

HYSTEROSALPINGOGRAPHY (HSG) - A DIAGNOSTIC TOOL WITH AYURVEDIC MANAGEMENT FOR TUBAL BLOCK IN FEMALE INFERTILITY

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Abstract

Tubal Block accounts for about 25-35% of female infertility (Vandhyatva), Out of the various methods available, Hysterosalpingography (HSG) is a highly informative, easy, economical and reliable investigative procedure to evaluate tubal patency which can be carried out in an Ayurvedic set up. The present study is an effort to determine the prevalence of Tubal block and to evaluate the significance of Ayurvedic measures in correction of such problems encountered during the procedure or any complications if caused. Total 112 infertile patients were selected from OPD and IPD of Streeroga & Prasootitantra department without giving attention to primary or secondary infertility. The HSG was done in collaboration of Streeroga & Prasootitantra Department and Radiology Unit of the institute. Among registered patients 35.71% patients were found to have tubal block in HSG. This data shows the prevalence of tubal block. HSG can be successfully performed by Ayurvedic gynaecologists to investigate tubal block and many other undiagnosed causes of female infertility like Hydrosalpinx, Uterine hypoplasia, Uterine fibroids, Tubo-ovarian mass etc. Problems during the procedure and complications after it can be minimized up to a significant extent by using Ayurvedic measures. Some of the minor Ayurvedic measures definitely play an important role to manage these problems and also to prevent complications.

Keywords: Hysterosalpingography (HSG); Vandhyatva; Tubal Block.

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INTRODUCTION

As the tubal block is generally neglected or is evaluated at last by most of the gynaecologists, may be because of its complex nature, it was compulsory to adopt a reliable investigation before working on it. Hysterosalpingography (HSG) was preferred as the investigative procedure over Sonosalpingography (SSG) and Laparoscopy (chromopertubation) for this study, because of the least false negative and false positive reports. Apart from this, it can be performed by an Ayurvedic gynaecologist in an Ayurvedic institute and it is the cheapest investigation which can give the idea about other factors related to internal condition of uterus causing the infertility in addition to tubal block. During the study, HSG was found very informative and useful procedure to evaluate the tubal block along with other causes of infertility. The data related to all the patients regarding HSG were collected. Ayurvedic measures were used to correct the problems which come during and after the procedure and also to prevent the complications. Satisfactory results were achieved by using these Ayurvedic measures. So, all the information about HSG, collected from 112 cases is presented here.

AIMS AND OBJECTIVES

- To determine the prevalence of Tubal Block from infertile patients.
- To study the difficulties encountered during the procedure of HSG or any complications if caused.
- To evaluate the significance of Ayurvedic measures in correction of such problems.

MATERIAL AND METHODS

The HSG is done in collaboration of Streeroga & Prasutitantra Department and Radiology Unit of the institute. Total 112 infertile patients were selected from OPD and IPD of

SRPT department without giving attention to primary or secondary infertility. Precautions were taken before, during and after HSG. It was carried out within 7 days of completion of normal menstrual period.^[1] Patients were admitted in ward one day prior to the procedure. Ayurvedic laxative was given in the previous night before the procedure to empty the bowels, so that the uterus and surrounding structures may be visualised clearly during HSG. Routine blood, urine analysis, HIV, VDRL and HbsAg was done in each patient to rule out any active pelvic infection. All the instruments were autoclaved before procedure.

Ethical Approval

The study was started after getting approval by the Institutional Ethics Committee, Ref. PGT/7-A/Ethics/2011-12/2087 (dated 5/9/11).

CTRI Registration number:
CTRI/2013/03/003500

Procedure

Patient was asked to empty the bladder. Injection Atropine 0.6 mg was given intravenously 30 minutes before procedure to prevent visceroperitoneal shock and to reduce tubal spasm to minimize the chances of false positive reports. Then the patient was kept in dorsal position at the edge of the x-ray table. Patient should be fully covered and given as much privacy as possible so as to promote relaxation. Antiseptic and aseptic measures were maintained. Contamination was prevented by wearing autoclaved apron, mask, cap and gloves, cleaning of vulva and vagina with antiseptic solution, etc. Expose the cervix with the help of Sim's speculum, clean it with antiseptic solution and catch it with Allis' forceps.^{[2][3]} Sounding of the uterus was done. Leach Wilkinson's Cannula was filled with radio opaque water soluble dye (Urograffin 60% or 75%) through the syringe attached to its proximal end.^[4] Cannula was introduced in

the cervix and firmly pressed at external os (Fig 1). Allis' forcep pulled the cervix to give tight fitting (Fig 2). Patient shifted upwards with cannula in position, so that pelvis came to lie over the x-ray source. When radiologist gave signal 5 to 10 ml of dye was slowly injected in the uterus and it was watched on the x-ray screen (Fig 3). Cannula was kept in place till wet plates were examined and were found satisfactory. Second plate might be taken soon after within 10 min.

