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Gastroenterological Society of Australia

Information about

Endoscopic Ultrasound (EUS)

What is an endoscopic ultrasound?

Endoscopic ultrasound (EUS) is an endoscopic procedure that uses an ultrasound probe added to the tip of an endoscope. As well as giving the doctor an endoscopic view, it allows detailed ultrasound examination of the organs surrounding your upper gut, including the pancreas, bile duct, gallbladder, liver and spleen. Using real-time ultrasound guidance, needle biopsy of these organs can be safely done with this technique.

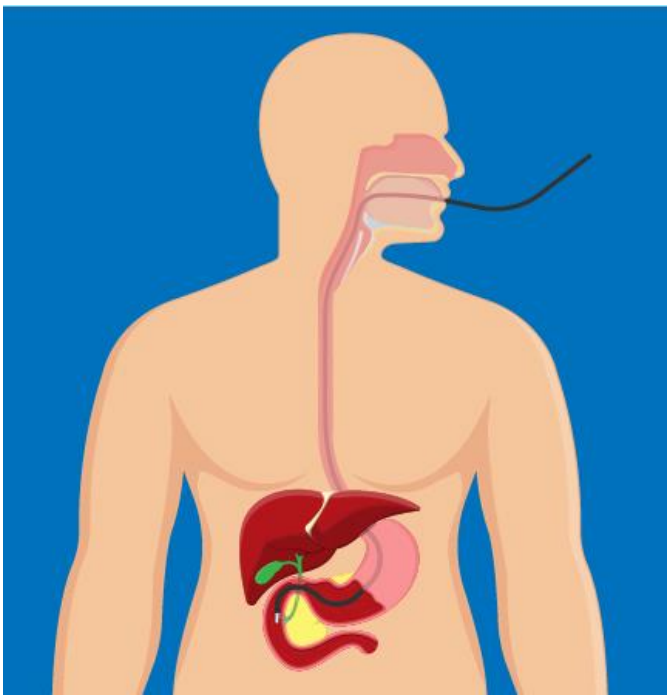
The procedure is performed using deep sedation, under the care of an anaesthetist. It involves a thin, flexible tube with a small camera and an ultrasound probe attached. This is passed through your mouth and into the oesophagus (food pipe), stomach and first part of the small intestine. The endoscopist uses the ultrasound's sound waves to generate images of the gastrointestinal tract and surrounding structures.

What are the benefits of an EUS?

One benefit of EUS over a regular gastroscopy is that the ultrasound can clearly visualise the nearby organs or the deep layers of your gut wall. EUS is most often used to take a closer look at abnormalities in the pancreas, bile duct, gallbladder, liver or lymph nodes around the upper gut that have been seen on a CT or MRI scan. Another benefit is that a biopsy sample can be taken through a fine needle under direct real-time ultrasound guidance. This allows the biopsy to be done safely and has a much lower risk of pain or bleeding than with the usual CT-guided biopsy. More recently, this technique has also been used to provide therapy for patients with complicated pancreatitis or gallstone disease.

What preparation is required?

You should not eat or drink for at least 6 hours before an EUS to keep your stomach empty and allow for a safer examination.



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Generally, you should take all your regular medications with a sip of water, even on the morning of the procedure. It is very important to tell your doctor what medicines you are taking and discuss whether you should stop taking any of them before the procedure.

If you are taking blood-thinning medicine, your doctor will need to discuss whether you should stop taking this in the days or weeks before your procedure. Some common blood-thinning medications are clopidogrel (Plavix®), ticagrelor (Brilinta®), warfarin (Marevan® or Coumadin®), apixaban (Eliquis®), rivaroxaban (Xarelto®) and dabigatran (Pradaxa®). You should stop taking medications such as fish oil and anti-inflammatory tablets often used for arthritis 5 days before the EUS. If you have diabetes, your doctor may need to modify your medications to ensure that your blood sugar is managed well around the time of the procedure. You should stop taking any diabetes tablets with names ending in 'gliflozin' 3 days before the procedure. Non-insulin injections need to be stopped for a longer period. If you take insulin, this will also need to be modified so your blood sugar level doesn't drop too low while you are fasting.

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What can I expect from an EUS?

You will usually be given a sedative to help you relax and make you more comfortable during an EUS. Most people remember little or none of the procedure. You will most likely start by lying on your left side. An EUS is often performed as a day procedure and takes between 15 and 30 minutes. Antibiotics will sometimes be given during the procedure, especially if fluid needs to be removed ('aspiration') from a cyst or a collection of fluid in your belly.

The endoscope does not interfere with your breathing, but you might feel a bloating sensation because of the gas used during the procedure.

What are the risks of an EUS?

EUS is safe and well tolerated when performed by specially trained doctors. Although complications requiring hospitalisation can occur, they are uncommon. The risks vary depending on why the procedure is needed and what it finds. For EUS-guided fine needle aspiration or biopsy, the risks of bleeding, infection, pancreatitis or pain are 1–2%. In most cases, these uncommon complications settle without any specific treatment or need for blood transfusion. Perforation, which is a tear through the wall of the gastrointestinal tract, is a very rare complication of EUS, even with needle biopsy or more invasive procedures like draining a fluid collection or obstructed bile duct or gallbladder. This serious but rare complication needs to be fixed by surgery.

Because sedation and, in some cases, general anaesthesia, is used, there are cardiac (heart) and pulmonary (lung) risks. There is a risk of dental damage or a sore throat for a few days. There is also a risk of stomach contents being drawn into your lungs, which can often be treated with oxygen and antibiotics. Some patients can have an allergic reaction to the sedative or antibiotics given.

What can I expect after an EUS?

You may feel drowsy until the effects of the sedative wear off. You might have a sore throat from the endoscope or feel bloated or pass gas because of the air introduced during the examination. If you have any pain or other problems while in recovery, you should tell the staff. Your doctor may recommend dietary restrictions for 1–2 days after the procedure, as well as medication changes.

In most cases, your doctor will tell you the endoscopic findings before you are discharged. However, biopsy results can take 1–5 days, and you will need to follow up with your doctor. As the sedative can affect your judgement and reflexes for the rest of the day, a responsible adult should escort you home and, ideally, stay with you overnight. You must not resume normal activities or drive until the next day.

Contact your doctor or the hospital promptly if you are having any problems after the procedure.

Who can I contact if I have any questions?

If you have any questions or need advice, please talk to your doctor before having the procedure.

Acknowledgements

This resource was created by the following health professionals in 2022:

Prof Nam Nguyen, Head of Endoscopy, Senior Consultant and Interventional Endoscopist, Royal Adelaide Hospital, Adelaide SA Australia
Dr Matthew Remedios, Senior Consultant Gastroenterologist, Royal Brisbane and Women's Hospital, Brisbane QLD Australia