TEST

Culture - colonic tissue

A colonic tissue culture checks a small sample of colon tissue for organisms that may be causing infection.

WHAT IT MEASURES
Bacteria or fungi able to grow from colon tissue

SAMPLE
Colonic tissue

FASTING NEEDED?
Sometimes, when required for the procedure collecting tissue

HOW LONG IT TAKES
Usually 30-60 minutes for endoscopy, longer for surgery

RESULTS IN
Several days; specialised cultures may take weeks, laboratory-specific

USED FOR
Diagnosing a possible infection of the colon

MAIN LIMITATION
Prior antibiotics or hard-to-grow organisms can cause false negatives

Overview

A colonic tissue culture is a laboratory test on a small piece of tissue from the colon, or large intestine. The sample is usually collected during a colonoscopy or flexible sigmoidoscopy, although it may be obtained during surgery.

The tissue is placed under conditions that allow certain bacteria or fungi to grow. Special cultures may be requested for slow-growing or unusual organisms.

Unlike a stool culture, which tests organisms passed in a bowel movement, a tissue culture examines organisms within or directly on the colon lining. It also differs from histology, in which tissue is examined under a microscope for inflammation, damage, abnormal cells, or organisms. Culture and histology are often performed together.

Why the test is ordered

A colonic tissue culture may be ordered when colon infection is possible but less invasive tests

have not provided an answer. It is not routinely needed for short-term diarrhoea or abdominal pain.

Reasons may include:

The culture may be considered alongside stool and blood tests, scans, histology, and molecular tests.

- Persistent or severe inflammation, ulcers, or tissue damage seen during colonoscopy
- Symptoms continuing despite negative stool tests
- Concern about an unusual or opportunistic infection
- A weakened immune system
- A need to identify an organism and determine which antimicrobial medicines may work

Who should have the test

The test may be considered when someone is already having endoscopy or surgery and the healthcare team needs to investigate a possible infection.

Most people with short-term diarrhoea do not need a biopsy or tissue culture because stool testing is easier and often more appropriate. The decision depends on symptoms, medical and immune history, previous results, exposure or travel history, and the colon's appearance during the procedure.

How to prepare

Preparation is mainly for the procedure used to collect the tissue.

Before colonoscopy, you will usually need bowel preparation involving a temporary diet change and prescribed laxatives. Follow your procedure centre's instructions because permitted drinks and timing vary. You may also need to stop eating and drinking before sedation.

Tell the team about all medicines and supplements. Blood-thinning and diabetes medicines may require a specific plan, but do not stop them without instructions.

Antibiotics and antifungal medicines can reduce culture growth. Tell the team if you take them or recently completed a course, but do not delay or stop prescribed treatment solely to improve the result.

Also report pregnancy or possible pregnancy, allergies, kidney or heart problems, and previous difficulties with sedation or bowel preparation.

What happens during the test

During colonoscopy, a flexible camera is passed through the anus into the colon, usually with sedation. Flexible sigmoidoscopy examines only the lower colon and may require little or no sedation.

If an abnormal area is found, forceps passed through the instrument remove a tiny sample. You usually will not feel the biopsy, although air introduced into the colon may cause pressure or cramping.

Tissue for culture must be placed in a suitable sterile container and sent promptly to the laboratory. Tissue placed in formalin for histology cannot be cultured because formalin kills organisms, so separate samples may be needed.

Routine culture looks for selected bacteria and sometimes fungi. Mycobacterial, fungal, and other specialised cultures must usually be specifically requested and may take longer.

Understanding your results

The report states whether an organism grew and, if so, what was identified. Preliminary results may be available before the culture is final.

"No growth" means no organism grew under the conditions used, but it does not rule out infection. The organism may not have been in the small sample, may not grow in routine culture, or may have been reduced by earlier treatment.

A positive result means an organism grew, but this does not always prove infection because the colon normally contains many microorganisms. The finding is more convincing when it matches symptoms and other test results or when tissue microscopy shows invasion.

Some bacteria undergo susceptibility testing to show which antibiotics like amoxicillin or doxycycline are likely to work. There is no universal numeric reference range; interpretation depends on the organism, laboratory methods, immune function, medicines, and clinical circumstances.

What affects the results

Factors that may affect results include:

Exercise, coffee, and time of day do not directly affect growth, although they may matter for procedure preparation.

- Recent antibiotics or antifungals like fluconazole or terbinafine : These can prevent growth despite infection.
- Sampling location and size: Patchy infection or a very small biopsy may be missed.
- Bowel preparation: Cleansing changes the amount and distribution of organisms.
- Transport or storage problems: Delays, temperature, or oxygen exposure can kill some organisms.
- The wrong container: Formalin-preserved tissue cannot be cultured.
- Normal colon organisms: These may represent contamination or colonisation rather than disease.
- Culture type: Routine methods do not reliably detect every virus, parasite, fungus, or slow-growing bacterium.

Accuracy and limitations

Accuracy varies by organism, sampling site, transport, and laboratory method, so there is no single accuracy percentage.

False-negative results are more likely after antimicrobial treatment, with patchy infection, or when an organism grows poorly under routine conditions. Viruses and many parasites require other tests.

A positive result can also be misleading because normal bowel flora or surface contamination may grow without causing tissue infection. Histology can show tissue invasion or another cause of inflammation, while stool molecular tests, special stains, antigen tests, or other molecular tests may better detect certain organisms.

Culture is most useful when a living organism must be identified or tested against antimicrobial medicines.

Risks and complications

The culture adds no risk after the tissue is collected. Risks come from the endoscopy, biopsy, sedation, or surgery.

Temporary bloating, gas, and mild cramping are common. Minor bleeding may follow a biopsy. Serious bleeding, a tear in the colon wall, or a significant sedation reaction is uncommon.

Follow your discharge instructions. Seek urgent medical care for worsening or severe

abdominal pain, persistent or heavy rectal bleeding, fever, repeated vomiting, a swollen rigid abdomen, or fainting. Call emergency services for severe breathing difficulty, collapse, or another rapidly worsening reaction after sedation.

What happens next

Your healthcare team will review the culture with your symptoms, colonoscopy findings, histology, and other tests. Preliminary and final reports may arrive at different times.

"No growth" may lead to routine follow-up, further testing, or no additional investigation. A positive result is assessed to determine whether it represents infection or normal colon bacteria.

If treatment is needed, the choice depends on the organism, susceptibility results, allergies, pregnancy, kidney and liver function, other medicines, and infection severity. Do not take leftover antibiotics while waiting for results.

Common questions

Can I drink coffee before the test?

The culture itself does not require fasting, but the procedure may. Some instructions permit black coffee as a clear liquid, while milk or cream is usually prohibited. Follow your procedure centre's exact cut-off times.

Does the time of day matter?

No. Prompt transport to the laboratory matters more than the collection time.

Can I exercise beforehand?

Exercise does not affect the culture, but strenuous activity during bowel preparation may worsen dehydration or light-headedness.

Should I stop antibiotics before the culture?

Do not stop prescribed antibiotics unless the clinician managing the test tells you to. Interrupting treatment may be unsafe.

Will the biopsy hurt?

Most people do not feel the tissue being removed, although the scope and introduced air may cause pressure, bloating, or cramping.

Why not just use a stool sample?

Stool tests are preferred for many common infections. Tissue may be more useful when a specific ulcer or inflamed area needs sampling or stool tests have not explained the findings.

Sources

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