TEST

Gastric culture

A gastric culture grows tuberculosis bacteria from stomach fluid swallowed from the lungs.

WHAT IT MEASURES
Growth of tuberculosis bacteria swallowed into stomach fluid

SAMPLE
Stomach fluid

FASTING NEEDED?
Usually overnight, following the collection service's instructions

HOW LONG IT TAKES
About 15 to 30 minutes

RESULTS IN
About two to eight weeks, varying by laboratory

USED FOR
Diagnosing suspected tuberculosis when sputum is difficult to collect

MAIN LIMITATION
A negative culture does not rule out tuberculosis

Overview

A gastric culture usually means culturing stomach fluid to look for bacteria that cause tuberculosis, or TB. TB mainly affects the lungs. Mucus from the lungs is swallowed and may collect in the stomach overnight.

The test is most often used for young children who cannot cough up sputum, which is mucus from the lungs. It may also be used for adults who cannot provide sputum.

The sample is called a gastric aspirate or gastric lavage sample. A laboratory tries to grow any TB bacteria it contains. Because these bacteria grow slowly, results can take several weeks.

Culture of tissue collected during stomach endoscopy, sometimes used to investigate Helicobacter pylori , is a different test. This article covers gastric culture for TB.

Why the test is ordered

A gastric culture may be ordered when TB disease is possible but an adequate respiratory

sample cannot be collected. Reasons may include symptoms, contact with someone who has TB, or an abnormal chest X-ray.

Culture can:

Culture does not screen for latent TB infection, in which TB bacteria are present without active disease. Blood and skin tests are used for that purpose, although they cannot by themselves show whether TB is active.

- Show whether live TB bacteria are present
- Help confirm TB disease
- Identify the type of mycobacterium
- Allow drug susceptibility testing to help select antibiotics like amoxicillin or doxycycline

Who should have the test

Gastric culture is mainly used for children with suspected lung TB who cannot produce sputum. It may also be considered when sputum induction-using a salty mist to help someone cough up mucus-is unsuitable, unavailable, or unsuccessful.

The best test depends on age, symptoms, imaging, exposure history, and which samples can be collected. Molecular tests, sputum tests, stool tests, or bronchoscopy may be more useful in some situations. Gastric culture is not a routine check for people without a specific reason to investigate TB.

How to prepare

Follow the collection service's instructions, as preparation varies.

The sample is commonly collected early in the morning, before eating, drinking, brushing your teeth, or getting out of bed. This allows swallowed respiratory mucus to collect in the stomach. Overnight fasting is often required.

Tell the team about all medicines being taken, especially antibiotics or TB treatment, which can reduce the number of live bacteria available to grow. Do not stop prescribed medicines unless the team arranging the test tells you to.

Explain the procedure to a child in simple terms. Ask whether they may bring a comfort item and whether a parent or caregiver can remain with them.

What happens during the test

A healthcare professional passes a thin, flexible tube through the nose or mouth, down the throat, and into the stomach. This may cause watering eyes, gagging, or coughing.

After checking the tube's position, the professional draws stomach fluid into a syringe. If there is too little fluid, they may put in a small amount of sterile liquid and withdraw it; this is called gastric lavage.

The sample is handled promptly because stomach acid can damage TB bacteria. A neutralising substance may be added for transport.

The tube is usually removed after collection, and sedation is not normally needed. Some services collect samples on more than one morning because repeated samples can improve the chance of finding bacteria.

Understanding your results

Results are usually reported as positive, negative, contaminated, or inconclusive. There is no numerical reference range.

A * positive culture for the Mycobacterium tuberculosis complex * means that bacteria responsible for TB grew from the sample. This is strong evidence of TB disease. The laboratory may test the bacteria against medicines to guide treatment.

A culture may instead grow a nontuberculous mycobacterium . These related environmental bacteria do not automatically mean you have TB. The result is interpreted alongside symptoms, imaging, other tests, and the organism found.

A negative culture means TB bacteria did not grow, but it does not rule out TB. This is especially important in children, who often have very small numbers of bacteria.

A contaminated or inconclusive result means other organisms interfered or the sample could not be interpreted. Another sample or a different test may be needed.

What affects the results

Factors that can reduce the chance of growing TB bacteria include:

Laboratory contamination can occasionally produce growth that did not come from the person tested. An unexpected positive result may therefore be reviewed or confirmed.

Pregnancy, age, health conditions, and medicines may affect which investigations are

appropriate, but they do not usually change the culture directly.

- Eating or drinking before collection
- Collecting later in the day, when there may be less overnight-swallowed mucus
- A small or poorly positioned sample
- Delayed transport or inadequate neutralisation of stomach acid
- Starting TB medicines before collection
- The low number of bacteria often present in children
- Testing only one sample

Accuracy and limitations

Culture is valuable because it detects living bacteria and supports drug susceptibility testing. Once M. tuberculosis is clearly identified, a positive result is generally reliable.

However, gastric culture can miss TB. Accuracy varies with age, bacterial numbers, collection technique, number of samples, transport, and previous treatment. A negative result must be considered with symptoms, exposure history, imaging, and other tests.

False-positive results are uncommon but may occur through contamination or incorrect interpretation of a related mycobacterium.

Culture is also slow. Molecular tests can detect TB genetic material sooner and may identify some drug resistance, but they can miss TB when very few bacteria are present. They may not replace culture when full drug susceptibility testing is needed.

Sputum, induced sputum, bronchoscopy samples, or molecular testing of another sample may be better in some circumstances.

Risks and complications

Passing the tube can be uncomfortable. Temporary gagging, coughing, nausea, a minor nosebleed, or a sore throat may occur.

Vomiting is possible. Rarely, stomach contents may enter the airway or the tube may be misplaced. Trained staff check its position and monitor the procedure.

Seek urgent medical advice after leaving if a nosebleed will not stop, vomiting is repeated, chest discomfort worsens, or swallowing becomes difficult. Call emergency services for severe trouble breathing, choking that does not settle, or blue or grey lips.

What happens next

Follow-up usually occurs when culture and any drug susceptibility results are available. Molecular or microscopy results may be reported sooner.

If TB is confirmed or remains strongly suspected, the clinical team will discuss treatment and further tests. Public health staff may identify close contacts who should be assessed. Do not change medicines or contact precautions without specific advice.

After a negative culture, the team may recommend no further sampling, repeat gastric collection, or another test, depending on the whole clinical picture.

Do not wait for the final result if symptoms worsen significantly. Seek prompt medical care for increasing breathlessness, marked drowsiness, dehydration, or coughing up more than a small streak of blood. Severe breathing difficulty or heavy bleeding requires emergency help.

Common questions

Can I drink coffee before a gastric culture?

Usually not. Coffee, water, food, and other drinks may dilute the sample. Follow the collection service's fasting instructions.

Does the time of day matter?

Yes. Collection is commonly done early in the morning, before getting out of bed, because respiratory mucus may have collected in the stomach overnight.

Can I exercise beforehand?

Usually you should remain resting until collection. Getting up and becoming active may reduce the amount of overnight material available. Follow your appointment instructions.

Does the tube hurt?

It is usually uncomfortable rather than painful. It can cause gagging, coughing, watering eyes, or pressure in the nose and throat, but collection is generally brief.

Why might the test be repeated?

TB bacteria may not be present in every sample. Collecting specimens on separate mornings can increase the chance of finding them.

Why do results take so long?

TB bacteria grow much more slowly than many other bacteria. Molecular results may be available sooner, but culture is often needed to confirm living bacteria and test medicine

susceptibility.

Sources

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