TEST

Lymphangiogram

A lymphangiogram uses contrast dye and imaging to map lymph vessels and find leaks or blockages.

WHAT IT MEASURES
Lymph flow, lymph vessels, lymph nodes, and leaks

SAMPLE
None; imaging test

FASTING NEEDED?
Sometimes; usually when sedation or anesthesia is planned

HOW LONG IT TAKES
Usually several hours; treatment during the visit takes longer

RESULTS IN
Often same day; varies by laboratory and imaging service

USED FOR
Diagnosis and treatment planning for lymphatic leaks or blockages

MAIN LIMITATION
Only pathways reached by the contrast dye can be seen

Overview

A lymphangiogram is an imaging test of the lymphatic system. This system is a network of vessels and lymph nodes that carries lymph, a clear fluid containing immune cells, fats, and waste products.

During the test, a radiologist places contrast dye into a lymph node or lymph vessel. X-rays, live X-ray imaging called fluoroscopy, or computed tomography (CT) then show where the contrast travels.

Most modern lymphangiograms use an ultrasound-guided needle placed into a lymph node in the groin. This is called an intranodal lymphangiogram. An older method involves finding a small lymph vessel in the foot through a minor incision.

A lymphangiogram is different from lymphoscintigraphy, which uses a small amount of radioactive material to study lymph drainage. It is also different from magnetic resonance lymphangiography, which uses an MRI scanner.

In some cases, the contrast itself may help seal a small leak. A specialist may also perform a

treatment, such as blocking a leaking lymph vessel, during the same appointment.

Why the test is ordered

A lymphangiogram may be used to find where lymph is leaking, blocked, or flowing through an unusual pathway. This information can help plan surgery or a minimally invasive treatment.

Reasons for ordering it include:

The thoracic duct is the main lymph vessel in the chest. A leak from this duct can allow fat-rich lymph, called chyle, to collect around the lungs or elsewhere.

A lymphangiogram is not generally used as a routine screening test.

- Finding a lymph leak after surgery or an injury
- Investigating lymph fluid around the lungs or in the abdomen
- Mapping abnormal or enlarged lymph vessels
- Planning treatment for a thoracic duct leak
- Checking lymphatic anatomy when other imaging is inconclusive
- Guiding a procedure to seal a leaking vessel

Who should have the test

The test may be appropriate when there is evidence of a lymphatic leak or abnormal lymph flow and knowing its location could change treatment. It is usually arranged by a specialist after other tests, such as CT, MRI, fluid analysis, or lymphoscintigraphy.

It may not be the best first test for every lymphatic problem. For example, lymphoscintigraphy or fluorescent imaging may be more useful for assessing swelling in an arm or leg.

Tell the imaging team if you are pregnant or could be pregnant. A lymphangiogram usually involves ionizing radiation, which requires individual consideration during pregnancy.

Also tell them about previous reactions to contrast agents, thyroid disease, significant heart or lung disease, and any recent lymphatic procedure. These details may affect how the test is performed.

How to prepare

Follow the instructions from your imaging center because preparation differs according to the technique and whether sedation is planned.

You may be asked to stop eating and drinking for several hours before the appointment. Clear fluids may be allowed for part of that time. Do not assume that coffee, milk, or juice counts as a clear fluid.

Provide an up-to-date list of medicines and supplements. Ask for specific instructions if you take a blood thinner or medicine for diabetes. Do not stop a prescribed medicine unless the team responsible for the test tells you to.

Tell the team about:

A shellfish allergy does not by itself mean that you are allergic to iodinated contrast. A previous reaction to a contrast agent is more relevant.

Wear comfortable clothing and leave valuables at home. If you will receive sedation, arrange for someone to take you home and follow the center's instructions about supervision afterward.

- Previous reactions to iodinated contrast
- Pregnancy or possible pregnancy
- Breastfeeding
- Bleeding problems or blood-thinning medicines
- Heart, lung, kidney, or thyroid conditions
- Recent operations or lymphatic treatments

What happens during the test

You will usually change into a gown and lie on an imaging table. The team may place an intravenous line in your arm for medicines or fluids. Monitoring equipment may be used to check your blood pressure, pulse, and oxygen level.

For an intranodal lymphangiogram, the radiologist uses ultrasound to locate a lymph node, usually in each groin. The skin is cleaned and numbed with local anesthetic. A thin needle is then guided into the node.

Contrast is injected slowly while fluoroscopy follows its movement through the lymphatic system. You may need to remain still for an extended period. CT images may be taken afterward to provide more detail.

The contrast commonly used for conventional lymphangiography is oil-based and contains

iodine. It moves through lymph vessels much more slowly than contrast injected into a vein.

If a leak is found, a separate treatment may be offered during the same session. For example, the specialist may use medical glue, coils, or another material to close the leaking vessel. The risks and consent process for that treatment are separate from the imaging test itself.

Understanding your results

A radiologist reviews how the contrast moved through the lymph vessels and nodes. The report may describe whether the expected pathways filled normally and whether contrast escaped from a vessel.

