NHS
University Hospitals
Coventry and Warwickshire
NHS Trust

General Surgery

Laparoscopic anti-reflux surgery

(Including dietary advice following surgery)

Introduction

If you suffer from 'heartburn', technically referred to as Gastro-oesophageal reflux disease (GORD), your surgeon may have recommended **Laparoscopic anti-reflux surgery** to treat this condition.

This patient information leaflet will explain to you:

1. What gastro-oesophageal reflux disease (GORD) is
2. Medical and surgical treatment options for GORD
3. How laparoscopic (keyhole) anti-reflux surgery is performed
4. Expected outcomes
5. What to expect if you choose to have laparoscopic anti-reflux surgery
6. What diet you will need to follow after your surgery

What is GORD?

Although 'heartburn' is often used to describe a variety of digestive problems, in medical terms, it is actually a symptom of GORD. In this condition, stomach acids reflux or 'back up' from the stomach into the oesophagus (food pipe). Heartburn is described as a harsh, burning sensation in the area in between your ribs or just below your neck. The feeling may radiate through the chest and into the throat and neck. Many adults in the UK experience this uncomfortable, burning sensation at least once a month. Other symptoms may also include vomiting, difficulty swallowing and chronic coughing or wheezing.

What causes GORD?

When you eat, food travels from your mouth to your stomach through a tube called the oesophagus. At the lower end of the oesophagus is a small ring of muscle called the lower oesophageal sphincter (LOS). The LOS acts like a one-way valve, allowing food to pass through into the stomach. Normally, the LOS closes immediately after swallowing to prevent stomach juices, which have a high acid content, coming back up into the oesophagus.

GORD occurs when the LOS does not function properly allowing acid to flow back and burn the lower oesophagus. This irritates and inflames the oesophagus, causing heartburn and may eventually damage the oesophagus.

Some people are born with a naturally weak sphincter (LOS). For others, fatty and spicy foods, certain types of medication, tight clothing, smoking, being overweight, drinking alcohol, vigorous exercise or changes in body position (bending over or lying down) may cause the LOS to relax, causing reflux. A hiatal hernia (a common term for GORD) may be present in many patients who suffer from GORD, but may not cause symptoms of heartburn.

How is GORD treated?

GORD is generally treated in three steps:

Lifestyle Changes
In many cases, changing diet and taking over-the-counter antacids can reduce how often and how harsh your symptoms are. Losing weight, if you are overweight, reducing or eliminating smoking, reducing alcohol consumption, and altering eating and sleeping patterns can also help.

Drug Therapy
If symptoms persist after these lifestyle changes, drug therapy may be required. Antacids neutralize stomach acids and over-the-counter medications reduce the amount of stomach acid produced. Both may be effective in relieving symptoms. Prescription drugs may be more effective in healing irritation of the oesophagus and relieving symptoms. This therapy needs to be discussed with your surgeon.

Surgery
Patients who do not respond well to lifestyle changes or medications or those who continually require medications to control their symptoms, will have to live with their condition or may undergo a surgical procedure. Surgery is very effective in treating GORD. You may hear laparoscopic anti-reflux surgery referred to as a ‘Nissen Fundoplication’, ‘laparoscopic posterior partial fundoplication (Toupet)’ or a ‘laparoscopic anterior partial fundoplication (Watson)’. They are all variations of the same procedure – namely the wrapping of the upper part of the stomach over the end of the oesophagus to try to stop acid refluxing back into the oesophagus. Your surgeon will discuss which type of fundoplication is recommended, which will depend partly on your symptoms and partly on which technique your surgeon is more familiar with.

What are the advantages of the laparoscopic (keyhole) method?

The advantage of the laparoscopic approach is that it usually provides:

- Reduced post-operative pain;
- Shorter hospital stay;
- A faster return to work;
- Improved cosmetic result.

Am I a candidate for the laparoscopic method?

Although laparoscopic anti-reflux surgery has many benefits, it may not be appropriate for some patients. You will have a thorough medical evaluation by a surgeon qualified in laparoscopic anti-reflux surgery in consultation with your GP to find out if the technique is appropriate for you.

What should I expect before the laparoscopic anti-reflux surgery?

