

## Hysterosalpingography

*This procedure is reviewed by a physician with expertise in the area presented and is further reviewed by committees from the American College of Radiology (ACR) and the Radiological Society of North America (RSNA), comprising physicians with expertise in several radiologic areas.*

### What is Hysterosalpingography?

Hysterosalpingography, also called uterosalpingography, is an x-ray examination of a woman's uterus and fallopian tubes that uses a special form of x-ray called fluoroscopy and a contrast material.

An x-ray (radiograph) is a painless medical test that helps physicians diagnose and treat medical conditions. Radiography involves exposing a part of the body to a small dose of ionizing radiation to produce pictures of the inside of the body. X-rays are the oldest and most frequently used form of medical imaging.

Fluoroscopy is a special x-ray technique that makes it possible to see internal organs in motion. When the uterus and fallopian tubes are filled with a water-soluble contrast material, the radiologist is able to view and assess their anatomy and function.

### What are some common uses of the procedure?

Hysterosalpingography is primarily used to examine women who have difficulty becoming pregnant by allowing the radiologist to evaluate the shape and structure of the uterus, the openness of the Fallopian tubes, and any scarring within the peritoneal cavity.

The procedure can be used to investigate repeated miscarriages that result from congenital abnormalities of the uterus and to determine the presence and severity of these abnormalities, including:

- tumor masses or adhesions
- uterine fibroids

Hysterosalpingography is also used to monitor the effects of tubal surgery, including:

- tubal ligation

- the closure of the fallopian tubes in a sterilization procedure and a sterilization reversal
- the re-opening of the fallopian tubes following a sterilization or disease-related obstruction

### How should I prepare?

The hysterosalpingography procedure is best performed one week after menstruation but before ovulation to make certain that you are not pregnant during the exam.

This procedure should not be performed if you have an active inflammatory condition. You should notify your physician or technologist if you have a chronic pelvic infection or an untreated sexually transmitted disease at the time of the procedure.

On the night before the procedure, you will be asked to take a laxative or an enema to empty your bowels, so that the uterus and surrounding structures can be seen clearly.

Prior to the procedure, you may be given a mild sedative or over-the-counter medication to minimize any potential discomfort. Some physicians prescribe an antibiotic prior to and/or after the procedure.

You should inform your physician of any medications you are taking and if you have any allergies, especially to contrast materials. Also inform your doctor about recent illnesses or other medical conditions.

You may be asked to remove some or all of your clothes and to wear a gown during the exam. You may also be asked to remove jewelry, eye glasses and any metal objects or clothing that might interfere with the x-ray images.

Women should always inform their physician or x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy because radiation can be harmful to the fetus.

If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby.

## What does the equipment look like?

The equipment typically used for this examination consists of a box-like structure containing the x-ray tube and fluoroscopic equipment that sends the x-ray images to a television-like monitor for viewing that is located in the examining room or in a nearby room. This structure is suspended over a table on which the patient lies. A drawer under the table holds the x-ray film or image recording plate that captures the images.

## How does the procedure work?

X-rays are a form of radiation, like light or radio waves that can be focused into a beam. X-rays pass through most objects, including the body. Once it is carefully aimed at the part of the body being examined, an x-ray machine produces a small burst of radiation that passes through the body, recording an image on photographic film or a special image recording plate.

Fluoroscopy uses a continuous x-ray beam to create a sequence of images that are projected onto a fluorescent screen, or television-like monitor. When used with a contrast material, which clearly defines the area being examined by making it appear bright white, this special x-ray technique makes it possible for the physician to view internal organs in motion. Still images are also captured and stored either on film or electronically on a computer.

X-ray images are maintained as hard film copy (much like a photographic negative) or, more likely, as a digital image that is stored electronically. These stored images are easily accessible and are sometimes compared to current x-ray images for diagnosis and disease management.

## How is the procedure performed?

This examination is usually done on an outpatient basis.

The patient is positioned on her back on the exam table, with her knees pulled to her chest or her feet held up with stirrups. A speculum is inserted into the vagina and the catheter is then inserted into the cervix. The speculum is removed and the patient is carefully situated underneath the fluoroscopy device. The contrast material then begins to fill the uterine cavity through the catheter and fluoroscopic images are taken.

