TEST

Hysterosalpingography

Hysterosalpingography is an X-ray test showing the uterine cavity and whether the fallopian tubes are open.

WHAT IT MEASURES
Shape of the uterine cavity and fallopian tube openness

SAMPLE
None, for imaging

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 15 to 30 minutes

RESULTS IN
Same day to several days; varies by laboratory

USED FOR
Diagnosing blocked fallopian tubes and uterine cavity abnormalities

MAIN LIMITATION
Tubal spasm can falsely appear to be a blockage

Overview

Hysterosalpingography, often shortened to HSG, is an X-ray examination of the uterus and fallopian tubes. The fallopian tubes carry an egg from the ovaries toward the uterus.

During the test, a clinician passes a thin tube through the cervix, which is the opening to the uterus. Contrast liquid is placed into the uterine cavity. A continuous form of X-ray called fluoroscopy follows the contrast as it fills the uterus and moves through the fallopian tubes.

If the contrast spills from the ends of both tubes, they are likely open. If it stops, a tube may be blocked. The images can also show some differences in the size or shape of the uterine cavity.

HSG does not examine the ovaries well. It also cannot fully assess endometriosis, scar tissue outside the tubes, or every possible problem inside the uterus.

Why the test is ordered

HSG is mainly used during an infertility assessment. It helps find out whether one or both

fallopian tubes are open.

A tube can become blocked after pelvic infection, surgery, inflammation, or a previous ectopic pregnancy. An ectopic pregnancy develops outside the uterus, most often in a fallopian tube.

The test may also be ordered to look for changes within the uterine cavity, including:

Other tests may be better for examining the uterine lining in detail. These include saline ultrasound, in which fluid and ultrasound are used, and hysteroscopy, in which a small camera is passed through the cervix.

- Scar tissue
- Some polyps or fibroids
- Differences in the uterus present from birth
- Changes that might be relevant after repeated pregnancy loss

Who should have the test

HSG may be appropriate if you are being assessed for infertility and your healthcare team needs information about your fallopian tubes or uterine cavity. It is usually one part of a wider assessment rather than a stand-alone answer.

The test should not be performed during pregnancy. It is normally postponed if you may be pregnant, have an active pelvic infection, or have heavy bleeding that could make the images difficult to interpret.

Tell the imaging team if you have:

A shellfish allergy does not itself mean that you will react to iodinated contrast. However, any previous contrast reaction should be discussed before the appointment.

- Had pelvic inflammatory disease or a recent sexually transmitted infection
- Previously reacted to iodinated X-ray contrast
- Recently had pelvic or uterine surgery
- Unexplained fever, unusual discharge, or worsening pelvic pain
- Any chance of pregnancy

How to prepare

HSG is usually scheduled after menstrual bleeding has ended but before ovulation. This timing

reduces the chance of performing the test during an early pregnancy. Your imaging center will give you a specific scheduling window based on your cycle.

You may be asked to avoid unprotected vaginal sex from the beginning of your period until after the test. Some centers perform a pregnancy test before HSG.

You can usually eat and drink normally. Follow your center's instructions if you are also having another procedure that requires fasting.

The test can cause period-like cramping. Your healthcare team may suggest taking a non-prescription pain reliever beforehand if it is safe for you. Do not take a medicine that you have been told to avoid.

Antibiotics like amoxicillin or doxycycline are not needed for everyone. They may be prescribed if you have a history that increases the risk of pelvic infection or if the images show a swollen, blocked tube. Do not start leftover antibiotics on your own.

Wear comfortable clothing and consider bringing a sanitary pad for contrast leakage or light spotting afterward.

What happens during the test

You will lie on an X-ray table, usually with your knees bent. The clinician places a speculum into the vagina, similar to during a cervical screening test, so the cervix can be seen.

The cervix is cleaned. A narrow catheter is then passed through it into the uterus. A small balloon may be inflated to hold the catheter in place.

Contrast liquid is slowly injected while X-ray images are taken. You may be asked to turn slightly so the uterus and tubes can be viewed from different angles.

Cramping is common as the uterus fills. It may be brief and mild, although some people experience stronger period-like pain. Tell the team if you feel faint or if the pain becomes difficult to manage.

The imaging portion usually takes 15 to 30 minutes. The catheter and speculum are then removed. You can usually go home shortly afterward.

Understanding your results

A radiologist examines the images and sends a report to the clinician who ordered the test.

A result may describe both fallopian tubes as open, meaning contrast passed through them and spilled into the pelvis. A blocked result means contrast did not pass through part or all of a

tube.

