

Children's Services/Paediatric Gastroenterology, Hepatology and Nutrition

Gastroscopy (upper endoscopy) and impedance study

Afternoon list

Brief description

- Your child is going to have a gastroscopy with an impedance study. This information leaflet will provide you with the information you need about these procedures.
- Here, we explain some of the aims, benefits, risks and alternatives to these procedures. We want you to be informed about your choices to help you to be fully involved in making any decisions.
- Please ask about anything you do not fully understand or wish to have explained in more detail.
- If you would like this information in another format or language or would like help completing the form, please ask a member of our staff.

What is a gastroscopy and impedance study?

Gastroscopy

A Gastroscopy is also known as an upper endoscopy or OGD (Oesophago-Gastro-Duodenoscopy). You will hear both of these terms used. A gastroscopy is a procedure that allows the paediatric endoscopist to look directly at the lining of the upper gut. The upper gut consists of the oesophagus (food pipe), stomach and duodenum (upper small bowel). The duodenum is responsible for most of the digestion and absorption of nutrition.

Impedance study

An Impedance study is a test that measures the movement of all liquid and air up and down the oesophagus (the food pipe - the tube that takes food from your mouth to your stomach). Gastro-oesophageal reflux (GOR) is when stomach content (acid or non-acid) comes back up from the stomach into your oesophagus. The combined pH and impedance technique provides information on what is actually happening in the oesophagus over 24 hours. It measures all reflux events, whether they are acid or non-acid, liquid or air, or liquid and air combined. It also measures how high the liquid refluxes, for example into the lower, middle or upper part of the oesophagus. These events are measured using an impedance probe.

Preparation

Gastroscopy

Your child can eat and drink normally until the day of the procedure

- Clear fluids only (water or very dilute squash) should be taken on the morning of the procedure.
- **No food** of any kind should be taken after **07:00**.
- All fluids should be stopped at **11:00**.

Impedance study

If your child is taking medication, your child's doctor will discuss with you (before booking the impedance study), whether or not you need to stop any of your child's treatment. Occasionally the doctor caring for your child may request that you do not stop his/her medication. They will explain to you why this is important.

If your child needs to stop treatment, then please see the list below for when this should be stopped.

Proton pump inhibitors should be stopped seven days before the test, these include:

- Omeprazole (Losec)
- Lansoprazole (Zoton)
- Esomeprazole (Nexium)

Acid suppressants should be stopped for 72 hours (three days) prior to the test, these include:

- Ranitidine (Zantac)
- Cimetidine (Dyspamet, Tagamet)

Antacids/Alginates should be stopped for 24 hours prior to test, these include:

- Gaviscon
- Gastrocote
- Peptac
- Rennie's
- Maalox
- Mucogel
- Prokinetic (motility agents)
- Domperidone (Motilium)

Getting ready for the procedure

On arrival, the procedure will be explained again to you and your child and you will be asked to sign a consent form by the paediatric endoscopist. You and your child will also be seen by the anaesthetist as your child's procedures will be carried out under general anaesthetic. If your child wishes, he/she can have a special cream applied to the back of his/her hands which numbs the sensation in this area. This is in preparation for inserting a cannula. A cannula is a very thin plastic tube that sits in the vein and allows medicines or fluid to be given directly into your child's body. You will be asked to wait in the pre-procedure area until it is time for the procedures. Your child will need to undress and put on a gown, so it is a good idea to bring his/her slippers and a dressing gown for him/her to wear while he/she is waiting.

During the procedure

The procedure is undertaken with a gastroscope, which is a long flexible tube (about as thick as your little finger) with a light at the end. It is passed through the mouth, into the oesophagus, the stomach and duodenum. Biopsies (samples of the lining of the gut) will be taken. The procedure usually takes around 15 to 20 minutes, but times can vary.

The impedance probe (this is a very thin flexible plastic tube) will be placed at the end of the gastroscopy while your child is under general anaesthesia. It goes through the nose and down the back of the throat into the lower oesophagus.

The tube is held in place with tape attached to your child's cheek and is also secured with tape on the back/chest. The other end of the probe is attached to the recording box and held in a small bag.