Contraindications of HSG

Suspected intrauterine pregnancy, acute or subacute PID, local infection, sensitivity to dye, abnormal uterine bleeding, recent curettage. Pelvic pain, bleeding, hypersensitivity to dye, regurgitation and vasovagal shock are possible immediate complications while PID, Endometriosis, Adhesions etc. are late complications.^[5]

Ayurvedic measures which were applied to overcome the problems during the procedure

Following drugs were prepared in pharmacy of the institute.

General measures

Dashamoola Kwatha^[6] - ½ cup BD was given from 1st day up to last day of the menstruation.

Mansyadi Kwatha^[7] - ½ cup BD was given for 3 days before performing HSG.

Panchavalkala Kwatha^[8] - Yoni Prakshalana just before the procedure.

Snehana of Bala Taila^[9] - on lower abdomen and back just before the procedure.

Nadi Sweda - on lower part of the body soon after Snehana.

Post procedure Ayurvedic measures

Chandraprabha Vati^[10] 2 tablets BD for 5 days was given.

Shankha Vati^[11] two tablets SOS was given as an anti spasmodic when required.

Raktastambhaka Yoga containing Nagakesara (*Mesua ferrea* Linn.), Khadira (*Acacia catechu* Willd.), Sphatika (Alum) and Gairika (Red Ochre) in equal parts along with Ashoka (*Saraca indica* Linn.) and Lodhra (*Symplocos racemosa* Roxb.) Churna (powder) was given orally to the patients who complained of bleeding. Dose and duration was as per the requirement.

Follow up - 01 month up to cessation of next menstruation.

RESULTS AND DISCUSSION

Tubal block is responsible for 25-35% cases of infertility.^[12] In this study, 69.64% patients had primary infertility while 30.36% patients had secondary infertility. (Table 1) Women suffering from tubal block were found 35.71% out of 112 infertile women while 64.29% patients had both tubes spillage. (Table 2 & Figure 4) It is because most of them had multiple factors of infertility. There was not any patient selected for HSG at random as the first investigation. Generally, tubal block is one of the most notorious factors of infertility, and is not treated frequently because of tedious surgery with possibility of complications. Thus, several times, it goes undiagnosed, even if patients take long treatment for infertility. Hence, such patients visit Ayurvedic infertility clinic as a last ray of hope. It can be the reason, why patients with tubal block were more prevalent in Institutional infertility care. Still the data is very important, especially for Ayurvedic gynaecologists, as it shows the prevalence of tubal block in the patients visiting to them. Apart from this, it shows the need of serious researches on tubal block in Ayurvedic institutes.

Among 40 patients of tubal block 52.50% patients were suffering from bilateral tubal

block, which reduces their chance of getting pregnancy to 0%. (Table 3 & Figure 5) As it is quite a significant percentage, it becomes our responsibility to diagnose them and to treat them up to our maximum possible extent. The 47.50% patients were suffering from unilateral tubal block, (Table 3 & Figure 6) which though, not makes conception impossible for them, but definitely reduces its probability. Among unilateral block, 25% patients had block in right tube while 22.50% patients had left tubal block. (Table 4) The most significant point emerged from this observation was the cornual tubal block. It was the most prevalent, as bilateral cornual block was found in 37.50% patients (Figure 5) and unilateral cornual block in right & left tubes were found in 10% & 12.50% patients respectively (Table 4, Table 6 and Figure 6) Proximal tubal occlusion is mostly due to an inflammatory phenomenon, secondary to an ascending sexually transmitted disease, puerperal infection or septic abortion. It may also be associated to salpingitis isthmica nodosa, endometriosis, tubal polyposis, or other rare causes of endosalpingitis.^[13] Both mid tubal blocks were found in 07.50% patients while unilateral mid block was found in 5% patients. (Table 4 & 6) Symmetrical block was found in 45.00% patients while asymmetrical block was found in 07.50% patients. (Table 5) Another common site for block was found Unilateral fimbrial block with 12.50% & 07.50% in right and left tube respectively. (Table 4) It supports the already observed fact that distal tubal occlusion is most frequently the sequel of salpingitis. Gonorrhoea and infections by bowel organisms and vaginal flora are linked strongly with this kind of pathology. Salpingitis may result in either partial (tubal phimosis) or complete (hydrosalpinx) distal tubal occlusion. Both conditions may be associated with varying degrees of periadnexal adhesive disease. This data suggests the established fact that most of the inflammatory conditions of tubes lead to proximal tubal block.^[14] (Figure 5 & 6)

