TEST

Culture - duodenal tissue

A duodenal tissue culture checks a small-intestine tissue sample for germs that may be causing infection.

WHAT IT MEASURES
Germs growing from a small duodenal tissue sample

SAMPLE
Tissue from the first section of the small intestine

FASTING NEEDED?
Yes, before upper endoscopy as instructed

HOW LONG IT TAKES
Usually 15 to 30 minutes, plus recovery

RESULTS IN
Several days; special cultures may take longer by laboratory

USED FOR
Diagnosing a suspected duodenal infection

MAIN LIMITATION
Many disease-causing organisms do not grow in routine culture

Overview

A duodenal tissue culture looks for germs in tissue from the duodenum, the first part of the small intestine after the stomach.

The tissue is usually collected during an upper gastrointestinal endoscopy. A clinician passes a thin, flexible camera through your mouth and stomach, then removes a tiny tissue sample, called a biopsy.

The laboratory places the sample in conditions that help certain bacteria or fungi grow. If an organism grows, it may be identified and tested to see which antimicrobial medicines could work.

Culture differs from examining a biopsy under a microscope. Many parasites, viruses and other causes of duodenal disease are better detected with microscopy, antigen tests or molecular tests such as PCR.

Why the test is ordered

This test may be ordered when a duodenal infection is suspected but stool, blood or imaging tests have not provided an answer. Reasons include:

It is not a routine screening test or the usual test for coeliac disease, ulcers or small intestinal bacterial overgrowth.

- Persistent or unexplained diarrhoea
- Ongoing abdominal discomfort, nausea or poor nutrient absorption
- Concern about an unusual infection
- Symptoms in someone with a weakened immune system
- A need to identify a germ and guide treatment

Who should have the test

You may be offered this test if your symptoms, history or endoscopy findings suggest a duodenal infection. It is usually reserved for cases in which a less invasive test is unavailable, negative or unlikely to detect the suspected organism.

Your care team will consider your medical conditions, medicines, other results, and the risks and benefits of endoscopy. Children and pregnant people can sometimes have endoscopy when medically necessary, with individual planning for timing, sedation and monitoring.

How to prepare

Follow the endoscopy unit's fasting instructions exactly. You will usually need to stop eating for several hours, but rules for water and other clear liquids may differ.

Tell the team about all medicines and supplements, especially blood thinners like warfarin or apixaban , diabetes medicines, antibiotics and antifungal medicines. Antimicrobials can reduce culture growth, but do not stop prescribed medicine unless the procedure team tells you to .

Also tell them if you:

If you will receive sedation, arrange for an adult to take you home. Do not drive, operate machinery or make important decisions for the period specified by the endoscopy unit.

- Have medicine, latex or anaesthetic allergies
- Have a bleeding disorder or serious heart or lung condition

- Are pregnant or could be pregnant
- Have previously had a problem with sedation or anaesthesia

What happens during the test

Before the procedure, a clinician explains the endoscopy and asks for your consent. Your throat may be numbed, and sedation may be given through a vein.

While you lie on your side, the endoscope is guided through your mouth, oesophagus and stomach into the duodenum. It does not block breathing. Air or carbon dioxide used to improve the view may cause temporary pressure or bloating.

Small forceps passed through the endoscope remove one or more tissue samples. The biopsy is not usually felt as sharp pain. Endoscopy commonly takes 15 to 30 minutes, followed by recovery from sedation.

The culture sample must go into a suitable sterile container, not formalin, because formalin kills organisms.

Understanding your results

Results are usually reported as no growth or growth of a named organism.

"No growth" means no relevant organism grew under the conditions used. It does not completely rule out infection. The biopsy may have missed the affected area, the organism may not grow in routine culture, or recent antimicrobial treatment may have suppressed it.

A positive result identifies an organism and may include antimicrobial susceptibility results showing which medicines could be effective.

Growth does not always prove that the organism caused your symptoms. It may represent harmless colonisation or contamination from the mouth, digestive tract, equipment or sample handling. Your clinician will compare the result with your symptoms, endoscopy findings and other tests. This test usually has no numerical reference range.

What affects the results

Collection and handling can strongly affect culture results. Important factors include:

Eating, exercise and time of day do not usually affect growth directly, but fasting remains

essential for safer endoscopy and a clear view.

- Recent antibiotics or antifungal medicines: These may suppress organisms and cause a negative result.
- A small or poorly targeted sample: Infection can be patchy.
- The wrong container: Formalin and some preservatives prevent growth.
- Delayed or unsuitable transport: Some organisms need rapid transport at a particular temperature or oxygen level.
- Routine culture conditions: Difficult-to-grow organisms may require special media, longer incubation or a specifically requested test.
- Contamination: Organisms introduced from the mouth, equipment or handling may grow without causing infection.
- Medicines that alter digestive bacteria: Acid-suppressing medicines and antimicrobials can change which organisms are present.

Accuracy and limitations

There is no single accuracy figure because performance depends on the suspected organism, biopsy site, laboratory method and recent treatment.

The test may miss infection when few organisms are present, the affected area is not sampled or the germ cannot grow under the conditions used. It may also detect contamination or harmless colonisation.

Depending on the suspected condition, stool antigen or PCR testing, microscopy, tissue examination, blood tests, breath testing or duodenal fluid sampling may be more useful. Results are most convincing when they match symptoms, tissue appearance and other test findings.

Risks and complications

The culture adds no risk after collection. Risks come from endoscopy, sedation and biopsy.

A mild sore throat, temporary bloating or sleepiness is common. Minor bleeding from the biopsy site usually stops without treatment. Heavy bleeding, a tear in the digestive tract, breathing problems and reactions to sedation are uncommon. Risk may be higher with certain medical conditions or medicines affecting blood clotting.

Seek urgent medical help for worsening chest or abdominal pain, fever, trouble breathing or swallowing, repeated vomiting, vomiting blood, black stools, heavy rectal bleeding or fainting. Mild throat discomfort or bloating without these warning signs can usually wait for routine follow-up.

What happens next

The laboratory may issue an early report followed by a final result. Routine cultures may take several days; special cultures can take longer.

Your clinician will review the result with the endoscopy findings, tissue microscopy and any stool or blood tests. If a likely disease-causing organism grows, identification and susceptibility testing may guide treatment.

If the culture is negative but symptoms continue, follow-up may include another infection test or evaluation for a non-infectious cause. Contact the care team if results do not arrive within the timeframe provided. Do not take leftover antibiotics like amoxicillin or doxycycline while waiting.

Common questions

Can I drink coffee before the test?

Usually not during the fasting period, even if it is black. Follow the unit's instructions about food, water and clear liquids.

Does the time of day matter?

It does not usually affect culture growth. Appointment time mainly determines when fasting starts.

Can I exercise beforehand?

Exercise does not usually change the result. Follow fasting instructions and any activity limits related to your health or sedation.

Will taking the biopsy hurt?

You may feel pressure, gagging or bloating during endoscopy, but the biopsy itself is generally not felt. Sedation and throat-numbing medicine can reduce discomfort.

Should I stop antibiotics before the test?

Antibiotics can reduce culture growth, but do not stop them yourself. Tell the care team what

you take and when you last took it.

Can I drive home afterward?

Not if you received sedation. Arrange for an adult to take you home and follow all restrictions from the endoscopy unit.

Sources

- MedlinePlus Medical Encyclopedia: Duodenal tissue culture , U.S. National Library of Medicine
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- Clinical Testing and Diagnosis for Giardia Infection , U.S. Centers for Disease Control and Prevention