The box will record the severity of acid reflux (pH) and any reflux (impedance) events over 24 hours. The data is later transferred onto a computer for analysis. The test will then be analysed by your child's medical team and appropriate changes made to his/her treatment plan.

During the procedure, parents/ carers are asked to stay in the discharge lounge in the ATC as the endoscopist will come to discuss their findings and your child's treatment plan after the procedure.

Will my child need to stay in hospital?

In most cases it is possible for your child to go home overnight and return to the ward the following day for the probe to be removed. This will be discussed with you by your child's team. If your child remains in hospital overnight he/she will be nursed on a children's ward.

How will the probe stay in?

The probe will be secured to your child's nose/cheek and back or chest with tape to avoid accidental removal. You will be shown how to re-secure the probe if the tape becomes loose.

What happens if the probe falls out?

This is very uncommon. If the probe does fall out, don't worry! This is **not** an emergency. If you are in hospital tell one of the nursing staff immediately and they can contact the nurse specialist as appropriate. If you are at home and the probe falls out, simply remove it by pulling it out of the nose gently. Or, if it comes out slightly, you can try and return it to its original position.

If this is not easily done, either fix the tube in the new position, or simply remove the tube and return to the ward the next day as planned. If the probe falls out please turn off the recorder, as you have been shown, and we will be able to analyse any information that has been obtained.

What should I do if my child cannot tolerate the presence of the probe?

This is very rare, but children who cannot tolerate the probe are usually identified at the time of insertion. If you find that your child really cannot tolerate the probe when you get home, and that simple pain relief (for example Paracetamol) does not help, you can remove the probe yourself by simply removing the tape and pulling out the probe. Remove the probe from the recorder as you have been shown, place the probe in the bin and turn the recorder off. Return the recorder to the hospital as planned the next day and explain what happened to your nurse specialist.

Will my child feel the probe?

Your child will be aware of the probe in the back of his/her throat throughout the test. However, most children/young people report they become less aware of it over the 24 hour period.

Will my child be able to eat and drink as normal?

We want your child to continue eating and drinking as normal, as we need to see what happens during a normal day. However we ask that your child does not have any carbonated / fizzy drinks or fruit juices during the study as these can interfere with the interpretation of reflux events. The probe may move very slightly as your child eats, which may feel strange initially. This is perfectly normal.

Are there any restrictions to my child's activities?

Your child should not have a bath, shower or wash his/her hair for the duration of the study to prevent any accidental damage to the recorder by water. Boisterous play/activity is best avoided to prevent accidental removal of the probe and damage to the recorder.

How will my child sleep?

Your child will be able to sleep as normal. Place the recorder/box under your child's pillow to avoid accidental removal. If your child's sleep is disturbed overnight please record it in the diary and press the appropriate buttons as advised.

What is the diary for?

The diary you are provided with is to record your child's symptoms, body position and meals. The diary is extremely important as it allows us to correlate your child's symptoms with the recorded reflux events. You (and your child if he/she is old enough) must complete the diary carefully and will be shown how to do this before the study.

You may also be asked to press certain 'symptom' buttons on the recorder so that the computer can analyse whether or not the 'symptom' occurs as a result of a reflux event. If the diary (or button) is not used correctly it may not be possible to analyse the study and diagnose your child's problem.

Further explanation will be given on the day.

Can the equipment be damaged?

Yes. The equipment is very fragile and expensive. We therefore ask you and your child to take great care of it. The recorder should be handled carefully and kept in its case to avoid any accidental damage. If the equipment is damaged we will not be able to analyse the information of the test and the test may need to be repeated.

After the procedure

Following the procedure, your child will be taken to a recovery area to recover from his/her general anaesthetic. Once he/she has recovered, the nurse will call one parent in to the recovery area, this will not be long after the procedure is complete. When sufficiently awake, your child can have a drink followed by something to eat if he/she is not feeling sick. He/she will need to eat and drink something before being discharged home.

Your child may feel bloated and have some crampy, wind-like pains as some of the air used during the procedure remains in his/her bowel; this usually settles down over the next 24 hours.

Your child may be tired and a little clumsy/unsteady for around 24 hours after the test, so do not allow activities that could lead to a fall. He or she may also seem very grumpy for the first few days. This is a side effect of the anaesthetic and does not last long. You will also be given a leaflet of what you can expect in the days immediately after your child has had his/her procedure.