In some cases, if certain abnormalities are encountered, the patient will be asked to rest and wait up to 30 minutes so that a delayed image can be obtained. This delayed image may provide clues to a patient's condition that the original images with contrast material do not. On occasion, an x-ray will be taken the next day to ensure that there is no scarring surrounding the ovaries.

When the procedure is complete, the catheter will be removed and the patient will be allowed to sit up.

When the examination is completed, the patient will be asked to wait until the technologist determines that the images are of high enough quality for the radiologist to read.

The hysterosalpingogram is usually completed within 30 minutes.

## What will I experience during the procedure?

This exam should cause only minor discomfort.

There may be slight discomfort when the catheter is placed and the contrast material is injected, but it should not last long. There may also be slight irritation of the peritoneum, causing generalized lower abdominal pain, but this should also be minimal and not long lasting.

## Who interprets the results and how do I get them?

A radiologist, a physician specifically trained to supervise and interpret radiology examinations, will analyze the images and send a signed report to your primary care or referring physician, who will share the results with you.

## What are the benefits vs. risks?

### Benefits

- Hysterosalpingography is a minimally invasive procedure with rare complications.
- Hysterosalpingography is a relatively short procedure that can provide valuable information on a variety of abnormalities that cause infertility or problems carrying a fetus to term.
- No radiation remains in a patient's body after an x-ray examination.
- X-rays usually have no side effects.

## Risks

- There is always a slight chance of damage to cells or tissue from radiation. However, the radiation risk is very low compared with the potential benefits.
- The effective radiation dose from this procedure is about 1 mSv, which is about the same as the average person receives from background radiation in four months.
- In the event of a chronic inflammatory condition, pelvic infection or untreated sexually transmitted disease, be certain to notify the physician or technologist before the procedure to avoid worsening of infection.
- Women who are or may be pregnant should inform their physician or technologist before the procedure.

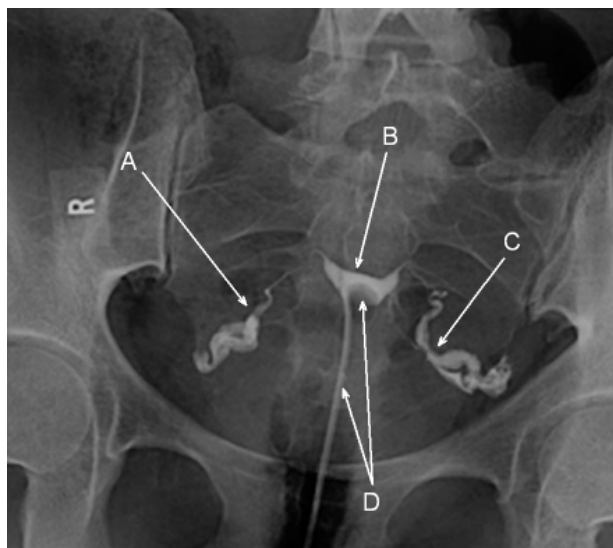
### ***A Word About Minimizing Radiation Exposure***

Special care is taken during x-ray examinations to use the lowest radiation dose possible while producing the best images for evaluation. National and international radiology protection councils continually review and update the technique standards used by radiology professionals.

State-of-the-art x-ray systems have tightly controlled x-ray beams with significant filtration and dose control methods to minimize stray or scatter radiation. This ensures those parts of a patient's body not being imaged receive minimal radiation exposure.

## What are the limitations of Hysterosalpingography?

Hysterosalpingography only sees the inside of the uterus and fallopian tubes. Abnormalities of the ovaries, wall of the uterus, and other pelvic structures may be evaluated with MRI or ultrasound. Infertility problems may be from causes not evaluated with hysterosalpingography, including, but not limited to, low or abnormal sperm count or the inability of a fertilized egg to implant in the uterus.



*Hysterosalpingogram - contrast (iodine) has been injected into the uterus through a catheter and the uterine cavity and fallopian tubes are opacified - they look white on the image. (A: right tube, B: uterine cavity, C: left tube, D: catheter with balloon tip)*

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