PROCEDURE

Capsule endoscopy

Capsule endoscopy uses a swallowed pill-sized camera to photograph the digestive tract, especially the small bowel.

PURPOSE
Examine the small bowel for bleeding or disease

PROCEDURE TYPE
Diagnostic, minimally invasive endoscopic imaging

WHERE IT IS DONE
Outpatient endoscopy clinic

ANAESTHESIA
None for routine capsule swallowing

HOW LONG IT TAKES
8-12 hours of image recording

PREPARATION
Fasting; bowel-cleansing medicine if instructed

RECOVERY
Same day; driving usually allowed without sedation

MAIN RISKS
Capsule retention, aspiration, incomplete study, missed abnormalities

RESULTS
Specialist review, usually within several days

Overview

Capsule endoscopy uses a tiny wireless camera inside a capsule about the size of a large vitamin pill. After you swallow it, the camera takes thousands of pictures as it moves through your digestive tract. Sensors on your abdomen send the images to a recorder that you wear.

The procedure mainly examines the small bowel, which is difficult to see with standard upper endoscopy or colonoscopy. Sedation is not usually needed, and the capsule passes naturally in a bowel movement.

Capsule endoscopy cannot take tissue samples, stop bleeding, or provide treatment. If it finds a problem, you may need another procedure.

Why the procedure is performed

Your healthcare team may recommend capsule endoscopy to:

It is often used after upper endoscopy and colonoscopy have not explained bleeding or anaemia.

- Find the source of unexplained digestive tract bleeding
- Investigate iron-deficiency anaemia when other tests have not found a cause
- Check for inflammation from Crohn's disease
- Examine possible small-bowel tumours or polyps
- Assess some complications of coeliac disease
- Monitor inherited conditions that cause digestive tract polyps

Who should and should not have it

Capsule endoscopy may be suitable when your team needs a close view of the small-bowel lining but does not expect to take a biopsy or provide treatment. Device-assisted enteroscopy may be more appropriate when either is likely.

The procedure may be avoided or delayed if you have a known or suspected bowel blockage or severe narrowing called a stricture. The capsule could become stuck. Risk may be higher after bowel surgery, with Crohn's disease or abdominal radiation treatment, or if you have symptoms of blockage.

You may first be asked to swallow a dissolvable patency capsule to check whether a camera capsule can pass safely. CT or MRI imaging may also be considered.

Tell the team if you:

An implanted heart device does not automatically prevent the procedure, but it must be reviewed. If you cannot safely swallow the capsule, it may be placed during an upper endoscopy, usually with sedation or anaesthesia.

- Have difficulty swallowing or often choke while eating
- Have had bowel blockage, narrowing, or major abdominal surgery
- Are pregnant or could be pregnant
- Have a pacemaker, defibrillator, or other implanted electronic device
- Are scheduled for an MRI scan

How to prepare

Follow your facility's instructions, even if they differ from this general guidance.

You will need to stop eating before the procedure so food does not block the camera's view. You may be limited to clear fluids and may also be prescribed bowel-cleansing medicine.

Ask how to manage regular medicines. Iron tablets, bismuth-containing products, and some other medicines can affect the images. Diabetes medicines may need adjustment while you are fasting.

Do not stop blood thinners like warfarin or apixaban on your own. Your team will decide whether changes are needed.

Tell the facility about swallowing problems, allergies, pregnancy, implanted devices, and previous bowel surgery. Wear loose clothing and do not apply lotion or oil to your abdomen because adhesive sensors may be used.

What happens during the procedure

A healthcare professional places adhesive sensors on your abdomen or fits a sensor belt. These connect to a recorder worn around your waist or shoulder.

You swallow the camera capsule with water. If swallowing is difficult, the team may discuss endoscopic placement. Once the recorder is receiving images, you can usually leave the clinic.

Keep the equipment attached for the instructed recording period. You may need to check that its indicator light is flashing. Avoid strenuous exercise, blows to the equipment, and strong electromagnetic equipment.

The capsule normally passes in a bowel movement and does not need to be collected unless your facility asks you to retrieve it.