Please read this carefully.

When you get home, you can give your child regular pain relief, every four to six hours for the first 24 hours to ensure he/she can eat or drink. The nurses on the ward will tell you when your child can have the next dose before you go home. Always follow the instructions on the bottle. You do not need to wake your child up during the night to give a dose.

Usually Paracetamol, such as Calpol® or Disprol®, will be enough, but if you need stronger painkillers, we will prescribe them before you go home. If, when you get home, you feel that your child needs stronger pain relief, you should call your GP or ring the gastroenterology nurse specialists (on the telephone number at the end of this form) for over-the-phone advice.

If necessary please leave a message and we will call you. Alternatively you can call Addenbrooke's switchboard on 01223 245151 and ask them to bleep the paediatric gastroenterology nurse specialists during working hours or the paediatric registrar on call out of hours.

Your child should be able to go back to school 24 hours after the procedure.

What happens when the monitoring is complete?

The appointment to remove the probe will take 10 to 15 minutes. Once the tape is removed the probe slips out of the nose very easily. This only takes a few seconds and may feel odd, but it should not be painful.

Once the probe is out your child can go home. Any anti-reflux medication can be restarted if this was advised by your doctor before the study.

When do I find out the results?

The endoscopist will be able to tell you what he/she was able to see down the endoscope before you go home. He/she will also discuss a plan for your child's further management.

The biopsies may take seven days to be fully reported on. A member of our team will then ring you as soon as we have the results, to pass these on to you and, if necessary, adjust your child's treatment plan.

The information on the impedance recorder is downloaded onto a computer and the results are analysed by a doctor. This can take up to a week and you will either receive a telephone call or be seen in clinic to discuss the results.

It may not always be possible to give you the results of both procedures together. However, the team will keep you updated of your child's results and adjust treatment plans accordingly.

A letter confirming the findings of the procedure and management plan will be sent to you, your child's GP, referring consultant and any other health care professionals involved in your child's care. If you **do not** wish for anyone involved in your child's care to receive this information, please let one of the team know.

What are the benefits of the procedures?

In most cases the procedures are carried out to try and help make a diagnosis, i.e. to work out the cause of your child's symptoms and plan treatment for your child.

Your doctor should have discussed the likely benefits of these procedures with you and your child. If you are not sure how these procedures are likely to benefit your child's health, please ask one of the medical team who will be happy to explain this to you.

Alternatives

Gastroscopy

The gastroscopy is still the only test that will actually allow your doctor to see the lining of your child's upper gut and take biopsies (samples of the lining of the gut). Both of these are necessary to confirm or rule out the diagnosis. Although there are x-ray tests and scans available, these do not give the same amount/type of information. Your child's doctor should have discussed the reason this procedure needs to be done and explained why alternative tests are not suitable. If you have further questions please discuss this with your doctor.

Impedance study

Some units measure pH reflux alone with a 'pH-study'. An impedance study is a better study of the function of the oesophagus and cannot be replaced by any other type of scan/x-ray or blood test. Sometimes it is appropriate to treat a patient without doing an impedance study, but this should be discussed with you before booking this investigation.

Are there any risks?

Gastroscopy

Upper endoscopy procedures carry a small risk of haemorrhage (bleeding) (less than one in 1,000 cases) or perforation (tear) (less than one in 5,000 cases) to the bowel if your doctor is only taking pinch biopsies. The risks are slightly greater if some form of treatment is required (for example removal of a polyp, dilatation of a narrowing (stricture)). These risks will be discussed with you separately. The risk of serious infection is so low that we do not routinely give antibiotics before a procedure. All the equipment is cleaned according to national standards set out by the British Society of Gastroenterology. A rare complication is an adverse reaction to the general anaesthetic, but your child's anaesthetist will discuss this with you.

There is also a small risk that loose or wobbly teeth may be dislodged, so please inform the anaesthetist if your child has any loose or wobbly teeth. Rarely the tissue samples taken during endoscopy may be too small or damaged during processing to make a definite diagnosis. In certain cases it may then be necessary to repeat the procedures

Impedance study

There may be a little bleeding from the nose if your child has a history of nosebleeds, or the tube was difficult to insert.