- After your surgeon reviews with you the potential risks and benefits of the operation, you will need to provide written consent for surgery (the hospital will arrange this).
- Pre-operative preparation includes blood tests, medical evaluation, possibly a chest x-ray and an ECG depending on your age and medical condition.

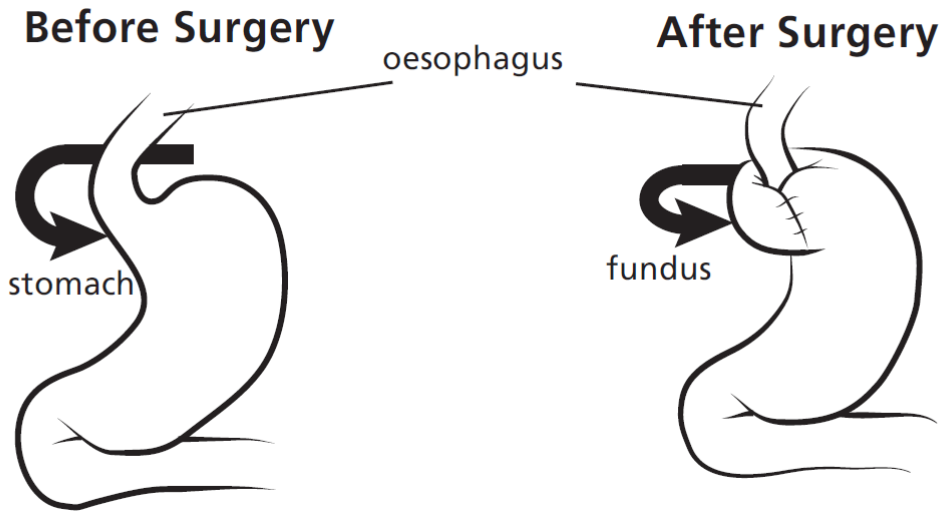
What should I do to prepare for surgery?

- It is recommended that you shower the night before or morning of the operation.
- After midnight the night before the operation, you should not eat or drink anything except medications that your surgeon has told you that you are allowed to take with a sip of water on the morning of surgery. You may drink water on the morning of your surgery.
- Drugs such as aspirin, blood thinners, anti-inflammatory medications (arthritis medications) and Vitamin E will need to be stopped temporarily for several days to a week before surgery, your surgeon or specialist nurse will advise you on this.
- Dietary supplements or St. John's Wort should not be used for the two weeks before surgery.
- Quit smoking and arrange for any help you may need at home.

What does the surgery involve?

This is a surgical operation which involves making approximately 5 small cuts (incisions) in the abdomen to insert a telescope (camera) and some instruments. The abdomen is filled (inflated) with gas to allow access and visibility of the organs. Most of the gas will be removed at the end of the operation. Stitches and/or paper strips will be used to close the skin wounds.

The top part of the stomach (fundus) is wrapped around the lower part of the gullet (oesophagus) and stitched to make a new valve to prevent the reflux of stomach contents back into the oesophagus (gullet). If you have a hiatus hernia, this will be repaired at the same time.



What happens if the operation cannot be performed or completed by the laparoscopic method?

In a small number of patients the laparoscopic method is not feasible because of the inability to visualise or handle the organs effectively. Factors that may increase the possibility of converting to the 'open' procedure may include obesity, a history of prior abdominal surgery causing dense scar tissue, or bleeding problems during the operation.

The decision to perform an open procedure is a judgment decision made by your surgeon either before or during the actual operation. When the surgeon feels that it is safest to convert the laparoscopic procedure to an open one, this is not a complication, but rather sound surgical judgment. The decision to convert to an open procedure is strictly based on patient safety. The dietary advice included within this literature is also applicable if your operation is converted to an 'open' procedure.

What complications can occur?

Although the operation is considered safe, complications may occur as they may occur with any operation.

Complications may include but are not limited to:

- Adverse reaction to general anaesthesia;
- Bleeding;
- Injury to the oesophagus, spleen, stomach or internal organs;
- Infection of the wound, abdomen, or blood.

Your surgeon will discuss these with you. They will also help you to decide if the risks of having laparoscopic anti-reflux surgery are less than those of not having surgery.

