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MANAGEMENT OF HYSTEROSALPINGOGRAPHY (HSG) EXAMINATION WITH PRIMARY INFERTILITY CLINICAL AT THE RADIOLOGY INSTALLATION OF HERMINA GRAND WISATA HOSPITAL BEKASI

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Abstract
Hysterosalpingography (HSG) is the most frequently performed radiographic procedure to assess the patency of the uterus and fallopian tubes. In this observation, the aim was to determine whether HSG examination can help improve the quality of medical services for women facing fertility problems (infertility). The study aimed to understand the procedure for handling HSG examination in relation to clinical cases of infertility at the Radiology Installation of Hermina Hospital Bekasi. This study used a qualitative descriptive method with an observational approach. The research sample was taken from one patient who underwent HSG examination for primary infertility cases at Hermina Grand Wisata Hospital Bekasi. Data were collected through direct observation, interviews, and literature studies. The results of the study showed that patients who will undergo HSG examination Patients need to make preparations before the examination, namely it is advisable not to have sexual intercourse after the 9th day of menstruation, because the HSG examination will be performed on the 10th-11th day. In the procedure, the contrast material used is the water soluble type. The radiographic projections taken include AP plan images, and AP post contrast with doses of 3 cc and 5 cc. The conclusion of this study shows that HSG examination produces images showing hydrosalpinx on both sides of the fallopian tube, where the fallopian tube is filled with serous fluid (clear). This condition can complicate the fertilization process, especially if it occurs in both fallopian tubes, so patients often have difficulty getting pregnant.

Keywords: Hysterosalpingography (HSG), Infertility and contrast material

INTRODUCTION

Radiology is a part of medical science that studies imaging technology, both electromagnetic waves and mechanical waves, to scan the inside of the human body to detect a disease (Gani, 2020). Hysterosalpingography is a cheap and easy examination to evaluate the causes of infertility in women. Hysterosalpingography is the most common radiographic examination to assess the patency of the uterus and fallopian tubes. Uterine abnormalities can produce filling defects, polyps, and fibrous tissue, while in the fallopian tubes, it can provide a picture of congenital abnormalities, spasms, blockages, or infections (Anjasmara et al., 2023).

Hysterosalpingography (HSG) Examination One of the alternative procedures for examining tubal function that has been widely accepted and used is hysterosalpingography (HSG). Hysterosalpingography (HSG) is a procedure for examining the uterus and fallopian tubes using radiography. This procedure can be used to examine and detect congenital abnormalities, leiomyomas, adhesions (synechiae), polyps, tubal occlusion, salpingitis isthmica nodosum, hydrosalpinx, and peritubal adhesions (Syahril et al., 2020).

According to Lampignano & Kendrick (2028), HSG examination projections include: AP plain pelvis projection, AP post contrast projection, RPO projection, LPO projection (Aprilia, 2022). Contrast materials or contrast agents or contrast media are compounds used to enhance the visualization of internal structures in a medical diagnostic imaging. Contrast materials used for radiological examinations are barium sulfate, iodine and gadolinium. Examination that uses contrast media are computed tomography, magnetic resonance imaging, abdominal x-ray examination, fistulography, etc (Currie, 2019). Infertility is a condition where a sexually active couple without contraception is unable to achieve pregnancy within one year (Rosalia et al., 2024).

There are two types of infertility, namely primary and secondary infertility. Primary infertility is when a woman who has never experienced pregnancy at all before even though sexual intercourse is done regularly without contraceptive protection for at least 1 year. Meanwhile, secondary infertility is when a woman who has previously been pregnant (Nihiyanti, 2021). Contraindications for this procedure are metrorrhagia, recent uterine or tubal surgery, acute or subacute pelvic cavity infection, allergy to contrast, and pregnancy (Anjasmara et al., 2023).

