



THERAPEUTIC ROLE OF HSG IN TUBAL BLOCKAGE AND SURGICAL INTERVENTION: A REVIEW

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Abstract

Hysterosalpingogram (HSG) is an x-ray procedure which generally used to check tubular blockage. HSG is considered as an outpatient procedure which can be performed in quick period of time. Generally it is performed after the menstrual period ends but before starting ovulation process. In this procedure woman under examination is positioned under a fluoroscope on a table and X-Ray imager take pictures during the study. Patient's uterus examined by placing speculum in vagina, cervix is cleaned, a device termed as cannula is placed into the cervix and uterus filled with a liquid containing iodine through the cannula. This fluid is observable by X-Ray and contrast seen as white on the image. The contour of the uterus can be seen as the liquid moves from the cannula to uterus and through the fallopian tubes. Contrast enters the tubes covering the length of the tubes and spill out at the open ends of tube. If abnormalities are present inside the uterine cavity then fluid movement get disrupted which can be observed by x-ray imaging. Therefore this technique considered as a useful technique to detect tubular blockage and provides essential information before conducting surgical interventions.

Key-Words: *Hysterosalpingogram, HSG, Gynecology, X- Ray, Contrast*

Introduction

Hysterosalpingogram (HSG) is a technique of X-ray imaging which facilitate inside view of the uterus and fallopian tubes thus provides information about tubular abnormalities responsible for infertility. This technique helps to identify injury, abnormal structure of the uterus and fallopian tubes. The blockage of the tube that prevents movement of an egg through fallopian tube to the uterus can be detected using this technique. This blockage affect fertility therefore having view of X-ray image surgical intervention can be planned accordingly [1-5].

The procedure performed in a sterile matter using single-tooth tenaculum that helps to align cervical canal and uterine cavity. Cannula is used to inject water-soluble contrast medium and fluoroscopic examination performed with repositioning of patient. The condition in which hysterosalpingogram (HSG) is contraindicated are depicted in **Figure 1**:

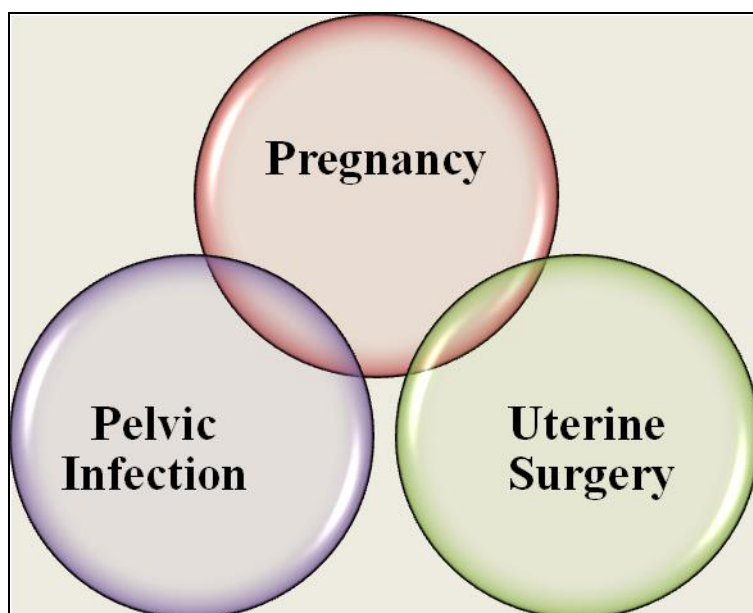


Figure 1: Condition in which HSG is contraindicated

HSG generally performed in immediate postmenstrual phase, radiologist helps to interpret output of examination and scored results of imaging as: normal, unilateral patency, patency but with defects and bilateral obstruction. The bilateral tubal obstruction causes infertility and in such cases women can choose surgery, IVF, or both [4-8].

Role in diagnosis and surgical interventions:

HSG gives idea about tubular blockage therefore physician can plan surgical procedure accordingly, the image from HSG helps to perform laparoscopy, viewing tubes or uterine cavity provides information about surgical interventions are to be adopted or to bypass the tubes for other procedures like IVF (*In vitro* Fertilization). Tubal surgery may increase chances of pregnancy if other factors are normal. The HSG can also accompanying with laparoscopy which helps to determine if tubes are open. Here the procedure called chromopertubation adopted for viewing abnormality of tubes or alternative procedure Sonohysterosalpingogram (SHG) can also be used to evaluate tubal patency. This test shows that fallopian tubes are open or blocked, if blockage at the junction of tube and uterus or at the distal end of tube. Obliteration of fallopian tubes can also be detected that require surgical interventions.

