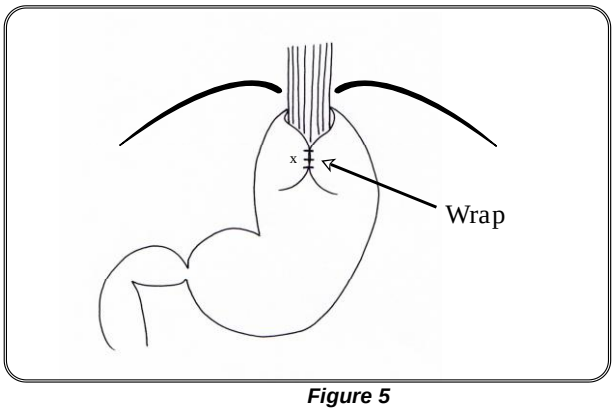

Figure 5

5. SIDE-EFFECTS OF THE OPERATION

Wrapping the upper stomach around the gullet causes some inevitable side-effects. These are normal effects of the operation, not a complication. In many patients they are temporary, but in some patients they are a **permanent side-effect** of the operation.

1. **SWALLOWING** – there is often a sensation of difficulty when swallowing, caused by temporary swelling at the site of the wrap. This usually gradually improves over the first six weeks, and is one reason to keep to a fluid/sloppy diet in the first few weeks after surgery. However, in many patients there is a permanent slight restriction that may require adjustment of the diet. The foods most likely to cause difficulty are bread (especially fresh white bread), fibrous meats such as pork or steak, and fibrous fruit and vegetables. Some people are never able to eat bread again after this operation.

2. **GAS BLOAT** – Because of the reinforced valve at the top of the stomach, you may not be able to belch after the operation. You will therefore retain air that is swallowed with drinks and meals, and may feel a bloated sensation which can be uncomfortable. This is called Gas Bloat Syndrome and is one of the commonest side-effects that patients notice after the operation. Again this normally largely settles within six to nine months but may be permanent. It is the main reason for avoiding fizzy drinks after surgery

3. **FLATUS** – The inevitable consequence of retaining more air is that it will pass through the system and out the other end! You may therefore notice an increase in the passage of wind. As your bowels adapt to the operation, this should gradually settle back to normal, but in some people it may be a permanent change.

4. **INABILITY TO VOMIT** - Because of the reinforced valve at the top of the stomach, you may not be able to vomit after the operation. This should not normally be a problem but extra care should be taken to avoid infections (eg gastro-enteritis), food that may cause tummy upsets (eg out of date or reheated food), or excess alcohol. If vomiting occurs this may cause rupture of the stitches or the stomach may be forced through the wrap causing strangulation of the stomach. This is a very serious complication and may need major surgery.

6. COMPLICATIONS FROM THE SURGERY

All operations, however simple, have associated risks. The bigger and more complicated the operation is, the greater the risks. These can be divided into (a) general, and (b) procedure-specific (i.e. directly related to the type of operation performed) complications.

General risks:

Anaesthetic
- Difficulty placing the anaesthetic tube
- Reaction to the anaesthetic gases or injections

Infection
- Wound infections may occur with any operation, and are either self-limiting or dealt with satisfactorily by antibiotic treatment if necessary *(increased risk in smokers or the overweight)*
- Secretions may collect in the lungs causing a chest infection *(increased risk in smokers or the overweight)*

Circulation
- Bleeding may occur in any operation. It is usually dealt with uneventfully, but occasionally may be persistent, requiring a blood transfusion. Rarely, further emergency surgery may be required. If the bleeding is in the skin wounds, it will cause some bruising which will fade in time
- Clots may form in the deep veins of the legs. These may break off and move to the lungs (pulmonary embolism) where they may cause breathing difficulty - a potentially serious complication.
- Circulation to the heart or brain may be affected, causing a heart attack or stroke

The risk of a serious complication is very small – less than 1 in 1,000 patients will have a serious complication.

Procedure-specific risks:

The following table lists complications related to this operation. Whilst the list is quite detailed, it must be emphasised that overall the incidence of complications is low.

The Risk	***What happens***	***What can be done about it***
Surgery does not help	Symptoms experienced before surgery may persist in some people (10%) after surgery ***Chances of cure are 85 - 90%***	This may be due to another gut problem or irritable bowel syndrome
Need for open surgery	Keyhole surgery may not work and the surgeon may need to do open surgery (***1 - 2% of people***)	Open surgery requires a bigger cut in the abdomen and a slightly longer stay in hospital
Injury to the oesophagus or stomach	Very rarely, the oesophagus or stomach may be damaged during the operation	This can usually be repaired during the operation, but may mean the surgeon needs to convert to open surgery to repair the damage and complete the operation. It is a serious complication and will result in a prolonged hospital stay
Injury to the bowels	Injury to the gut when the tubes and instruments are passed into the abdomen (**<1% of people**)	More surgery to repair the injured organs will be needed
Adhesions (bands of scar tissue)	Adhesions can form and cause bowel blockage and possible bowel damage. This can be a short or long-term complication. ***This is much rarer in keyhole surgery than open surgery***	This may require further surgery to cut the adhesions and free the bowel.
Port-site Hernia	A weakness can develop in one of the access wounds ('ports'), causing a hernia	Hernias usually need to be repaired by further surgery if symptomatic
Injury to the spleen	As the spleen lies next to the top of the stomach it may rarely be damaged during surgery ***Risk is less than 1%***	Damage to the spleen may cause bleeding. If this cannot be controlled the spleen may have to be removed by open surgery. If you do not have a spleen you are at risk of infections and may have to take life-long antibiotics
Slipped Wrap	Rarely, the wrap may slip up into the chest or down onto the stomach. This may happen after prolonged vomiting or sometimes heavy exertion in the early post-operative period	Both slips will cause acute difficulty in swallowing and require urgent re-operation

7. WHAT TO EXPECT AFTER YOUR OPERATION

The advantage of the keyhole technique is that a big cut is avoided, and therefore pain is less after the operation and the recovery is quicker. You will have some discomfort in your abdomen from the small wounds but these are filled with local anaesthetic after the surgery so they should not be too sore. As the day goes by the local anaesthetic will wear off and you will require some painkillers. You may also feel sick, and we will give you some strong medication to prevent this because retching or vomiting after a Nissen Fundoplication can disrupt the stitching inside. You may have some pain in your shoulders following the surgery, which can take a day or two to wear off. You will need to take some regular painkillers for the next three to five days which we will give you before you are discharged from hospital.

Diet:

Fluids - Immediately after surgery you can take sips of water, and then build this up to "free fluids", which means drinking whatever and as much as you like. By the second day after surgery you should be able to drink soups and milky drinks, and this should continue for the rest of the first week.

Solids - Solid food should be avoided for a month. The reason for this is that it is likely get stuck in the lower oesophagus and cause significant pain and retching, which is not only uncomfortable for you but also risks disrupting the surgical repair. You should gradually increase your diet from soups to "sloppy" food such as custard, jelly, ice-cream and yoghurt. Foods such as meat and vegetables should be minced or blended. By the 4^{th}-6^{th} week you should be able to re-introduce solid foods.

We will provide you with a dietary advice sheet before you go home which may be helpful in planning your meals. You will also get a further discharge advice sheet covering any other concerns that you may have.

Miss J Reed
Consultant Laparoscopic Surgeon ***July 2010***