TEST

Gallium scan

A gallium scan uses a radioactive tracer and camera to locate inflammation, infection, or certain cancers.

WHAT IT MEASURES
Gallium uptake in areas of inflammation, infection, or certain cancers

SAMPLE
None; gamma-camera imaging after an intravenous tracer

FASTING NEEDED?
Usually no; follow any centre-specific bowel preparation instructions

HOW LONG IT TAKES
Injection plus 30-90-minute scans over two to three days

RESULTS IN
Usually 1-2 days after final scan; varies by laboratory

USED FOR
Diagnosis and monitoring of infection, inflammation, or certain cancers

MAIN LIMITATION
Normal bowel uptake can hide or mimic abdominal disease

Overview

A gallium scan is a nuclear medicine imaging test. It uses a small amount of radioactive gallium-67 citrate injected into a vein. A gamma camera detects where the tracer collects in your body.

Gallium can build up where immune cells are active, including areas of inflammation, infection and some cancers. Increased uptake may appear as a "hot spot," but the scan does not usually identify the exact cause by itself.

Images are generally taken one to three days after the injection. A gallium-67 scan is different from a gallium-68 PET scan, which uses another tracer, camera and schedule.

Why the test is ordered

Your healthcare team may order a gallium scan to find inflammation or infection that other tests have not located. It can examine much of the body at once.

Reasons may include:

Gallium scans are used less often for some conditions because FDG PET/CT, labelled white blood cell scans, MRI or other tests may give clearer information.

- looking for infection around bones, joints or the spine
- investigating inflammation in organs or tissues
- assessing unexplained fever when initial tests are inconclusive
- evaluating certain cancers, including some lymphomas
- checking how known disease has responded to treatment

Who should have the test

A gallium scan may be appropriate when symptoms, examination findings or previous results suggest infection, inflammation or a cancer expected to take up gallium. It is not a routine screening test and cannot confirm cancer or identify a particular germ on its own.

Tell the nuclear medicine department before the injection if you are pregnant, might be pregnant or are breastfeeding. Radiation can affect a developing baby, and gallium can enter breast milk. The team may recommend another test, delay the scan or provide specific breastfeeding instructions.

Children can have the test when needed, using a tracer amount adjusted for their size and the department's protocol.

How to prepare

Most people can eat and drink normally, including coffee. Follow your imaging centre's instructions because preparation may differ when the abdomen is being examined.

Gallium normally enters the bowel, where it can hide nearby organs or resemble abnormal uptake. You may be asked to use a laxative or other bowel preparation before delayed images. Do not take one unless instructed.

Tell the department about:

Do not stop antibiotics like amoxicillin or doxycycline , steroids or cancer treatment unless the clinician responsible tells you to. Although these treatments may affect the images, stopping them can be unsafe.

Wear comfortable clothing and leave metal jewellery at home if possible. You may need to

change into a gown.

- pregnancy or breastfeeding
- all medicines and supplements
- recent surgery, biopsy, radiotherapy or chemotherapy
- recent infections, injuries, fractures or vaccinations
- severe constipation or difficulty emptying your bowel
- recent nuclear medicine tests

What happens during the test

A technologist injects the gallium tracer into a vein, usually in your arm or hand. You can generally leave afterward and return for imaging.

The first images are commonly taken 24 to 48 hours later. More may be needed at about 72 hours or later.

During each scan, you lie still while a gamma camera moves close to your body without touching you. Imaging should not hurt and usually takes 30 to 60 minutes. SPECT or SPECT/CT may also be used to create three-dimensional images and locate uptake more precisely.

Understanding your results

A nuclear medicine specialist reviews the location and intensity of uptake. Gallium normally appears in organs including the liver, spleen and bone marrow, and bowel activity is common.

There is no universal numerical reference range. Interpretation depends on the department's methods, imaging time and your clinical circumstances.

Increased uptake does not automatically mean cancer. Infection, non-infectious inflammation, healing tissue and normal processes can look similar. A normal scan does not completely exclude disease because small or low-activity abnormalities and conditions that collect little gallium may be missed.

The result is considered with your symptoms, examination, blood tests and other imaging. A biopsy, fluid sample or culture may still be needed.

What affects the results

Timing changes how gallium is distributed between the bloodstream, tissues and bowel. Constipation can increase bowel activity, hiding disease or creating an apparent hot spot.

Recent surgery, biopsy, fracture, injection or vaccination may cause healing-related uptake. Unrelated infection or inflammation can also appear.

Antibiotics, corticosteroids like prednisone or hydrocortisone , chemotherapy, radiotherapy and medicines that stimulate bone marrow may change uptake. Do not alter treatment yourself; tell the imaging team what you take and when it was given.

Reduced kidney function can affect tracer clearance. Age, sex and pregnancy may also influence interpretation or radiation-risk assessment. Movement can blur images, while metal objects may make an area harder to locate.

Accuracy and limitations

Accuracy varies with the condition, body area, imaging time and use of SPECT/CT. There is no single reliable accuracy percentage for every use.

Gallium uptake is not specific to one disease. Healing tissue, arthritis, infection and cancer may overlap in appearance, while normal bowel, liver or bone marrow activity can mimic disease.

The scan may miss abnormalities that are small, have low inflammatory activity, are hidden by normal uptake or collect little gallium. Treatment started before the scan may also reduce visible activity.

Depending on the question, FDG PET/CT, a labelled white blood cell scan, MRI, biopsy or culture may be more suitable.

Risks and complications

The injection may cause brief discomfort, a small bruise or light-headedness. Serious reactions are uncommon.

The tracer exposes you to ionising radiation and remains in your body for several days. SPECT/CT adds radiation from its CT component. The medical team balances this exposure against the expected benefit.

Drink fluids and empty your bladder regularly if advised. Follow temporary instructions about close contact with babies, young children or pregnant people.

Seek emergency help for trouble breathing, swelling of the face or throat, widespread hives or

collapse after the injection. Contact the imaging department promptly if the injection site becomes increasingly painful, red or swollen.

What happens next

A specialist sends the report to the clinician who requested the scan, usually after the final images have been reviewed.

At follow-up, your clinician will consider the result with your other tests. Next steps may include no further imaging, blood tests, CT, MRI, PET/CT, a culture or a biopsy.

If bowel activity or a technical issue makes the images unclear, the department may request delayed pictures.

A gallium-scan result alone is rarely an emergency. Seek urgent care for new or worsening symptoms such as severe breathing difficulty, confusion or rapidly deteriorating health-not simply because a report mentions increased uptake.

Common questions

Can I drink coffee before a gallium scan?

Usually, yes. Fasting is not normally required, but follow your centre's instructions if bowel preparation, sedation or another test is planned.

Does the time of day matter?

The interval between injection and imaging matters more than the hour of injection. Attend at the scheduled times.

Can I exercise beforehand?

Normal activity is generally acceptable. Tell the team about recent injury or unusually strenuous exercise because tissue irritation may affect interpretation.

Will I feel radioactive?

No. You cannot feel the tracer and will not glow. Follow the department's hygiene and contact instructions while the small amount of radiation leaves your body.

Can I drive afterward?

Most people can drive. Arrange help if you tend to faint with needles, receive a sedative or are told not to drive.

Can I be near children after the scan?

Often you can, but you may need to limit prolonged close contact temporarily. Follow the department's radiation-safety instructions.

Sources

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