Training

Training doctors and other health professionals are essential to the continuation of the National Health Service, and improving the quality of care. Your treatment may provide an important opportunity for such training under the careful supervision of an experienced endoscopist. You can, however, decline to be involved in the formal training of medical and other students. This will not affect your care and treatment. Please ask your consultant or specialist nurse if you have any questions about this.

If you are concerned, or your child has any of the symptoms below:

- Severe pain
- Fever – temperature higher than 38.5° C for more than two hours (Not responding to paracetamol)
- Black tarry stools
- Persistent bleeding

Please contact one of the following:

- Gastroenterology nurse: 01223 274757, 08:00 until 16:00
- Your GP or local Accident and Emergency Department 16:00 until 08:00 or
- Addenbrooke's Hospital: 01223 245151 (where you should ask to speak to the on-call paediatric registrar).

Any questions?

Feel free to write down any questions you may have. No question is ever too minor or too silly to ask, so please ask any member of the team caring for your child if there is anything you wish to know. Your child is also encouraged to ask questions. It is important that you and your child are fully prepared for the procedure and that we try and address all of your worries and concerns before the procedure.

If you have any problem understanding or reading any of this information, please contact any of the team below or ask your consultant for more details.

- Clinical Nurse Specialist in Paediatric Gastroenterology: 01223 274757
- Gastroenterology Nurses: 01223 348950

Children's anaesthesia

Children may need anaesthetics for operations, just like adults. They may feel distressed and their parents can feel anxious. Anaesthetists generally recognise this, and do their best to keep distress down to a minimum. These days, children usually come into hospital on the same day as the operation, unless it is major, and usually do not have premeds. They are seen with their parents by their anaesthetist and usually have local anaesthetic cream put on their hands at this point as described previously.

It is usual for one parent to stay with their child while he/she is being anaesthetised, in case he/she get scared.

Many anaesthetists start the anaesthetic with an injection into a vein, and with the local anaesthetic cream this usually does not hurt, or not very much. Others prefer to use gas as an anaesthetic, and most will use gas if there is a particular fear of needles.

Sometimes, especially for emergencies, gas cannot be used, as there may be a risk of vomiting. Occasionally, the anaesthetist will ask parents to leave the anaesthetic room just before starting anaesthesia, as some procedures need to be done just as the anaesthetic starts. After the operation parents can usually come back to their child as he/she is beginning to wake up, so that he/she do not feel left alone.

Usually pain can be controlled by use of local anaesthesia to wounds, followed by Paracetamol syrup or something similar. For more major surgery other pain relief methods will be required. Discuss this with your anaesthetist at the pre-operative assessment.

What are the risks of general anaesthesia?

In modern anaesthesia, serious problems are uncommon. Risk cannot be removed completely, but modern equipment, training and drugs have made it a much safer procedure in recent years. Most children recover quickly and are soon back to normal after their operation and anaesthetic. Some children may suffer side effects like sickness or a sore throat. These usually only last a short time and there are medicines available to treat them if necessary.

The exact likelihood of complications depends on your child's medical condition and on the nature of the surgery and anaesthesia your child needs. The anaesthetist can discuss this with you in detail at the pre-operative visit.

For a child in good health having minor surgery:

- 1 child in 10 (like one person in a large family) might experience a headache, sore throat, sickness or dizziness.
- 1 child in 100 (like one person in a street) might be mildly allergic to one of the drugs that have been given.
- 1 child in 20,000 (like one person in a small town) might develop a serious reaction (allergy) to the anaesthetic.

Remember

- **Please read this information leaflet thoroughly. If you are unsure please call the gastroenterology nurses on 01223 274757 with any questions.**
- **Ensure your child has a drink of water at 11:00 on the day of the procedure.**
- **Bring your child to the Addenbrookes Treatment Centre (ATC) (Day Surgery Unit Level 2) at 12:00 on the day of the procedure.**
- **Stay in the discharge lounge of the ATC during and after the procedure so that the endoscopist can find you to discuss the findings and treatment plan – if you are not available to speak to the endoscopist this can delay your child's discharge.**



We are currently working towards a smoke free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169

Help with this leaflet:



If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or patient.information@addenbrookes.nhs.uk



Document history

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