Normal HSG shows bones of pelvis on the X-ray around edges of image while HSG of blocked tubes shows no “spill” of dye at the ends of tubes; tubes are dilated slightly and filled with fluid.

There are some conditions which may be suspected with HSG includes uterine congenital anomalies, adenomyosis, intrauterine adhesions, uterine polyps, tubal polyps, hydrosalpinx and tubal spasm, etc. HSG helps to detect exact pathology of uterine and tubular abnormalities therefore surgeon can plant surgical interventions accordingly and correct diagnosis by HSG provides useful information related to the precautions that are to be adopted during surgical procedures of uterine or tubular abnormalities. This technique mainly indicated for infertility to assess tubal patency and uterine morphology.

This technique improves visualization of uterine cavity thus gives clear picture about pathological problems and related complication, also suggest possibility of surgical interventions and care need to be taken during infertility treatment.

Some radiologists suggested uses of iodinated oil as contrast when there is lack of fertility, some report suggested that uses of such media may increases fertility however this remains controversial and yet to be validated.

Typical fluoroscopic examination gives preliminary frontal view of pelvis and subsequent spot images that represents uterine endometrial contour, filled fallopian tubes,

bilateral intraperitoneal spill of contrast and confirm tubal patency. This tubular is responsible for infertility and can be managed *via* surgical or IVF procedures.

Medical science suggested that while performing such procedure care should be taken regarding abdominal cramping, per vaginal spotting, venous intravasation, pelvic infection and contrast reaction, etc [7-10].

Advantages

- After HSG woman can immediately return to normal activities
- Easy to perform, not required so much technical expertise and simple in technical aspect
- Cheap, not offer huge expenses before, during and after treatment
- Time saving can be done in quick period of time
- Not associated with severe health complication and post procedural effects
- Gives accurate result about tubular blockage when perform appropriately

Minor complications

- ✓ HSG usually leads mild or moderate cramping in uterine cavity for few minutes to hours.
- ✓ Pelvic infection may occur especially when woman possesses previous history of tubal disease.
- ✓ The woman may feel dizziness during or after the procedure.
- ✓ Some patient may have iodine allergy, therefore iodine contrast used in HSG rarely may cause rash, itching and swelling.
- ✓ Spotting and unusual bleeding may also occur sometimes after HSG.

Suggestion/Precautions while undergoing HSG

- Medications can be used for menstrual cramps before the procedure.
- Women should come with family member.

- Women being examined should be well aware about menstrual cycle or possible fluctuation in menstrual period based on previous history since this technique generally perform before ovulation period.
- The HSG should not be done if pregnancy is suspected.
- Physician may suggest pain medication before HSG and antibiotic to prevent pain and infection during and after procedure respectively.
- Vaginal speculum should be inserted after cleaning of the genital area.
- Vaginal speculum should be inserted when patient is in the lithotomy position.
- Device should be prepared with contrast prior to procedure this will avoid chances of gas bubbles which may gives false positive appearance.

Limitation

- ✚ The HSG is not useful to evaluate ovaries
- ✚ This technique not helps to diagnose endometriosis
- ✚ This procedure not helps to identify fibroids
- ✚ This technique not gives idea about other factors related to infertility except tubal blockage.
- ✚ This technique only observes side views of the uterus and tubes.

Conclusion

Hysterosalpingogram (HSG) is a technique of imaging which provides inside view of the uterine cavity and fallopian tubes, this technique mainly used as diagnostic tool for detecting tubular abnormalities responsible for infertility. This diagnostic technique gives idea about injury, structural abnormality of uterus and tubular blockage. These abnormalities affect fertility therefore using HSG causes of infertility related to the tubular obstruction can be identified and ruled out with the help of surgical interventions. HSG identify tubular blockage therefore surgeon can plan surgical interventions accordingly; the image of HSG also accompanying laparoscopy to examines detailed pathology of uterine and tubular obstruction. The X-ray imaging of HSG suggests weather to adopt surgical

interventions or to bypass the tubes for procedures like IVF. These therapeutic measures help to combat against problem of infertility but it is essential to diagnose problem correctly. Tubal surgery after HSG may increase chances of pregnancy, moreover HSG along with chromopertubation and Sonohysterosalpingogram can provides useful information about uterine and tubular abnormalities. This test observes blockage of and obliteration of fallopian tubes which requires surgical interventions.

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