Wirral University Teaching Hospital
NHS Foundation Trust

E17 Endoscopic Mucosal Resection (EMR) for Lesions of the Oesophagus or Stomach

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What is an endoscopic mucosal resection?

An endoscopic mucosal resection (EMR) is a procedure to remove tissue from your oesophagus or stomach that is visibly abnormal (known as a lesion). It is performed at the same time as an upper GI endoscopy, which is a procedure to look at the inside of your oesophagus (gullet), stomach and part of your small intestine (duodenum) using a flexible telescope called an endoscope.

The tissue may contain cells that are or have a high risk of becoming cancerous. These are known as pre-cancerous cells.

Shared decision making and informed consent

Your healthcare team have suggested EMR to remove a lesion in your oesophagus or stomach. However, it is your decision to go ahead with the procedure or not. This document will give you information about the benefits and risks to help you make an informed decision.

Shared decision making happens when you decide on your treatment together with your healthcare team. Giving your 'informed consent' means choosing to go ahead with the procedure having understood the benefits, risks, alternatives and what will happen if you decide not to have it.

If you have any questions that this document does not answer, it is important to ask your healthcare team. Once all your questions have been answered and you feel ready to go ahead with the procedure, you will be asked to sign the informed consent form. This is the final step in the decision-making process. However, you can still change your mind at any point. You will be asked to confirm your consent on the day of the procedure.

What are the benefits?

Your doctor is concerned that some of the cells in the lining (mucosa) of your oesophagus or stomach are growing abnormally. The tissue that your doctor removes will be examined under a microscope to help make the diagnosis.

If the removed tissue contains abnormal cells that have not yet developed into cancer, an EMR should stop this from happening.

If the removed tissue does contain cancer cells, your doctor will be able to confirm if the EMR has removed all of the cancer or if you will need more treatment.

EMR can be used to treat many different shapes and sizes of lesions, including flat or large lesions. However, if the lesion is large your endoscopist may need to remove it in more than one piece.

Are there any alternatives?

Endoscopic submucosal dissection (ESD) involves using an endoscope to inject gel underneath the lesion to lift it. The endoscopist then makes tiny cuts around and under the lesion until they can remove it. ESD can be used to remove lesions located deeper within the lining of the oesophagus or stomach in a layer of tissue called the submucosa. It is also suitable for large lesions that need to be removed in a single piece.

An oesophagectomy is a surgical procedure to remove part or all of your oesophagus. A gastrectomy is a surgical procedure to remove part or all of your stomach. These are major procedures that have significant risks. They are most suitable for people who have more advanced cancer where endoscopic treatment may not be possible, or if endoscopic treatment has not been successful.

Surveillance involves having regular endoscopies without treatment. The healthcare team will use the results of these tests to monitor the lesions. They will suggest treatment if the tests show that the lesions are becoming more abnormal.

What will happen if I decide not to have the procedure?

Your doctor can discuss alternative treatments with you.

If the lining of your oesophagus or stomach is abnormal, it will not return to normal. If left untreated, there is a chance that the cells may become more abnormal or cancerous over time and be unsuitable for endoscopic treatment. If this happens you will need more invasive

treatment such as an oesophagectomy or gastrectomy.

Before the procedure

Do not eat anything in the 6 hours before your appointment, and only drink small sips of water. This is to make sure your stomach and oesophagus are empty so the endoscopist can have a clear view and perform your treatment safely. It will also make the procedure more comfortable. You can continue to drink small sips of water up to 2 hours before the procedure.

If you have diabetes, let the healthcare team know as soon as possible. You will need special advice depending on the treatment you receive for your diabetes.

The healthcare team will carry out a number of checks to make sure you have the procedure you came in for.

What does the procedure involve?

An upper GI endoscopy with EMR takes up to 1 hour, depending on how many lesions need to be removed.

The procedure is performed with you asleep under a general anaesthetic, which your anaesthetist will give you through a small needle in your arm or the back of your hand. The healthcare team can give you more information about this.