According to the World Health Organization WHO in 2020 also estimated that around 50-80 million couples (1 in 7 couples) have infertility problems, and every year around 2 million infertile couples appear. The prevalence of infertility in Indonesia is currently 12-15% of the 40 million fertile couples who experience fertility problems (Mulyani et al., 2021). Based on the results of the pre-survey conducted by the author, in September 2023 there were 5 patients who underwent Hysterosalpingography (HSG) examination with clinical infertility at the Radiology Installation of Hermina Grand Wisata Hospital, Bekasi.

METHOD

In this study, the author used a qualitative descriptive research design with an Observational approach. The population of this study was taken from patients who came to the Radiology Installation of Hermina Grand Wisata Hospital Bekasi with clinical infertility in September, totalling 5 patients. The research sample was 1 (one) patient in the HSG examination in cases of infertility at the Radiology Installation of Hermina Grand Wisata Hospital Bekasi.

RESULTS AND DISCUSSION

1. Patient Identity

Name	: Mrs.D
Age	: 26 Years
Gender	: Female
No.Rm	: 0021XXX
Inspection date	: 09/22/2023
Type examination	: Hysterosalpingography (HSG)
Clinical	: Infertilities

2. Patient History

Based on the patient's consultation with the OG Sp. doctor, the patient has been married for 1 year and 4 months and has not had children or has never given birth. The patient started having irregular menstruation on September 10, 2023. Previously, the patient had never been checked and only took folic acid and vitamin E.

3. Hysterosalpingography (HSG) Examination Procedure

a. Patient Preparation

1) Patients need to prepare before the examination, namely it is recommended not to have sexual intercourse after the 9th day of menstruation, because the HSG examination will be carried out on the 10th-11th day.
2) Cleaning pubic hair by shaving it can help smooth the examination process.
3) Before the examination, the patient must urinate first to avoid the patient urinating during the examination so that the examination is not disturbed and runs smoothly.
4) Before the examination is carried out, the purpose and stages of the examination are explained first so that the patient can work well.

b. Tools and materials

Preparation of tools and materials consists of sterile and non-sterile tools. Preparation of sterile tools consists of HSG set, 3cc and 10cc syringes, catheters, specula, cotton, hands-on, sterile gauze. For the materials there are water soluble contrast media and antiseptic solutions (betadine), non-sterile tools consist of conventional machines, 35 x 35 cm cassettes, Image Console and Computed Radiography, Printers, Gynecological lamps. The following is a picture of a sterile HSG examination tool:

Figure 1 HSG sterile equipment
(Doc. Hermina Grand Wisata Hospital, Bekasi)

c. Examination Techniques

1) AP Plan Photo Projection

Before the contrast material is inserted, do a photo plan first and insert 1-2 pieces of profinite into the anus to reduce pain during the HSG procedure. with the patient in a supine position on the examination table, the MSP of the body is perpendicular to the

middle of the table, vertical perpendicular. Central Point 2.5 cm above the symphysis pubis. Exposure factors are kV: 85, mA: 160, mAs: 30. Here is a picture of the AP Plan Photo Patient Position:

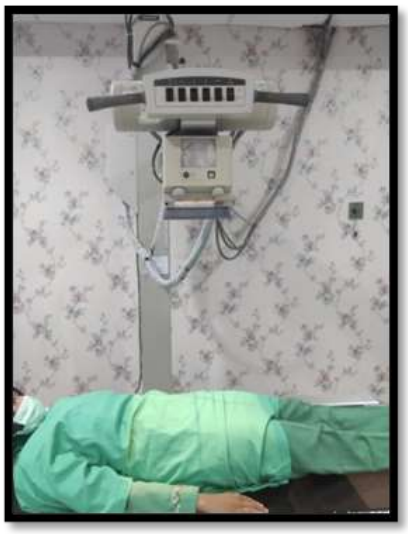

Figure 2 Patient Position AP Plan Photo
(Doc. Hermina Grand Wisata Hospital, Bekasi)

The following are the results of the AP Plan Photo Radiography:

Figure 3 Results of AP Plan Photo Overview
(Doc. Hermina Grand Wisata Hospital, Bekasi)