Possible findings include:

There is no universal numerical reference range for a lymphangiogram. Interpretation varies with the imaging technique and center. Its clinical meaning can also vary with age, sex, pregnancy status, medicines, previous surgery, and the reason for testing.

When blood or fluid tests are considered alongside the scan, their reference ranges also vary by laboratory and clinical context.

A report stating that no leak was seen does not always rule one out. A leak may be intermittent, too small to detect, or connected to a pathway that the injected contrast did not enter.

- A visible site of lymph leakage
- A narrowed or blocked lymph vessel
- Enlarged or unusually shaped lymphatic channels
- Alternative pathways formed around an obstruction
- Contrast that did not reach the suspected area
- No leak seen during the examination

What affects the results

The route and speed of the contrast injection can affect which vessels appear. If the needle is not fully within the lymph node or vessel, contrast may collect near the injection site rather than entering the lymphatic system.

Other factors that can affect the images include:

Oil-based contrast can remain visible in lymph nodes and other tissues for some time. This may

affect the appearance of later imaging. Its iodine content may also interfere with some thyroid tests or radioactive iodine procedures, so tell future healthcare teams that you recently had a lymphangiogram.

Medicines, recent exercise, meals, and the time of day usually do not directly change the lymphatic anatomy shown. However, medicines such as blood thinners like warfarin or apixaban can affect procedural risk, and eating may matter when sedation is planned.

- A leak that is not active during the test
- A blockage preventing contrast from reaching the area
- Previous surgery that changed normal lymphatic pathways
- Movement during imaging
- Very slow lymph flow
- Contrast entering only one of several possible pathways
- Prior lymphatic treatment, scarring, or embolization

Accuracy and limitations

There is no single accuracy figure for lymphangiography. Its ability to find a problem differs according to the type and location of the leak, the injection method, the imaging equipment, and the radiologist's experience.

The test can miss a leak if it is intermittent, extremely slow, outside the imaged area, or supplied by lymph vessels that did not fill with contrast. A technically successful injection therefore does not guarantee that every lymphatic pathway has been examined.

The test can also appear to show a leak when contrast has escaped around the needle or from a vessel injured during the procedure. Recent surgery and complex abnormal vessels can make the images harder to interpret.

CT lymphangiography may provide better anatomical detail in some situations. Magnetic resonance lymphangiography can show soft tissues without ionizing radiation, although availability and techniques differ. Lymphoscintigraphy may be better for measuring overall drainage from an arm or leg. Sometimes more than one test is needed.

Risks and complications

The needle may cause brief discomfort, bruising, or tenderness. Some people feel faint during

needle procedures.

Other possible risks include bleeding, infection, contrast leaking into nearby tissue, and a reaction to the contrast agent. Sedation can cause temporary drowsiness, nausea, or changes in breathing and blood pressure.

Because oil-based contrast eventually enters the bloodstream, it can reach the lungs. Serious breathing or circulation complications are uncommon, but the team limits and monitors the amount used. Rarely, contrast can travel somewhere it should not, including the brain, particularly when there is an abnormal connection within the circulation.

The procedure also exposes you to ionizing radiation. The dose differs according to the length and complexity of the examination.

What happens next

You may be observed for a period after the test, especially if you received sedation or had a treatment at the same time. Follow the instructions about eating, activity, dressings, and restarting medicines.

Mild tenderness or a small bruise at the needle site can usually be monitored at home. Your specialist will review the report and discuss whether you need observation, additional imaging, surgery, or a procedure to close a leak.

Contact the imaging team promptly for increasing pain, redness, swelling, drainage, fever, or bleeding that does not stop with firm pressure.

Seek emergency help for trouble breathing, chest pain, fainting, facial or throat swelling, sudden weakness, difficulty speaking, or another sudden severe symptom.

Common questions

Can I drink coffee before a lymphangiogram?

Only if your preparation instructions allow it. If sedation or anesthesia is planned, you will probably need to fast. Coffee with milk is not a clear fluid, and some centers also restrict black coffee.

Does the time of day matter?

The time itself does not usually affect the images. Morning appointments may make fasting easier, but scheduling is mainly based on the length of the procedure and availability of the specialist team.

Can I exercise beforehand?

Gentle normal activity is unlikely to change the result. Avoid strenuous exercise if your imaging center advises it, particularly if you have a current lymph leak or significant swelling.

Will the test hurt?

The local anesthetic may sting briefly, and you may feel pressure during needle placement. You should tell the team if you have pain so they can assess it and adjust pain relief.

Can I drive home afterward?

Do not drive if you received sedation. Even without sedation, ask in advance because the procedure can be long and you may have activity restrictions afterward.

How long does the contrast stay in my body?

Oil-based contrast clears slowly and may remain visible on imaging for an extended period. Tell healthcare teams about the lymphangiogram before later scans, thyroid testing, or radioactive iodine treatment.

Sources

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