What should I expect after surgery?

- You are encouraged to engage in light activity while at home after surgery.
- Post-operative pain is generally mild although some patients may require prescription pain medication.
- Medication will be given in liquid or syrup form.
- For most patients it is recommended to stop anti-reflux medication after this procedure.
- There will be some dietary changes needed after surgery beginning with liquids followed by a gradual move to solid foods. This usually takes 3-4 weeks. This is discussed in more detail at the end of this leaflet.
- You will probably be able to get back to your normal activities within a short amount of time. These activities include showering, driving, walking up stairs, lifting, working and engaging in sexual intercourse.
- You will be reviewed in outpatient clinic six - eight weeks after your operation.

Are there side effects to this operation?

Studies have shown that the vast majority of patients who undergo the procedure are either symptom-free or have significant improvement in their GORD symptoms.

Long-term side effects to this procedure are generally uncommon.

- Some patients develop temporary difficulty swallowing immediately after the operation. This usually resolves within one to three months after surgery, but may last longer in a small number of patients. This is why the dietary advice should be followed carefully to minimise symptoms.
- Very occasionally, if swallowing problems persist, patients may require a procedure to stretch the oesophagus (endoscopic dilation) or rarely re-operation.
- The ability to belch and or vomit may be limited following this procedure. Some patients report stomach bloating, or feeling ‘full’ quickly, particularly after eating.
- It is common to pass more wind afterwards.
- Rarely, some patients report no improvement in their symptoms.

Is there anything I should look out for when I go home?

Be sure to call your GP, surgeon or the hospital ward you were discharged from if you develop any of the following:

- Persistent fever over 39ºC;
- Bleeding;
- Increasing abdominal swelling;
- Pain that is not relieved by your medications;
- Persistent nausea or vomiting;
- Chills;
- Persistent cough or shortness of breath;
- Pus from any wound;
- Redness surrounding any of your wounds that is worsening or getting bigger;
- You are unable to eat or drink liquids.

If you have any concerns you should contact your consultant's secretary. These numbers are on the back page of this leaflet.

This brochure is intended to provide a general overview of GORD and laparoscopic anti-reflux surgery. It is not intended to serve as a substitute for professional medical care or a discussion between you and your surgeon about the need for surgery. Specific recommendations may vary among health care professionals. If you have a question about your need for laparoscopic anti-reflux surgery, your alternatives or your surgeon's training and experience, do not hesitate to ask your surgeon. If you have any questions about the operation or aftercare, discuss them with your surgeon before or after the operation.

Dietary Advice Following Laparoscopic Anti-Reflux Surgery

Following surgery, swallowing may be difficult because of swelling around the oesophagus (food pipe). It may take a month or more for swallowing to feel normal

again with all foods. If your swallowing has not improved after this time contact your consultant's secretary.

Four stages of diet are advised. In each stage, when swallowing feels normal, you can move on to the next stage. The exact time for progressing through the stages varies from person to person. Do not move onto the next stage before you are ready.

Most importantly

- Have small frequent meals and snacks, rather than large meals;
- Eat slowly and chew foods well;
- Have moist foods with extra sauce, gravy or custard;
- If you are not able to eat very much remember to include plenty of milky drinks and nourishing snacks;
- If you feel unable to eat a meal or snack, have a nourishing drink instead such as milk, milkshake or creamy soup;
- Eat in an upright position as gravity will help food go down more easily;
- Avoid drinking large amounts of fluids before meals as this may fill you up. If you need to drink with meals to help the food go down choose a nourishing drink such as milk;
- If any food sticks, stop eating, relax and allow time for food to clear. Try and have a drink to wash the food down; if that fails, try some soda water. If food remains stuck, contact your surgeon. If your surgeon is unavailable, contact your nearest A&E department.

AVOID the following until you are swallowing without difficulty (usually 4 -6 weeks):

- Fresh bread;
- Cake;
- Grilled and fried meat, especially steak and chicken (unless pureed, minced or finely chopped);
- Raw stringy or hard vegetables for example celery, sweetcorn, raw onion or salad;
- Fried eggs;
- Fizzy drinks (unless soda water is required to relieve blockage);
- Nuts and dried fruit;
- Highly spiced foods (avoid for 6 weeks).