2) AP Post Contrast Projection 3 cc

The patient lies supine on the examination table with both hands beside the body, the patient is positioned in a lithotomy position with the knees flexed, the first stage is to clean the external genitalia area with antiseptic solution then insert a speculum to widen the vaginal canal, ensure the position of the cervix and clean the uterine ostium with iodine solution, insert the catheter into the cervical canal, fill the catheter balloon using a 3 ml syringe with 2.5 cc of aqua bides (as a mixture and solution) then remove the speculum slowly. Next, position the patient supine, insert 3cc of water-soluble contrast material after insertion, take an X-ray with an AP projection the same as the AP plan photo projection. The following are the results of the AP radiography after 3 cc contrast:

Figure 4 ResultsAP post contrast 3 cc
(Doc. Hermina Grand Wisata Hospital, Bekasi)

3) AP Post Contrast Projection 5 cc

After completing the first stage of contrast material, the next step is to insert the second stage of contrast material as much as 5cc with AP projection. X-ray with the same as AP projection plan AP projection photo. If the examination is complete, remove the catheter from the cervical canal. The following are the results of the AP radiography after 5 cc contrast:

Figure 3 ResultsAP post contrast 5 cc
(Doc. Hermina Grand Wisata Hospital, Bekasi)

Based on the results of observations and in depth interviews with radiologists and radiographers that have been conducted by researchers on the examination of Hysterosalpingography (HSG) radiography in cases of primary infertility at the Radiology Installation of Hermina Grand Wisata Hospital Bekasi, in patient preparation Hysterosalpingography is recommended to be performed on day 10-11 Because day 1-7 (menstrual period) day 12 is the fertile period, it is feared that ovulation has occurred. Then the benefits of the hysterosalpingography method in pregnancy planning are obtained, namely it can diagnose the presence or absence of fallopian tube blockage, also identify uterine abnormalities, and can assess the quality of the image of the uterus and fallopian tubes.

The results of the expertise of a radiology specialist show that the image shows that the contrast fills the cervix, there is no narrowing of the regular (normal) surface, then the contrast fills the uterine cavity in anteflexion position, namely the uterus which is parallel to the bladder and facing the cervix, and the contrast fills the right and left fallopian tubes, the calibre pars interstitials is the part of the wall closest to the uterus, on the right and left isthmic are normal, but the medial part of the tube is narrow, then the dilation of the pars infundibulum and the right and left ampullar is a disorder in the form of a blockage which will certainly make pregnancy difficult because the fertilization process occurs in the fallopian tube, there is a spill of contrast fluid into the right and left peritoneal cavity from the tube into the cavity of the meeting point between the end of the tube and the ovary. And there is a right and left Hydrosalpinx with the right and left fallopian tubes patent, namely the widening of the fallopian tubes filled with clear serous fluid (fluid). This will certainly complicate the fertilization process, especially if it occurs in both fallopian tubes, so patients often complain of difficulty getting pregnant.

CONCLUSION

From the management of Hysterosalpingography (HSG) examination in Primary Infertility Cases at Hermina Grand Wisata Hospital, Bekasi, it can be concluded that:

1. Hysterosalpingography examination requires special preparation and equipment. There is patient preparation before the examination is carried out, namely after the 9th day of menstruation, it is recommended not to have sex because on the 10th-11th day, an HSG examination will be carried out. This examination does not use a fortubator but uses a catheter. And this examination uses positive contrast media. Preparation of radiographic examination equipment consisting of a conventional plane, moving table, 35 x 35 cm CR cassette. Radiographic film, image console, image reader, radiation equipment, and film printer
2. The projection used is a plain AP projection photo to first see the patient's pathological anatomical condition and exposure factors, then the first contrast media is injected as much as 3cc for the AP projection and the second 5cc with the AP projection.
3. The results of the hysterosalpingography (HSG) examination produce images showing hydrosalpinx on both sides of the fallopian tubes, where the fallopian tubes are filled with serous fluid (clear). This condition can complicate the fertilization process, especially if it occurs in both fallopian tubes, so patients often have difficulty getting pregnant.

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