The healthcare team will ask you to remove any false teeth or plates. They will monitor your oxygen levels and heart rate using a finger or toe clip. Once you are asleep they will place a plastic mouthpiece in your mouth.

The endoscopist will place the endoscope down your throat through the plastic mouthpiece. They will look at your oesophagus and stomach. They may need to mark the edges of the lesion.

The endoscopist will use a rubber band or small suction cup to lift the lesion. They may also need to inject fluid under it to lift it more. They will then place a wire loop around the lesion and use heat to detach it from the lining of your oesophagus or stomach.

The endoscopist may need to perform more than one resection to remove all of the lesion.

They will use special tools such as tweezers, gels or clips to stop any bleeding.

What should I do about my medication?

Make sure your healthcare team know about all the medication you take and follow their advice. This includes all blood-thinning medication as well as herbal and complementary remedies, dietary supplements, and medication you can buy over the counter.

If you take warfarin, clopidogrel, rivaroxaban, apixaban or other blood-thinning medication, let the endoscopist know at least 7 days before the procedure because you will need to stop the medication beforehand.

How can I prepare myself for the procedure?

If you smoke, stopping smoking now may reduce your risk of developing complications and will improve your long-term health.

Try to maintain a healthy weight. You have a higher risk of developing complications if you are overweight.

Regular exercise should help you prepare for the procedure, help you recover and improve your long-term health. Before you start exercising, ask the healthcare team or your GP for advice.

Speak to the healthcare team about any vaccinations you may need to reduce your risk of serious illness while you recover. When you come into hospital, practise social distancing and hand washing and wear a face covering when asked.

What complications can happen?

The healthcare team are trained to reduce the risk of complications.

Any risk rates given are taken from studies of people who have had this procedure. Your healthcare team may be able to tell you if the risk of a complication is higher or lower for you. Some risks are higher if you are older, obese, have other health problems or you smoke. Health problems include diabetes, heart disease or lung disease.

Some complications may be serious and can even be life threatening (risk: 1 in 25,000).

You should ask your healthcare team if there is anything you do not understand.

The possible complications of an EMR are listed below.

General complications of any procedure

- Allergic reaction to the equipment, materials or medication. The healthcare team are trained to detect and treat any reactions that may happen. Let your doctor know if you have any allergies or if you have reacted to any medication, tests or dressings in the past.
- Infection. It is possible to get an infection from the equipment used. The equipment is disinfected so the risk is low, but let the endoscopist know if you have a heart abnormality or a weak immune system. You may need treatment with antibiotics. Let your doctor know if you develop a high temperature or feel unwell.
- Venous thromboembolism (VTE). This is a blood clot in your leg (deep-vein thrombosis – DVT) or one that has moved to your lung (pulmonary embolus). DVT can cause pain, swelling or redness in your leg, or the veins near the surface of your leg to appear larger than normal. The healthcare team will assess your risk for DVT and encourage you to get out of bed soon after the procedure. They may give you injections, medication, or special stockings to wear. A pulmonary embolus is when the blood clot moves through your bloodstream to your lungs. Let the healthcare team know straight away if you become short of breath, feel pain in your chest or upper back, or if you cough up blood. If you are at home, call an ambulance or go immediately to your nearest emergency department.
- Chest infection. Your risk will be lower if you have stopped smoking and you are free of Covid-19 (coronavirus) symptoms for at least 7 weeks before the procedure.
- Heart attack (where part of the heart muscle dies) or stroke (loss of brain function resulting from an interruption of the blood supply to your brain). This can happen if you have serious medical problems. This is rare.