The report may describe where a blockage appears to be:

The uterine cavity may be described as having a usual shape or showing a filling defect. A filling defect is an area where contrast did not fill normally. It may be caused by a polyp, fibroid, scar tissue, an air bubble, or another temporary technical factor.

An abnormal HSG does not always establish a final diagnosis. Your result is interpreted alongside your symptoms, health history, other fertility tests, and the quality of the images. Interpretation also varies with age, pregnancy status, medicines, clinical context, and the reporting service.

- Proximal blockage: Near the uterus
- Distal blockage: Near the far end of the tube
- Hydrosalpinx: A tube enlarged by trapped fluid

What affects the results

HSG does not usually produce a blood value or reference range. Its accuracy depends on timing, technique, and how the uterus and tubes respond during the procedure.

The most important source of a misleading result is muscle spasm. A fallopian tube can briefly tighten where it meets the uterus, making an open tube look blocked.

Other factors include:

Few medicines directly change the images. Medicines that affect uterine muscle contraction could potentially influence spasm, but this is not usually the main issue. A recent transfusion, food, coffee, and ordinary daily activity do not alter whether the tubes are physically open.

- Mucus, debris, or an air bubble temporarily blocking contrast
- The catheter or its balloon covering part of the uterine cavity
- Contrast being injected too slowly or with insufficient pressure
- Pain or movement making images harder to obtain
- Bleeding obscuring the outline of the uterine cavity
- Images being taken before contrast has enough time to pass
- Previous surgery changing the expected anatomy

Accuracy and limitations

HSG can identify many tubal blockages, but it is not always right. In pooled older studies comparing HSG with laparoscopy, it detected about 65% of tubal blockage and correctly ruled out blockage about 83% of the time. Results differ among studies because techniques, patients, and definitions of blockage vary.

False blockage is especially common near the uterus because of spasm, mucus, or catheter position. If both tubes appear blocked at this point, repeating HSG or using another method may show that they are open.

HSG may also miss disease around the outside of the tubes. Laparoscopy, keyhole surgery performed under anesthesia, is more informative when endometriosis, pelvic scar tissue, or another external problem is suspected. During laparoscopy, dye can be passed through the tubes to check them directly.

For detailed investigation of the uterine cavity, saline ultrasound or hysteroscopy may be more accurate. Hysteroscopy allows the clinician to see the cavity directly and sometimes take a tissue sample or treat a finding.

Risks and complications

Cramping, light bleeding, and watery or sticky contrast leakage are common for a short time afterward. Some people feel dizzy or faint during or immediately after the procedure.

Pelvic infection is uncommon but is more likely if you have had pelvic infection before or have a severely damaged, fluid-filled tube. A reaction to the contrast is also uncommon. The test uses a small amount of radiation, and exposure is kept as low as reasonably possible.

Rare complications include injury to the cervix or uterus and contrast entering nearby blood vessels.

Contact your healthcare service promptly if you develop fever, chills, worsening pelvic pain, foul-smelling discharge, or bleeding heavier than expected. Seek emergency help for difficulty breathing, facial or throat swelling, collapse, or severe uncontrolled pain.

What happens next

You can usually return to normal light activities the same day. Follow the imaging center's advice about sex, tampon use, bathing, and exercise, particularly if you have bleeding or discomfort.

Mild cramps and spotting often settle within a day or two. Routine follow-up is used to review the report and decide whether any further investigation is needed.

If the tubes appear open and the uterine cavity looks normal, your fertility assessment may continue with other factors. If a tube appears blocked or the uterine cavity looks unusual, the next step may be repeat imaging, ultrasound, hysteroscopy, or laparoscopy. The appropriate option depends on the location of the finding and your wider clinical situation.

Common questions

Can I drink coffee before an HSG?

Usually, yes. HSG does not normally require fasting, and coffee does not change tubal openness. Follow different instructions if your center plans sedation or another procedure.

Does the time of day matter?

The point in your menstrual cycle matters more than the hour. The test is normally performed after bleeding ends and before ovulation.

Can I exercise beforehand?

Ordinary exercise does not affect the result. You may prefer to avoid a strenuous workout immediately beforehand if it tends to cause pelvic discomfort.

Can I have sex before the test?

Your center may ask you to avoid unprotected vaginal sex from the start of your period until the test, so an early pregnancy can be excluded. Follow the instructions you receive.

Is an HSG painful?

Experiences differ. Many people have brief period-like cramps, while some have stronger pain as the contrast is injected. The discomfort usually eases when the injection stops.

Can I drive home afterward?

Most people can drive if they did not receive sedating medicine and feel well. Arrange another way home if you are prone to fainting, have significant pain, or were given sedation.

Sources

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