Recovery and what to expect afterward

Pain: The procedure should not hurt, and you normally cannot feel the capsule moving. New or worsening abdominal pain is not expected.

Eating: Follow instructions about when to restart clear fluids and food. Most people resume their usual diet after recording is complete.

Activity: Light activity is usually allowed. Avoid strenuous exercise, heavy sweating, or anything that could loosen the sensors.

Driving: You can generally drive because routine capsule endoscopy does not use sedation. Do not drive if you received sedation, took medicine affecting alertness, or were told not to drive.

Work: Desk-based work may be possible while wearing the recorder. Work involving heavy activity, water, strong electromagnetic equipment, or risk of damaging the recorder may need to wait.

Do not have an MRI until you know the capsule has passed. If passage is uncertain, your team may arrange an X-ray.

Risks and possible complications

The main risk is capsule retention, meaning the capsule does not pass naturally. This is more likely if the bowel is narrowed. A retained capsule may cause no symptoms, but it can sometimes cause blockage. Medicine, device-assisted enteroscopy, or surgery may be needed to remove it.

Rarely, the capsule enters the airway while being swallowed. People with significant swallowing problems may need endoscopic placement.

The examination may be incomplete if the battery runs out, the capsule moves slowly, or bowel contents block the view. It can also miss abnormalities because the camera cannot be steered, clean the bowel lining, take a biopsy, or repeatedly examine an area.

Adhesive sensors may cause skin irritation.

Results and follow up

Return the recorder as instructed. A trained clinician reviews the thousands of images, so results are not immediate. They are often available within several days; ask when and how you will receive them.

Follow-up may include blood tests, imaging, repeat endoscopy, device-assisted enteroscopy, or treatment. Another examination may be recommended if the study was incomplete or visibility was poor.

A normal result means no abnormality was seen in the recorded images, but it cannot completely rule out a small, hidden, or intermittent problem.

Alternatives

The best alternative depends on why your small bowel needs examination.

Stool tests can detect hidden blood but cannot identify where it comes from or show the small-bowel lining.

- Upper endoscopy: Examines the oesophagus, stomach, and first part of the small bowel. It allows biopsy and treatment but cannot see most of the small bowel.
- Colonoscopy: Examines the large bowel and sometimes the end of the small bowel. It allows biopsy and treatment but cannot inspect most of the small bowel.
- CT enterography: Shows the bowel wall and surrounding abdomen, including narrowing, but uses radiation and may miss subtle surface changes.
- MR enterography: Shows the bowel wall without ionising radiation and is useful when narrowing is suspected, but may miss small surface abnormalities.
- Device-assisted enteroscopy: Reaches farther into the small bowel and allows biopsy or treatment, but is more invasive and requires sedation or anaesthesia.
- Observation or repeat standard endoscopy: May be reasonable in selected cases but can delay diagnosis or repeat areas already examined.

When to call your healthcare team

Contact your healthcare team if the recorder stops working, sensors come loose, you have preparation questions, or you are unsure whether the capsule passed. Contact them before any planned MRI if passage has not been confirmed.

Seek urgent medical advice for:

Call emergency services for severe trouble breathing or choking while swallowing the capsule, severe abdominal pain with repeated vomiting, or collapse.

- Increasing or persistent abdominal pain
- Abdominal swelling with vomiting
- Inability to pass stool or gas
- Fever with abdominal symptoms
- Heavy rectal bleeding, dizziness, or fainting

Common questions

Will I be asleep?

Usually not. Sedation may be used if upper endoscopy is needed to place the capsule.

Can I drive home?

Usually, yes. Do not drive after sedation or medicine that affects alertness, or if your facility advises against it.

How painful is capsule endoscopy?

It is generally painless. Report new or worsening abdominal pain.

When will I know the results?

Results usually take several days because a clinician must review thousands of images.

What if I cannot swallow the capsule?

Tell the team beforehand. They may assess your swallowing or place the capsule during upper endoscopy.

How will I know the capsule has passed?

You may see it in the toilet, but many people do not. If passage is uncertain before an MRI, an X-ray may be used to check.

Sources

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