Stage 1: normally for 2-5 days

Fluids and semi-fluid items only – these should be smooth with no lumps. A food processor or blender may be useful. Aim for at least 1 pint of milk per day during this stage.

- Water, fruit juice, cordial (not fizzy drinks);
- Milk, milkshake, smoothies;
- Tea, coffee, hot chocolate, Ovaltine (not too hot);
- Soups (strained or finely pureed);
- Ice-cream, custard, jelly, instant whip, creme caramel, egg custard (no pastry);

- Smooth full fat yoghurt (not with seeds or pieces of fruit);
- Mashed or instant potato (sloppy);
- Gravy, white sauce (no lumps);
- Food pureed to a thin consistency (no lumps).

Food suggestions: Stage 1
(All meal options can be eaten at any time)

Breakfast ideas:
Glass of milk, smooth yoghurt, custard, jelly, tea or coffee, smooth fruit juice.

Lunch ideas:
Strained soup, finely mashed potato and pumpkin, gravy, white sauce, tomato sauce, jelly, custard, ice-cream, cordial, fruit juice.

Dinner ideas:
Strained soup, mashed potato, mashed carrot or swede, gravy, cheese sauce, ice-cream, jelly, tea, coffee, fruit juice.

Whilst you are on **stage 2 and 3** you should take a chewable complete A-Z multivitamin and mineral supplement until you are able to eat a normal diet. These supplements can be bought at the chemist, supermarket or on the internet and the following brands would be suitable:

- Bassett's Soft and Chewy (raspberry flavour) - one per day
- Centrum Chewables - two per day
- Boots Chewable A-Z multivitamins and minerals - two per day
- Superdrug A-Z Chewable Mutlivitamin and Minerals - two per day

Stage 2: normally for 1-2 weeks

Mashed and very soft foods only – soft lumps able to be mashed with a fork. If you are still in hospital a soft fork mashable menu is available if there is nothing suitable on the meal trolley.

You can still have all the items in stage 1 but also begin to try:

- Porridge or breakfast cereals such as Weetabix, Ready Brek, Cornflakes, Rice Krispies, well softened with milk;
- Fruit – fresh fruit (soft well ripened) stewed or tinned fruit (soft or pureed);
- Yoghurt – any;
- Vegetables – well cooked, soft, mashed or pureed;
- Mashed or instant potato;
- Pasta or noodles - well cooked, soft;
- Pureed or minced meats including pureed chicken – can be with gravy in a thick soup, or served with mashed/pureed vegetables;
- Fish - either fresh (take care to remove all bones) or tinned (mashed, no bones or skin);

- Eggs; soft boiled, scrambled, poached – avoid fried eggs;
- Alternative protein sources; Quorn mince, houmous, lentils;
- Rice pudding, tapioca, semolina.

Food suggestions: Stage 2
(All meal options can be eaten at any time)

Breakfast ideas:
Porridge or softened cereal, for example Weetabix or cornflakes with milk and sugar, soft boiled egg or scrambled egg.
Lunch ideas:
Smooth soup, macaroni cheese or cottage pie with mashed or pureed vegetables, pureed or mashed fruit or rice pudding with jam, syrup or honey.

Dinner ideas:
Pureed braised meat or casserole or poached fish fillets with white sauce, mashed potato, pureed vegetables, pureed or mashed fruit, and custard.

Stage 3: normally for 1-2 weeks

Light foods with more texture – chew well

You can still have all the items in stages 1 and 2 but also begin to try:

- Tender meats, mince, stews, skinless sausages
- Poultry, mince or finely chopped
- Salads
- Biscuits, crackers, crispbreads, breadsticks
- Alcohol in small quantities if desired

Food suggestions: Stage 3
(All meal options can be eaten at any time)

Breakfast ideas - any of the options from stages 1 and 2 plus:
Baked beans, cheese and tomato.

Lunch ideas - any of the options from stages 1 and 2 plus:
Soup, tender braised meat and vegetables, fish in butter sauce, canned spaghetti, lentils (well cooked), cheese, salad, soft fruit, tinned or fresh.