HSG also proved very beneficial to diagnose the other uterine pathologies which were undiagnosed until then. It helped to get the accurate cause of infertility in those cases and led to the path of correct management. Hydrosalpinx, Uterine hypoplasia, Uterine fibroids, Tubo-ovarian mass and Dilated tube were found in 03.57% patients each (Figure 7 & 8). Bicornuate Uterus and Adhesions were found in 02.68% patients each. Unicornuate Uterus was found in 01.79% patients (Figure 9) while irregular uterine cavity and Cervical fibroid were found in 1 patient each. The 02.68% cases were suspected of genital tuberculosis because of beaded appearance in tubes. (Table 8) Total 4 patients conceived just followed by HSG. Among them two patients had chronicity of infertility more than 7 years and the other had chronicity more than 4 years. All those were primarily infertile. It suggests that HSG has some therapeutic value also, because it removes some delicate adhesions and clears out inspissated mucous so pregnancy can follow HSG in some cases.^[15] HSG, though one of the most significant investigation of infertility, is not that much popular nowadays. One of the most important reasons is that several problems and complications come during and after the procedure and sometimes it makes the procedure a failure. So, an effort was made to document those problems as well as to correct them within maximum possible limit. For this purpose, some Ayurvedic drugs and procedures were used which gave good results. Dashamoola Kwatha was given with an aim of clearing of menstrual flow and pacifying the exaggerated Vata during Rajahkala because of its Vatahamaka and Rajahpravartana property. Normalized function of Vata may reduce the possibility of endometriosis as a complication of HSG by preventing the regurgitation of blood through the tubes.^[16] No patient suffered from endometriosis or any symptom of it after the procedure. Anxiety reduces the compliance of patient and sometimes the confidence of performer too.

Table 1: Infertility wise distribution (n=112)

Infertility	No. of patients	Percentage
Primary	78	69.64%
Secondary	34	30.36%

Table 2: Distribution of patients with tubal block (n=112)

Tubal patency	No. of patients	Percentage
Spillage	72	64.29%
Blockage	40	35.71%

Table 3: Findings of tubal block from study population (n=40)

Findings	No. of patients	Percentage
Unilateral block	19	47.50%
Bilateral block	21	52.50%

Table 4: Unilateral tubal block - distribution according to the site of block (n=40)

Unilateral Tubal block	Site	No. of patients	%
Right tubal		10	25.00%
	Cornual	4	10.00%
	Mid tubal	1	02.50%
	Fimbrial	5	12.50%
Left tubal		9	22.50%
	Cornual	5	12.50%
	Mid tubal	1	02.50%
	Fimbrial	3	07.50%

Table 5: Bilateral tubal block - distribution according to the site of block (n=40)

Bilateral block	No. of patients	Percentage
Symmetrical	18	45.00%
Asymmetrical	03	07.50%

Table 6: Symmetrical tubal block (n=40)

Symmetrical	No. of patients	Percentage
Both corneal	15	37.50%
Both mid tubal	03	07.50%

Table 7: Asymmetrical tubal block (n=40)

Asymmetrical	No. of patients	Percentage
One mid tubal, One fimbrial	1	02.50%
One fimbrial, One corneal	1	02.50%
One cornual, One mid tubal	1	02.50%



Figure 1



Figure 2



Figure 3

[Figure 1: Introducing cannula in the cervix; Figure 2: Cannula is in the cervix with tight fitting in external os; Figure 3: Dye is injected in the cervix]