Complications of an upper GI endoscopy

- Sore throat. This gets better quickly.
- Breathing difficulties or heart irregularities. This is because of a reaction to the general anaesthesia or inhaling secretions such as saliva, if you have sedation. This can cause a chest infection. To help prevent this, your oxygen levels will be monitored and a suction device will be used to clear any secretions from your mouth.
- Damage to teeth or bridgework. The endoscopist will place a plastic mouthpiece in your mouth to help protect your teeth. Let the endoscopist know if you have any loose teeth.
- Incomplete procedure caused by a technical difficulty, food or blockage in your upper digestive system, or complications during the procedure. Your doctor may recommend another endoscopy in the near future to complete the treatment.

Complications of an EMR

- Bleeding (risk: 1 in 100). This is usually minor. The endoscopist will use special instruments to stop any bleeding during the procedure.
- Making a hole in your oesophagus (risk: less than 1 in 100) or stomach (risk: 5 in 100) (perforation). The endoscopist may be able to repair a hole during the procedure, but you may need to be admitted to hospital for more treatment. This may include surgery.
- Narrowing (stricture) of your oesophagus (risk: 9 in 100) or stomach. Your risk will depend on where in your oesophagus or stomach the lesion is removed from, and the size of the treated area. If the lesion was small, the risk is about 1 in 100. If the lesion covered more than half of the surface, the risk is 30 in 100 or higher. A stricture can happen as the tissue heals. You may have difficulty swallowing or have episodes of choking, nausea or vomiting. This can last for up to 4 weeks and often gets better on its own. In some cases you may need a procedure called dilation to stretch the narrowed area.

What happens after the procedure?

In hospital

After the procedure you will be transferred to the recovery area where you can rest.

Once you are awake enough and can swallow properly you will be given a drink. You will be able to have only liquids for the rest of the day.

You may be able to go home the same day. However, your doctor may recommend you stay in hospital for a little longer.

Returning to normal activities

If you go home the same day:

- A responsible adult should take you home in a car or taxi and stay with you for at least 24 hours.
- Be near a telephone in case of an emergency.
- Do not drive, operate machinery or do any potentially dangerous activities (this includes cooking) for at least 24 hours and not until you have fully recovered feeling, movement and co-ordination.
- Do not sign legal documents or drink alcohol for at least 24 hours.

You should be able to return to work the next day unless you are told otherwise.

It is common to have a sore throat and feel bloated after the procedure. This usually settles within 24 hours.

The healthcare team will give you advice about what to eat for the next week.

If your endoscopist removed a large amount of tissue from your oesophagus, you may have some difficulty swallowing. In some cases this can last for up to 4 weeks and often gets better on its own. Chewing your food thoroughly can make swallowing it easier. If you are still having difficulty swallowing after 4 weeks, contact the healthcare team.

If you are taking anti-acid medication, the healthcare team will advise you whether to continue or increase it.

The tissue that was removed will be examined under a microscope. When the results are available, the healthcare team will contact you and may arrange for you to come back to the clinic. They will also discuss with you any treatment or follow-up care you may need.

Once at home, contact the endoscopy unit if you have any of the following symptoms:

- Chest or back pain.
- Pain in your abdomen.
- A high temperature.
- Difficulty breathing.
- Vomiting.

In an emergency, call an ambulance or go immediately to your nearest emergency department.

Lifestyle changes

If you smoke, stopping smoking will improve your long-term health.

Try to maintain a healthy weight. You have a higher risk of developing complications if you are overweight.

Regular exercise should improve your long-term health. Before you start exercising, ask the healthcare team or your GP for advice.

Summary

An EMR is usually a safe and effective way of finding out information about and treating lesions in your oesophagus or stomach. However, complications can happen. Being aware of them will help you make an informed decision about the procedure. This will also help you and the healthcare team to identify and treat any problems early.

Keep this information document. Use it to help you if you need to talk to the healthcare team.

Some information, such as risk and complication statistics, is taken from global studies and/or databases. Please ask your surgeon or doctor for more information about the risks that are specific to you, and they may be able to tell you about any other suitable treatments options.

This document is intended for information purposes only and should not replace advice that your relevant healthcare team would give you.

Acknowledgements

Reviewer

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Illustrators