Dinner ideas – any of the options from stages 1 and 2 plus:
Pasta with bolognaise sauce, meat casserole, cottage pie, steamed fish, well cooked vegetables, soft fruit, fresh or tinned fruit.

Stage 4: gradual return to normal eating

Gradually add in firmer foods.

Try the foods in the ‘avoid list’ in small amounts one by one. Chew these foods well. If you are unable to tolerate them try again in a few days.

After about 4 weeks it is hoped that you will be able to eat a full range of foods.

However, you are advised to:

- Continue with small meals (and between meals snack if needed to satisfy appetite) rather than large meals
- Continue to chew all foods well
- Try to avoid drinking fluids with meals

What should I do if I am losing weight?

Although some weight loss is to be expected it is important to try to maintain your weight and eat well after your surgery to help your body heal and recover. If you are overweight and want to lose weight it is best to do this after your recovery and your GP can advise you on this once you are able to eat normally.

If your appetite is poor, you already have a low body weight (BMI less than 18.5kg/m^2) or you lose more than half a stone (4kg) of weight in the first two weeks, follow the suggestions below. These will add extra energy to your food until you are able to eat normally and help to meet your nutritional needs:

Breakfast cereals - add one or more of the following to breakfast cereals:

- Full fat milk;
- Full fat yoghurt;
- Golden, maple or fruit syrups;
- Soft or smooth pureed fruit in syrup;
- Cream or cream substitute;
- Evaporated or condensed milk;
- Honey;
- Sugar.

Creamed potato - add one or more of the following to mashed potato:

- Butter, margarine, oil or ghee;
- Cream or cream substitute;
- Full fat yoghurt, creme fraiche or fromage frais;
- Milk powder;
- Full cream milk;
- Grated cheese, cheese spread or cream cheese.

Vegetables - add one or more of the following to vegetables:

- Butter, margarine, oil or ghee;
- Grated cheese, cheese spread or cream cheese.

Soups and Sauces - add one or more of the following to soups and sauces:

- Cream or cream substitute;
- Grated cheese, cheese spread or cream cheese;
- Full fat yoghurt, creme fraiche or fromage frais;

- Soft cooked rice or pasta;
- Extra meat, poultry or pulses such as lentils or beans;
- A well cooked egg.

Puddings - add one or more of the following to puddings:

- Cream or cream substitute;
- Ice-cream;
- Jam;
- Full fat yoghurt, creme fraiche or fromage frais;
- Golden, maple or fruit syrup;
- Soft or pureed fruit;
- Honey;
- Sugar;
- Evaporated or condensed milk;
- Dessert sauces.

Nourishing fluids

Fortified milk - add four tablespoons (2oz or 55g) of dried milk powder to a small amount of full fat milk to make a paste. Then add further milk to make up to 1 pint. This can be used to make custard, instant desserts, milk puddings, drinks, porridge, soups or sauces.

- Malted drinks (for example Ovaltine or Horlicks), hot chocolate, milky coffee;
- Milkshakes or smoothies;
- Creamy soup;
- Complan or Meritene soups or shakes (available to buy in most supermarkets or chemists).

Other supplements are available such as Nourishment, Nutrament, Sanatogen high protein powder and whey protein based shakes (such as body building products), these are usually high in energy and/or protein which will help to boost intake but are often not nutritionally complete. Check with your doctor to see whether these will be appropriate for your needs.

If your weight continues to decrease following implementation of the above ideas please discuss referral to a Dietitian with your GP or surgeon.

Additional information

This leaflet was produced by the UHCW Specialist Gastroenterology Dietitian and Upper GI Surgical Team in association with Sheffield Teaching Hospitals NHS Foundation Trust (STH). With special thanks to Clive Kelty (Consultant Upper GI Surgeon) at STH and the rest of the Upper GI Surgical and Dietetics team at STH.

If you have any questions or would like further information, please contact the Dietitians 024 7696 6161.

Patient Information

Contact Details

Mr McLaughlin's/Miss Tewari's secretary	024 7696 5184
Mr Menon's secretary	024 7696 5278
Mr Tan's secretary	024 7696 5272

The Trust has access to interpreting and translation services. If you need this information in another language or format please contact your surgeon's secretary who will do their best to meet your needs.

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