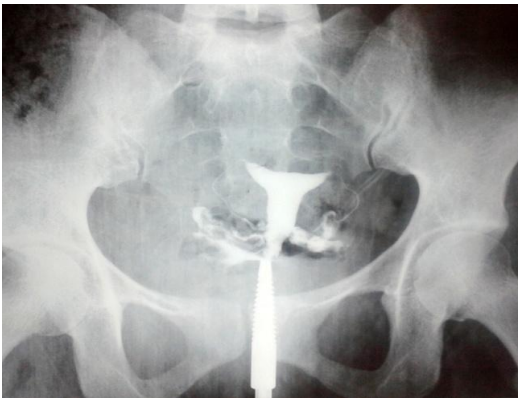


Figure 4: Bilateral Patent tubes



Figure 5: Bilateral Cornual Block



Figure 6: Right Cornual Block

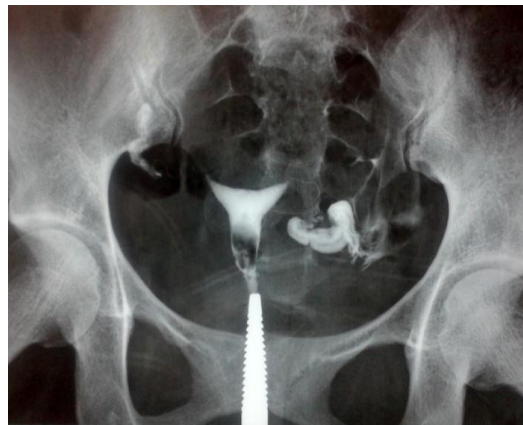


Figure 7: Right hydrosalpinx



Figure 8: Hypoplastic uterus



Figure 9: Unicornuate uterus

Table 8: Other pathologies (n=112)

Findings	No. of patients	Percentage
Bicornuate Uterus	03	02.68%
Unicornuate Uterus	02	01.79%
Uterine hypoplasia	04	03.57%
Irregular cavity	01	00.89%
Uterine fibroids	04	03.57%
Cervical fibroid	01	00.89%
Tubo-ovarian mass	04	03.57%
Dilated tube	04	03.57%
Beaded appearance of tube	03	02.68%
Adhesion	03	02.68%
Hydrosalpinx	04	03.57%

Because of it, there occurs the voluntary contraction of muscles, i.e. vaginismus, which leads to so many problems and sometimes makes the procedure to fail. Mansyadi Kwatha for 3 days before HSG was given to those patients who showed features of anxiety or vaginismus during the P/S and P/V examination, carried out in all the patients before selecting for HSG. HSG was successfully carried out in all those patients. Panchavalkala Kwatha Yoni Prakshalana was performed as an aseptic measure in all the patients just before the HSG. It worked well, as no patient suffered from UTI, lower or upper genital tract infection during the follow up period after procedure.^[17] Snehana and Swedana were performed to achieve good Vatanulomana and Vedanashamana to relax the uterine muscles and to prevent the pain as much as possible.^[18]

It is important to note that pain itself becomes a cause of failed procedure by voluntary contraction of muscles. This is one of the factors why HSG was successfully performed in all the patients without using any modern analgesic drug. Chandraprabha Vati was given to all patients after the procedure, as it is well known for its anti-inflammatory property, esp. regarding the urogenital tract.^[19] It may be one of the causes why any post procedural urogenital infection was not reported in any case.

Shamkha Vati was used as an antispasmodic in the cases who reported pain after procedure and pain was subsided in all the cases.^[20] Some patients reported spotting bleeding after procedure. Drugs which were used to check the bleeding gave good results and no need of allopathic treatments or recurrence of symptoms was reported in them.

CONCLUSION

Tubal block is still a very important causative factor of Vandhyatva or infertility. And it is proved by this study that the infertile women visiting to Ayurvedic gynaecological clinics suffer from this problem in a great extent. Hysterosalpingography can be successfully performed by Ayurvedic gynaecologists to investigate tubal block and many other undiagnosed causes of infertility, if proper care is taken before, during and after procedure. It is important to know and to get ready for the problems which can come during and after the procedure. Some of the minor Ayurvedic measures definitely play an important role to manage these problems and also to prevent complications. Problems during the procedure and complications after it can be minimized up to a significant extent by using Ayurvedic measures.

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